

CHAPTER 1

Pause or plateau?

During the last quarter of the twentieth century international oil ceased to be a growth industry. After more than a hundred years of expansion far faster than both energy in general and the rest of the world economy, it slowed down abruptly in the 1970s. In the eighties, with a short sharp decline followed by a halting recovery, it achieved no net growth at all. By 1992, it was only just about back to its level of 1979.

That may have been no more than a pause. The growth resumed after 1985 may be continuing, albeit uncertainly. By some physical measures, oil is still the world's biggest business. But it is in its third decade of *relative* decline compared with most other forms of energy. There is a distinct possibility that during the nineties this business will not grow much further. This reopens a recurrent question. Will its soaring historical trajectory soon level off onto a shallow dome or plateau over the next two or three decades, until 'conventional oil' – the qualities of crude oil that the industry has found it economic to produce so far – slides into gradual decline? (Even then, the world would in no sense be 'running out of oil'. But it would already be moving on increasingly to other forms of petroleum that are more costly to produce, move or convert into the oil products that we are accustomed to use.)

In timing, at any rate, this slowdown was not inevitable. For many years past, there have been long-term predictions that this industry would pass its peak around the end of the century. But few ever suggested that such a transition would have set in as early as the eighties. Also, most of what has happened can as readily be explained by short-term political and economic changes in the industry during the last two decades, culminating in two wars. Some of those changes, too, were predictable; but again, not in timing. They followed from moves made by the main actors in the current world oil performance – which is now not only political and economic, but as often as not theatrical. None of

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these actors want the industry to level off. However, this may be the best that they can manage.

The Gulf war of 1990–1 refocused world attention upon one aspect of a political problem that underlies the slowdown in world oil. It revived some hopes of reaching a durable Middle East peace within this century. At the time this book was completed, that looked neither impossible nor likely – in spite of the potentially overwhelming influence of the world’s sole remaining superpower. But even if it can be achieved, it would resolve only half of the main geopolitical problem that besets the world oil business.

Any regional peace that proved lasting *might* eventually make consumers elsewhere fully confident in depending on oil imported from the Gulf for most of the extra energy they want. But it would not remove the sharp disparity in supply costs between oil in that region and most other energy produced anywhere else. Would energy producers elsewhere – or their governments – be content to accept the ‘logical’ economic consequences of that comparative advantage? Historically, they never have. Given any other option, probably few ever will.

The 1990–1 war was not simply an ‘oil war’, as some protested at the time. (Still less ‘a war for cheap oil’. None of the governments involved, inside or outside the Gulf, displayed any interest in keeping oil cheap.) Iraq’s 1990–1 war, like its previous aggression in 1980–8, *was* about who owns the world’s largest reserves of conventional oil, and who will control their future development. But both wars may have helped make that ownership issue, eventually, less important. They may turn out only to have helped delay the development of the Gulf’s prodigious reserves even further beyond what might have been economically logical – and thus to have eroded their ultimate value.

The sudden slowdown

From the raw statistics, the slowdown in oil’s historical growth trend appears to have begun in the early seventies. The deceleration was rapid, concentrated into little more than five years. It ended more than a century of exponential growth, in the last quarter of which oil’s expansion rate had even been increasing (Figure 1.1). The industry’s long-run growth rate from 1913 to 1948 had been around 6.5 per cent annually, doubling world production every twelve years. (In oil, statistics of production are the longest on record, and until recently were the least unreliable.)¹ But in the next twenty-five years oil production rose nearly

¹ Historically, two independent economic interests were usually involved in any oil production: the actual producer, and the owner of title to the subsoil – in North America a private surface landlord

