

# Oil to Triple Digits?

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June 2007

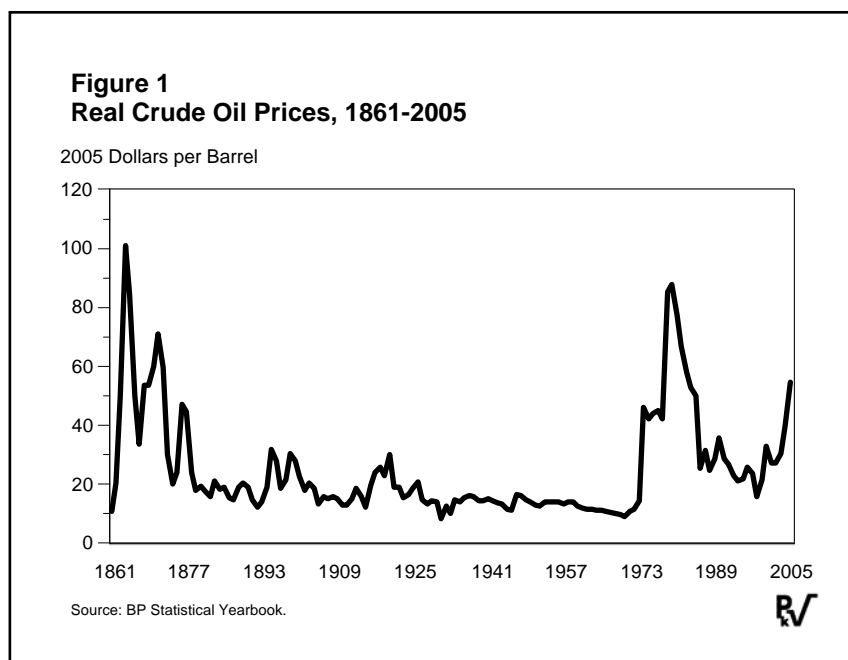
Crude oil prices, like prices for many commodities, show patterns comprising long stable periods interspersed with short bursts of extreme upward or downward movement. Figure 1 displays crude oil's price history. This graph shows inflation-adjusted prices from 1861 to 2005. As the figure illustrates, oil has experienced three instances of extreme price volatility amidst long durations of very steady prices.

Over the next five to ten years, crude and natural gas prices will quite probably exhibit another sharp upward movement followed, possibly, by a price drop. The upward jump will extend the long price climb that began in 1990. Before prices peak, crude will no doubt be denominated in triple digits in dollars *and* euros. The first number in that sequence could be a "2" or even a "3."

This latest price surge will occur because global economic expansion has diverged from growth in energy use. Economic activity is booming across the world. GDP is expanding at better than 10 percent in China and six percent in India, and at similar rates elsewhere in Asia. In these areas, growth seems unaffected by the rise in energy prices. Economies in Europe and the United States also appear resilient in the

face of ballooning energy costs. The strong global economic growth will lift world demand for energy, particularly oil and gas.

However, rising demand need not equate to rising energy consumption. Demand measures what consumers want. Consumption measures what consumers get after supply and demand balance. Consumption increases will probably be modest because the global energy industry will likely fail to produce the volumes of commercially consumable energy forms demanded by consumers at today's prices. As a result, prices must move higher.



These constraints on the supply of “commercially consumable energy” such as gasoline, diesel fuel, electricity, and natural gas have only recently come to light. This spring the United States witnessed a squeeze in gasoline supply. In coming months, such problems will also manifest in other energy sectors such as natural gas and electricity. Supply squeezes will occur in the United States, Canada, Europe, and Asia. Short and long-term remedies will be hard to find. Instead, markets will resolve the problems.

The cause behind the coming price rise to triple digits can be captured in one word: *capacity*. Quite simply, the world energy industry has not built facilities to process raw energy at a rate that matches demand growth. The shortfall begins with—but is not limited to—crude oil and natural gas production. Most of the world’s reserves are in non-industrialized countries such as Algeria, Russia, and Venezuela. As is widely recognized, these nations have chosen to develop reserves on their own and are not boosting output fast enough to meet the world’s growing demand.

But the supply constraint extends well past resource exploitation. Processors are also not expanding capacity at an adequate rate. Limits exist in refining, LNG transportation, and the expansion of low-emission electricity-generation alternatives such as nuclear power.

These problems will not be easily remedied and cannot be dealt with in a reasonable time. Instead, consumers must deal with restricted supply growth—and rising prices—if global economic growth is to continue.

