Is Oil Running Out?

Kerr’s geological description of oil depletion omits demand, which depends on efficient use and alternative supplies. Natural gas is widespread, abundant, and climatically benign if wellhead-reformed with carbon dioxide (C02) reinjection, producing three profit streams—shipped H2, enhanced CH4 recovery, and sequestered C02. Combined-cycle CH4-fired power stations dominate new generation, but are starting to be displaced by onsite co- and trigeneration, which deliver electricity about 2- to 10-fold more cheaply after crediting useful heat. Renewables are increasingly competitive, the fastest-growing energy source in Europe, and plausible sources of half the world’s total energy by 2050.

Progress is even greater in superefficient conversion and end-use. Ultralight hybrid-electric cars—uncompromised and competitive—have multibillion-dollar private commitments, are coming quickly to market, and will ultimately save as much oil as the Organization of Petroleum Exporting Countries now sells. The most efficient will use H2 fuel cells whose immediate commercialization, now feasible, can displace most if not all oil, coal, and nuclear power at a profit.

If oil became scarce, its rising price would speed these alternatives; yet most can beat even today’s low and failing energy price. Many will be bought for other reasons—end-use efficiency’s superior service quality, renewables’ and fuel cells’ distributed benefits. Most important, a decade ago, available end-use efficiency could have saved four-fifths of U.S. oil use at average costs of around $2.50 per barrel. The scores of market failures that left most of these savings unbought are now becoming well understood—along with ways to turn each obstacle into a business opportunity.

Together, these technical and barrier-busting innovations could make oil uncompetitive even at low prices before it becomes unavailable even at high prices. Like uranium earlier, and coal increasingly, oil could become no longer worth extracting—good mainly for holding up the ground. Of course, this cornucopia is the manual model: you have to turn the crank. But many smart firms are already doing so.

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References and Notes

2 For example, from Trigen, Inc. (White Plains, NY, 914-286-6600), with system efficiencies upward of 90%.
5 ___, “Putting central power plants out of business” (RMI Publ. E98-2, Rocky Mountain Institute, Snowmass, CO, 1998; redtail.stanford.edu/seminar/presentations/lovins/std001.htm).
6 ___, and A. Lehmann, Small IsProfitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size (Rocky Mountain Institute, Snowmass, CO, in press).