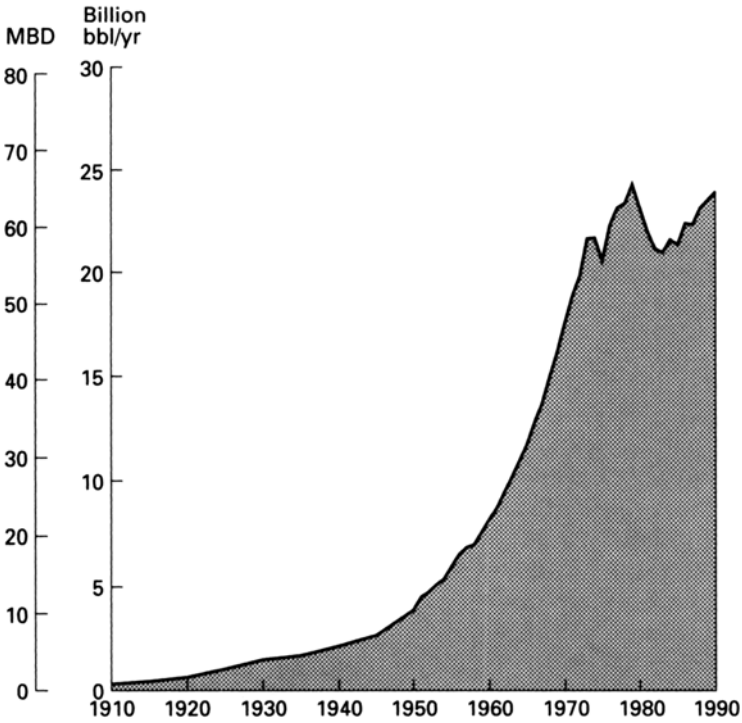


Figure 1.1. World crude oil production, 1913–1990. (Sources: BP, Oil Economists' Handbook.)

sixfold, by over 7.5 per cent annually. In that heady postwar generation, moreover, the volume of oil moving through international trade rose more than tenfold.

During the seventies oil's soaring increase was checked, slowed and finally halted. Production in 1979 was only 12 per cent higher than in 1973; trade only 3 per cent higher than in 1976. Then, temporarily, both fell. By 1985, world oil production was 12 per cent lower than in 1979; in the non-Communist world, it was 17 per cent lower. International trade in oil fell by nearly a third. A price collapse in 1986 and another fall during 1988 again turned demand, production and later trade slightly upwards. By 1991–2 demand and production had just about

but in most other countries a local or national government. The producer had to pay the subsoil owner a 'royalty' on every barrel 'won and saved'. So both needed to be sure exactly how much oil was produced for sale. That made production statistics verifiable. Of late, however, perhaps 70 per cent of world oil production has been completely in the hands of state-owned oil companies. In those countries, the government owns the companies as well as the subsoil rights. No such separation of interests is present. Whether or not production statistics are manipulated, nobody is in a position to check them independently. Sometimes no regular production statistics are published at all.

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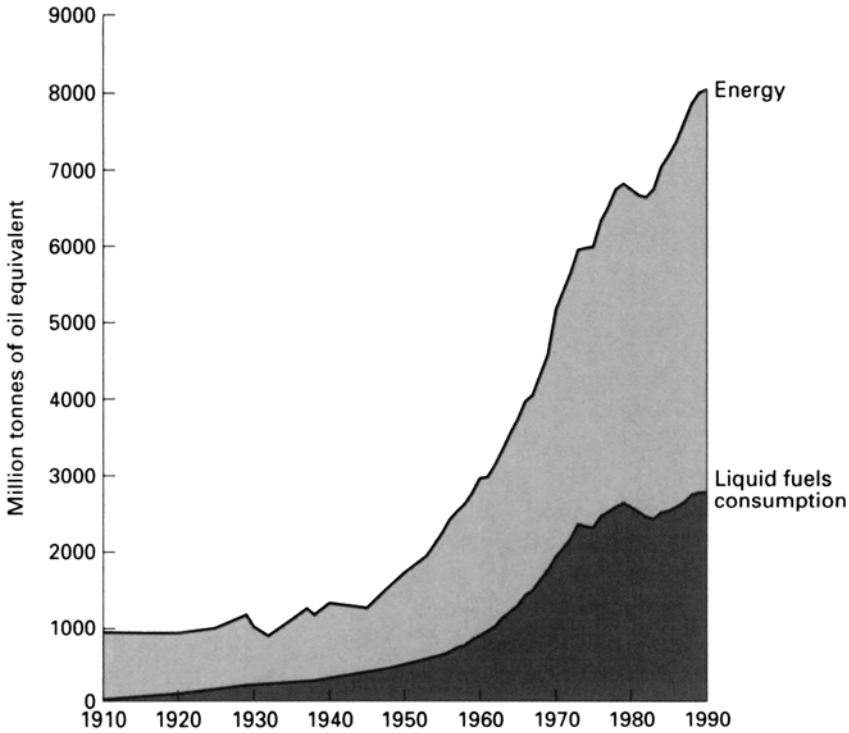


Figure 1.2. World consumption of primary energy and liquid fuels (oil plus natural gas liquids), 1910–1990.
 (Sources: United Nations, BP.)

recovered. Oil trade had not, and may not pass its 1979 level before the mid-nineties.