At the same time, all signs point to continued economic strengthening despite increasing energy prices. In fact, the lesson of the 21<sup>st</sup> century seems to be that good economic policies “trump” skyrocketing energy costs. Economic growth will be sustained as long as major industrialized countries persist in removing regulatory constraints from their economies while promoting innovation and free trade.

This ongoing “good news” economy does pose potential problems, however, for energy-consuming countries because rising energy prices could lead to larger and larger wealth transfers from consumers to producers *absent economic intervention*. Nations such as Saudi Arabia, Iran, Venezuela, and Russia will benefit as climbing energy prices turn terms of trade increasingly in their favor. The United States could see its trade deficit double even if manufacturing exports rise, for example, if crude prices move to \$200 per barrel, as is clearly possible. Alternatively, escalating processing margins could lead to large internal transfers of wealth from consumers to refiners, electric companies, and owners of domestic resources.

Many countries have addressed such problems by taxing economic rents produced in the energy sector. These taxes transfer some of the income from energy producers to governments for potential redistribution to consumers. The United States has taxed energy imports. The United Kingdom introduced a 90-percent tax on incremental revenues from North Sea oil when that paragon of conservatism, Margaret Thatcher, was prime minister. In the not-too-distant future, the major industrialized nations may all decide that imposing taxes on energy is necessary to promote economic security.

The need to levy such taxes may be boosted by the problem of global warming. Energy supplies will be limited further in most countries by heightened efforts to curb greenhouse gas emissions. In fact, this potential constraint is effectively a “dual capacity killer.” Energy companies, aware that limits on energy consumption will soon take effect, have little incentive to boost capacity. Consequently, prices will increase because less capacity is built.

As prices move higher, the policies adopted by the United States will be of particular interest. Consumer prices will rise by larger amounts in percentage terms because taxes are low today. In the past, the U.S. has resisted increasing fuel taxes. However, going forward, the government will be forced to act in the face of a burgeoning trade deficit and the transfer of an ever-larger share of wealth and income to a smaller number of producers. The projection here is the country will eventually adopt taxes to limit emissions growth and capture rents from some producers.

As prices rise, the U.S. and other countries will confront issues that first appeared almost 40 years ago. Just prior to the initial oil shock in 1973, industry analysts and experts projected global energy use to rise at a rate of almost four percent per year from 1970 to 1985. The projected increase was tied to economic growth and several special factors. The robust projection was not realized, however. Energy use did not rise for many of the reasons that will apply over the next decade. Refineries were not built. Nuclear power plants were not built. Environmental rules constrained coal use. Price regulations limited growth of U.S. natural gas supplies. In the end, energy use rose not by four percent per year in the United States but 0.8 percent per year.

The very modest growth in energy consumption did not, however, slow expansion of the U.S. economy. GNP rose by three percent per year over the 15-year period despite action by the Federal Reserve, which raised interest rates to 20 percent in the early 1980s. Excessively high inflation, caused primarily by rigidities in the global economy rather than rising oil prices, forced the Fed to take action. The world economy today benefits from the actions taken then and from the deregulation and trade liberalization that followed.

As noted, we believe energy markets are positioned to rise sharply over the next few years due to supply constraints as they did 34 years ago. However, these price increases are unlikely to constrain global economic growth. Instead, the economy should move ahead smartly, pulling the energy sector along. Rising prices may be tolerated, rather in the way a horse tolerates the flies that congregate on its back.

This does not mean, though, that energy issues can be ignored. Rising prices create the potential for substantial income transfers between countries and between sectors. These will be addressed imperfectly by tax changes and, regrettably, regulations. Constraints on energy use will also be imposed as part of programs to curb global warming. These will raise the effective price of energy.

The transition to triple-digit oil prices will likely occur in a condensed period between 2007 and 2020. By 2020, the structure of energy industry will be very different. The changes between now and then will be as massive as those that occurred from 1970 to 1985, a period when the multinational oil companies were stripped of their foreign assets and the Soviet Union began to disintegrate. The short paragraphs that follow offer a brief look at what we see happening over the next two decades.

**Triple-digit oil prices will be driven by strong economic growth over the next 20 years. Growth rates could be spectacular.** Some now compare the current economic situation to the conditions existing at the end of World War II. Suddenly billions are emerging into the middle class and becoming strong consumers. Their demands will lift the economy. China will obviously lead.

**Strong growth will be helped by structural changes in world economies.** Central bankers across the globe have become much more adept at sustaining stable economic

growth. At the same time, deregulation and globalization eliminate many of the structural rigidities that exacerbated the employment and growth impacts of earlier oil price shocks.

