

Running on Fumes

How bad is the current energy crisis? Really, really bad, says oil expert Charley Maxwell.



After half a century in the oil business, Charles Maxwell is widely referred to as the dean of energy analysts. As a Marshall Scholar at Oxford he specialized in Arabic and Persian language and history before joining Mobil in 1957. He spent a decade with the oil giant, scheduling tanker shipments, working in a field office in Nigeria, and negotiating Middle East production agreements. When the Arab oil embargo hit in 1973, he was already being hailed by *Institutional Investor* as Wall Street's number-one oil analyst. Today he is a senior energy analyst with Weeden & Co., which provides proprietary research to institutional investors.

Charley Maxwell is not your classic environmentalist -- he favors further development of coal and nuclear energy and sits on the board of a coal-bed methane company in Denver. But in this late-September conversation with Sonia Shah, author of *Crude: The Story of Oil*, Maxwell urges a new conservation ethic that may -- or may not -- save us from the worst energy crisis we have yet faced.

You are famous for coining the term "energy crisis" in the 1970s. Do you think that we're entering another crisis now?

I do. In the first energy crisis, we tried to keep prices low and ration the physical gasoline. People sat in these long queues and it was a huge loss of time and money. When the second energy crisis hit, in the late seventies and early eighties, we just allowed the price to rise. And that's what we're doing now -- rationing by price. The fact that gasoline recently hit \$3.20 a gallon would suggest that we are in crisis. I would say even \$2.50, which is where it is now, represents some form of crisis.

What are the underlying reasons?

There are four, I think. First and foremost, there was a lot of oil that could have been discovered that wasn't, because the national oil companies such as Saudi Aramco didn't invest enough in exploration. Second, the big oil companies didn't exercise much vision. When prices went up in 2000, they basically pocketed the money. Of course, if you're an executive and you have stock options, you start to think that the whole world depends on your stock price rather than on getting more oil. And who's to say that we should have more oil? If it means that everyone is going to work harder and longer to make possible the greater use of SUVs, is that a worthy end in the world of God?

And the other two reasons?

The third is political instability around the world. And the fourth is that we are now approaching the 50 percent mark of recoverable oil. Global oil production will reach a maximum rate and then it will inexorably start to go down. I predict that will be between 2015 and 2020. When that happens it will be the single biggest problem that we face.

And we're using more oil all the time.

Yes, as the world economic system grows, we're needing about 1.5 percent to 2 percent more oil every year. Right now the non-OPEC countries are providing about half of that. But those proportions are changing fast. In 2010 that door slams shut, and we will have to call on OPEC for all the new oil we need. So they will have complete control over its availability and its price.

How much more oil is still waiting to be discovered?

There is still a lot of oil out there. But if it takes 30 years rather than 10 to discover it, then we're not going to be producing enough each year to meet our needs. What's happened is that the search has slowed dramatically. So we're in deep trouble.

Exxon has said there could be up to 4.8 trillion barrels of oil still recoverable. And there are other industry estimates that go as high as 7 trillion.

I read that stuff and it's good background humor, you know what I mean? But I really hope they don't think anyone takes them seriously.

So is it just a PR thing?

No, I think Exxon actually believes it, which is really sad.

What's the outlook for new sources of oil, so-called unconventional sources?

Most of that is actually gas. There's coal-bed methane, which is the gas from coal deposits. There's the gas from so-called tight sands, which are geologic formations on the way to becoming sandstone. And then there's shale, which gives up the gas very slowly. That makes it uneconomic when [natural] gas costs \$2 [per million Btu], but in a world of \$7 gas, you'd accept the slow production and you'd still be happy to get it.

Do you think price levels are high enough at the moment to start triggering changes in our behavior?

Even with \$3 gas, nobody's saying, "I can't take Johnny to the soccer match." But there's no doubt we're going to have to change our habits. We're going to have to design our cities differently. We're going to need greater population densities and more public transportation. We're going to have to build our houses to different building codes. But the system can't change overnight. We can change our habits in two or three years and the next generation of equipment will be developed with energy conservation in mind, but people will have to go on with their present equipment for a time.

Even so, I think we're already triggering some favorable changes at \$3, like the decline in SUV sales and the increased sales of smaller sedans. I read the other day that in 10 years, 10 percent of the country will be using hybrids -- which isn't that much. So there's got to be more than hybrids, and I think Honda is on to it with a new small diesel with a very efficient engine. One advantage of diesel is that the engine lasts longer than the gasoline engine.

But doesn't our whole model of economic growth depend on throwing things out and getting new ones?

Yes, but I think this new conservation ethic is going to come in. It will be hard on General Motors and Ford and Chrysler, and it may take some subsidies. I don't think the government can afford to put any of those companies into bankruptcy.

Do you see any prospect of a gasoline tax? Or is that still a taboo?

I think it's changing. But there are lots of ways to do it. You don't have to have a gasoline tax; you can have a tax on horsepower and thus give a huge lift to lighter cars with less powerful engines. There's a recognition that we have to decrease the weight of vehicles. We can now make cars with traditional engines that are half the weight of the cars today. There are some marvelous new plastics that give us this very light weight with great strength, so we'll be able to hold on to these cars for much longer.

Where's the political leadership on all this? I mean, when the president talks about our being "addicted to oil" and needing more ethanol...

Well, he's just being told what to say by his minions, you know. Ethanol, for the moment -- meaning ethanol from corn -- is a stupid investment, as people are discovering. Pretty close to

100 percent of the savings [in oil consumption] that you get on ethanol is consumed by the hydrocarbon fuel that has to be used to grow the corn. You do save something in national security terms -- it's not from the Middle East, and you're not putting dollars out into the wider world. But if they can convert cellulose to sugar, and sugar to alcohol, then we will really have something.

They're using sugarcane in Brazil, of course. But you mean other crops, like switchgrass?

Yes, that's right, and that would give you maybe a 40 percent savings. That's coming, but probably not for six or seven years.

What about solar and wind and other alternatives?

I'm very keen on solar, because it works and it's getting more efficient every year. But the problem is that today it represents maybe one-tenth of 1 percent of the energy we produce. In 10 years it may be half a percent. So it won't solve the problem. Wind will be a little better, a little bigger. And I do believe that when the problem is solved, it will be solved by a host of small contributions like this, from different directions.

And that will take a lot of technological innovation.

Yes. You know, entrepreneurs are doing all kinds of things -- racing to design new types of wiring for electric motors, new types of batteries for cars. In garages around the country, the inventive geniuses are being let loose. I think it's going to become an American jamboree, in a way, because what we do best is innovate.

Does that make you an optimist?

I think we'll get through this problem by about 2020 to 2025. My worry is how we get there. We have a time when oil is winding down before anything is able to slide over and solve the problem. A lot of nuclear development is being brought along by the incipient shortage of future oil, and it's putting people into a proliferation mode. The whole world could come under this threat, and it's a terrible one. We could also be in deep trouble as a social system. How do we achieve fairness [in rationing scarce energy supplies] when the gridlock between rich and poor already stops us from having an energy policy in this country? We could see democracy entering its death throes.