In Figure 1.2 those oil growth rates are compared with demand for energy in general. Long-run growth rates of the world's total energy consumption and of the 'gross world product', over the first half of this century, were probably both of the order of 3–3.5 per cent annually. In the twenty-five postwar years those rates accelerated too, approaching 5 per cent annually. Both slowed down in the seventies. Also, the two growth rates began to diverge: world economic output rose by just under 4 per cent annually; energy consumption by only about 3 per cent. In the early eighties this 'decoupling' of economic growth from energy demand widened for a time; but the two may now again be converging. The world economy, in spite of recessions at the beginning and end of the eighties, grew on the average by about 3.5 per cent annually through that decade. Energy consumption rose at not much more than half that

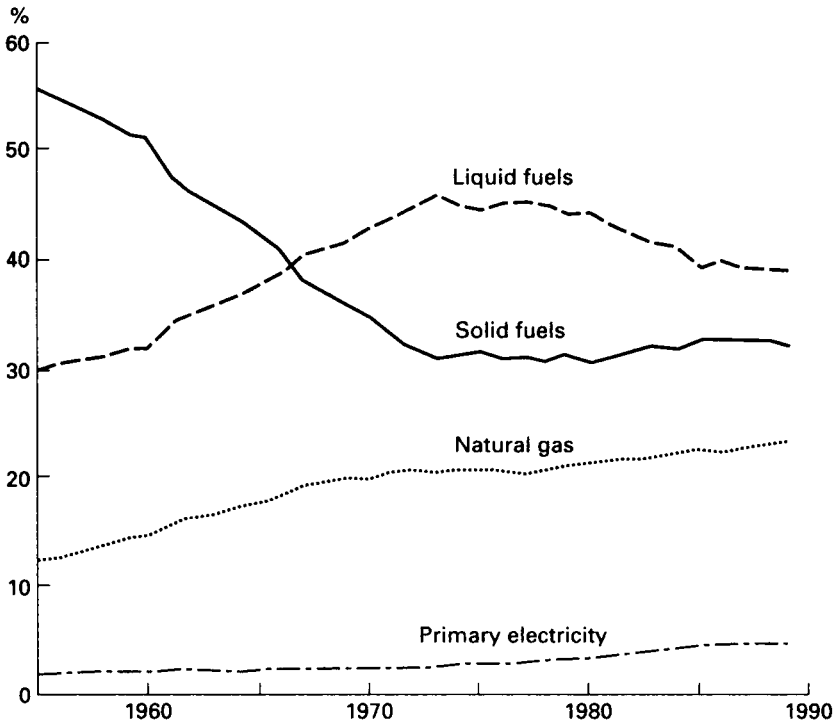


Figure 1.3. World primary fuel consumption: changing shares, 1955–1989.
 (Source: David Heal, 'Efficiency or self-sufficiency'.)

rate. But total energy demand no more than faltered before resuming fairly steady growth; oil fell more significantly, and did not turn firmly upwards until 1986. Oil's share of world energy consumption, therefore, is today much lower than in the mid-seventies (Figure 1.3).

When the slowdown in world oil began, hardly anybody saw it as a point of inflection in an established long-term trend. That was not surprising. Such changes in growth curves are seldom recognised immediately. Also, this slowdown began at about the same time as, and was immediately associated with, a concentration of political turbulence that radically altered the control, the ownership and eventually the structure of international trade in crude oil. That turbulence, set off by a startling though ultimately ineffectual embargo imposed by the most important oil-exporting countries, radically altered economic relationships between the industrialised countries and some of those others that it had been fashionable since World War II to characterise with patron-

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ising economic labels, as first the ‘undeveloped’ and later the ‘developing’ countries.

The countries among these that were involved in oil exporting developed money wealth – at least – more rapidly than anyone in the industrialised countries had ever quite expected. The way they did so put paid, in passing, to some of the comfortable economic assumptions that the Western industrialised countries had been nurturing – one in particular, the myth of the omnicompetence of multinationally integrated corporations. In that confrontation between several of the world’s most powerful companies and a slightly larger number of much less sophisticated governments asserting their sovereignty, it did not turn out to be sovereignty that was at bay. However, some of the most important of these oil-exporting governments gained little from that confrontation but money. As was brutally demonstrated in 1990–1, the power that the oil wealth brought such governments was essentially defenceless, internally or externally.

The effects of those political and structural changes in the seventies were certainly profound. They weakened, though they did not wreck, the industry’s economic performance. During the eighties, though the political turbulence in oil-exporting countries continued and crystallised into internecine war, some of its economic effects seemed likely to prove transitory. But at the beginning of the nineties, those hopes were dashed by renewed war – which did not remain internecine. The second Gulf war demonstrated how much more effective an oil embargo imposed by importing governments could be than anything exporting governments could try. That rapidly hardened into superpower military protection in the most critical region of world oil supply. Since then, the course of this industry’s development, once again, has depended less on supply and demand ‘fundamentals’ than on government policies at both ends of the business.