**The rise in oil prices to triple digits will also be aided by the shift in the composition of world growth.** Historically, the United States has led. Other regions of the world will replace the United States as the global engine of growth in the next ten years. Growth in Europe is being fuelled by the EU's expansion and growth in nations such as Poland, Slovakia, and the Czech Republic, as well as potential changes in France. In Asia, the growth of India, China, Thailand, and other countries is reducing the area's dependence on the U.S. Thus a recession induced by high energy prices here need not have the same impacts abroad as in the past.

**Refusal to accelerate development of reserves of oil and gas by countries having large undeveloped resources will contribute heavily to the doubling or tripling of prices from current levels.** These nations almost certainly will not permit development of their reserves at the rates required to validate widely used forecasts. Between 70 and 90 percent of world oil and gas reserves are off limits to the private sector. Those owning the reserves are moving to develop them at speeds that meet their needs, not those of U.S. or world consumers. Major integrated companies such as Exxon will be forced to sit on the sideline in many cases. Resource-rich states such as Venezuela will increasingly be able to live off rising income from resources despite poor management of their hydrocarbon endowments.

**Russia will exacerbate the squeeze on supply as it seeks to win the second round of the Cold War.** U.S. government officials and some foreign policy experts believe the Cold War ended in 1990. It is becoming increasingly obvious that these views are wrong. As Neil Buckley wrote in *Financial Times*, President Putin envisions using Russia's resources to regain its former greatness as an economic power and international leader. Vladimir Putin telegraphed this move in a thesis written at a St. Petersburg university in the late 1990s. In his view—and the view of many Russians—greatness can be regained by following a Mercantilistic approach to the management of their reserves.

**Pressures to reduce consumption to moderate global warming will lead to lower investment in energy infrastructure.** Such investments are generally capital intensive and long lived. Financial payouts usually require decades, not months. Furthermore, the construction cycle takes years due to size, complexity, and local opposition. The industry's decision making is notoriously conservative as a result. Today, efforts by legislators to require increased biofuel use together with possible limits on carbon dioxide emissions increases uncertainty and discourages many companies from expanding capacity. The impact is most obvious in petroleum fuels, where future refining projects are being cut as companies see markets being taken by ethanol.

**The absence of these investments will limit fuel supply in 10 and 20 years.** The increased fuel supplies that many forecasters think consumers will use in 2020 simply

*will not be available.* Thirty years ago, oil industry firms constructed refineries, pipelines, and shipping facilities to bring in the growing supplies of equity crude from countries such as Algeria, Kuwait, Nigeria, and Saudi Arabia. Equity supplies are long gone, nationalized in the 1970s. These companies no longer build new facilities in anticipation of demand growth. Instead, firms will capture the profits (technically economic rents) created by the collision between growing desired demand and the constraints of limited capacity.

**Political insurrections, revolutions, and wars will reduce supplies of oil, natural gas, and possibly other fuels below projected amounts.** The coming price increases will boost the flow of cash accruing to resource-owning governments. With the increased flow of money will come an increased risk of civil war or terrorist attacks. Just imagine how the current “calm” in Nigeria will change as the price of oil rises from \$60 to \$120 per barrel.

**Finally, efforts to reduce conventional energy use through substitution or conservation will require decades, not years.** Some believe the structure of the energy industry and energy consumption can be changed in 10 years. These optimists cite as their examples the rapid penetration of the Internet and cellular phones to “prove” their point. The venture capitalist Vinod Khosla writes, “Ten years from now, our scientists and technologists, powered by the entrepreneurial energy of the Silicon Valley mindset, will have transformed the energy world. It will look as different as today’s telecom world is different from 1995.”<sup>1</sup> Khosla belittles those who disagree as “naysayers.”

Khosla and the other optimists underestimate, though, the Herculean task ahead. Energy is different from the Internet or cellular phone technology. In a phrase, the order of magnitude of the challenge is 1,000 times greater. The task is made more difficult by the fact that the world today lacks the trained manpower to design, fabricate, and build needed facilities. Also lacking are the new types of cars, trucks, and other energy consumption equipment that will make use of the new energy sources. Nor can consumers be expected to discard old capital assets that represent as much as a year’s income the way they discard their cell phones and computers. Instead, the replacement of old technologies with new will proceed very slowly.

Thirty six years ago on June 4, 1971, President Richard Nixon sent Congress the first presidential message on the energy problem. Today his words still rank as the best description of the rough road ahead, while many of his proposals have been embraced by all participants in the debate. President Nixon optimistically thought the “energy problem” could be solved by 1985. Tragically, his hope was misplaced. Today, it is essential to recognize the enormous dimensions of the coming transition, the long duration and the economic costs involved.

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<sup>1</sup> Vinod Khosla, “The War on Oil,” *The Wall Street Journal*, January 23, 2007.