Longer-term factors, however, were also at work in oil’s sudden slowdown. In the longest-established oil-producing regions, advance signs of a levelling off were discernible even before the seventies began. Coincidentally or not, the short-term geopolitical changes involved in the current slowdown could now be converging with a longer-term trajectory of world oil, passing its peak around the end of this century, that had been forecast for many years past by eminent geophysicists and geologists. The eventual peak followed by decline that those earth scientists have in mind, however, would not be a matter of policy; nor would it be transitory. They regard it as irreversible.

Another set of influences that is already affecting the oil business and might help level it out is also long-term, though only recently perceived.

This is our social desire to reduce damage to the global environment from energy production and consumption. It has already affected certain oil development and transport, notably in Alaska. But much the most important of its influences may be upon demand for all fossil fuels.

Apart from the air pollution that is already obvious in all cities, scientists believe the 'greenhouse effect' of increasing concentrations of carbon dioxide and certain other gases in the upper atmosphere may cause increases in earth surface temperatures. The complex of processes involved in such 'global warming' is not yet sufficiently understood to allow confident prediction. Feedbacks within the world's ecosystem may at least partly offset the harm it threatens; our societies may prove able to adapt economically to warmer and drier climates. But the potential danger over time is already recognised as fearsome. Moreover, we need to begin adapting to this presumed greenhouse effect even before we can be sure it is really occurring. Waiting to be sure how much it really matters, or counting wholly upon market responses to compensate if it does, could be too late. Undoubtedly the best short-term adaptation we can engage in – useful in itself even if global warming turns out to be less of a threat than is currently perceived – will be to use fossil fuels more efficiently. That again may help level out demand for oil. In any case, it adds to the uncertainties of planning oil supply for the first decade of next century – which, allowing for time-lags, has to be the purpose of this industry's investment decisions during the nineties.

In sketching the international oil trade at the beginning of the nineties – possibly approaching its economic peak, and still brutally convulsed with politics – one has therefore also to reckon with the earth scientists' longer-term predictions, and with environmental externalities that may impose new constraints upon oil and other fossil fuels.

This preamble sketches the economic and political predicament, and some of the uncertainties, of the diverse groups of decision-makers now influencing world oil. The book seeks to outline the present state of the trade, following its transition from a more stable but outmoded pattern of operations. It is offered as a descriptive analysis of current circumstances with a forward orientation, not as a history. It draws on the past only to illustrate changes still in train.

It begins with the fundamental patterns of oil trade, meeting demand with supply (Chapter 2), and comparative costs arising from geology, geography, technology and timing (Chapter 3); takes note of geopolitical ambitions for autarky in energy (Chapter 4); and examines the durability of oil demand, for specialised products and as one general fuel among others (Chapter 5).

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Then it outlines the transformed structure of the world oil business (Chapter 6); and the new, still uncertain role of exporting governments as direct participants in the oil business (Chapter 7).

It describes the continuing attempts of exporting governments, through the Organisation of the Petroleum Exporting Countries (Opec), to 'administer' crude oil prices by informal and formal cartel procedures (Chapter 8); and the new short-term markets in which nowadays, Opec notwithstanding, oil prices are in practice 'discovered' (Chapter 9).

On the supply side, it turns to the longer-term potential of world oil reserves as the geologists appraise these and foresee possible trajectories of future production; and lists the cost ladder of conventional oil and the alternatives that are becoming available (Chapter 10).

In conclusion, it summarises sharply contrasting expectations about end-century prospects for oil demand and prices, across a politically melting world of rapidly rising population outside the former blocs of economic power, with all regions now beset by new, tightening environmental constraints and regulation (Chapter 11); and considers both the patterns of regional supply that might 'logically' be developed from now on to meet this oil demand, and those that probably will be (Chapter 12).

Maturity without stability

People within the international oil trade had quite enough unprecedented things happening for a decade from the early seventies onwards to worry about, or welcome (or both), without thinking about longer-term trends. In rapid succession, oil 'shocks' and 'crises' provided plenty of plausible proximate reasons to explain what was happening in the short run. Moreover, the shocks and crises were manifested initially as sharp price increases. Those temporarily enriched almost everybody producing oil – and most other energy – everywhere.

The slowdown in physical growth, therefore, was compensated and perhaps masked by surges in revenue. Measured in money value, the industry's performance did not weaken, but went on growing for a decade after 1973. Radical underlying changes in control over prices, industry ownership and market structure were associated with only a few fluctuations in output and some pauses in the development of capacity. The short-term pauses soon began to accumulate. But the transition was hardly looked on as a longer-term change in the industry's physical performance until the early eighties. Then, at last, prices began to fall, as well as demand. That registered more sharply. A little

later, it suddenly became fashionable for oil company executives to talk about 'a mature industry' in process of 'normalisation'.²

To call something mature, however, may suggest that it is also becoming calm and stable. By the mid-1980s, nothing like that had happened to the oil industry. It had become, and remains, unstable and precarious.

The industry's current instability reflects an imbalance between ample capacity to supply, backed by abundant reserves, and a level of demand that is still inadequate to absorb all the oil on offer, because going prices have never fallen enough to clear the market. Theoretically, such a market imbalance might sound unsustainable beyond the very short term. But political influences on the oil industry and vested interests in energy industries everywhere have been powerful enough to sustain this particular imbalance, much of the time, for nearly two decades. They may remain sufficient to do so.

At the prices at which oil was being offered in the world market at the beginning of the nineties, demand was perhaps 10 per cent less than the supply potentially available from existing capacity. Even after its response to a price collapse in 1986 and recurrent weakness ever since, world consumption was little higher than in 1979. Yet world capacity to produce oil is still being increased, and probably will continue to be for some years into the nineties.

A central paradox of this recently perceived 'maturity' of the world industry, moreover, is that much of the new productive capacity installed in the last two decades and still being developed is higher in cost than most of the capacity still being underutilised. Most of the oil production in the world that was temporarily 'shut in' during the eighties is far lower in operating cost than a large proportion of the production that continues elsewhere. Capacity in the regions where current costs are low, moreover, can probably still be expanded with much lower capital investment than the new capacity being developed elsewhere. Yet total capacity in the regions of low cost was only about half utilised during much of the 1980s, and was indeed significantly run down. How far it will be replaced and expanded during the nineties remains politically debatable.

Such a situation, to classical economists, would no doubt have

² The US Geological Survey, later, defined maturity in a petroleum industry as being 'unable to maintain production within the limits of historical prices...When prices, over the range of historical experience, limit entry of the industry into frontier or high-cost areas or prevent sufficient drilling to maintain production, the industry is mature.' (C. D. Masters *et al.*, 'Resource constraints in petroleum production potential', *Science*, 12 July 1991, p. 149.)

Industrialists define maturity with less rigour. For them, it may mean simply, but crucially over time, finding it harder to recruit the best graduates as management trainees.

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implied collusion of producers to restrain supply, in ‘conspiracy against the public’. Modern ‘new classical’ economists, following recent intellectual fashion, might be inclined to blame it more upon ‘government interference’ with the trade. Both are undoubtedly present. But both concepts have perhaps more meaning within single national economies than in international trade. Also, purely economic criteria are inadequate to analyse anything as politicised as the world oil trade.

As it happens, the suppliers now in open collusion and sometimes contriving as a cartel to maintain the price of crude oil at a level far above incremental cost – a price that moderates demand, and has at times weakened world macro-economic performance too – are indeed governments. These are the twelve member governments of Opec. They own and directly control national oil industries – on which *their* own national publics largely depend. If their collusion can fairly be called conspiracy, it is intended to be *on behalf of* those national publics, against a remote and ill-defined range of foreign consumers. (Even when successful, would it in practice benefit all their national publics in the long or even the medium run? Nobody is sufficiently informed to judge.)

The member governments of the cartel, however, are not wholly responsible for the paradoxical current condition of the international oil trade; nor alone in sustaining it. They do indeed seek to limit the total supply on offer, by agreement to produce less themselves – and at times fulfil their agreements. But they never had any desire to hold down low-cost supply and keep all the higher-cost capacity in the world operating fully. The low-cost capacity happens to be all that they own and have tried, some of the time, to regulate.

Moral tales about Opec

In the oil business and even outside it, the seventies were soon aptly nicknamed ‘the Opec decade’. From 1973 to 1986, the somewhat melodramatic sequence of political and structural changes in the world oil performance that the decade brought about pre-empted the attention of most analysts, as well as the general public. Opec, as one principal troupe of performers, played on in repertory during the eighties, doubling as villains or heroes depending on where in the world audience you happened to be sitting (and even, occasionally, as clowns). Many analysts of this industry attributed what was happening to oil during the period wholly or almost wholly to Opec behaviour. Much of the interpretation and criticism of this melodrama seemed for a time to become politically and even emotionally charged; this was so from