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Running on empty

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Julian Darley is director of a Vancouver think tank called the Post Carbon Institute. He says people should focus on finding local solutions to the looming energy crisis.

Two-and-a-half years back, author Richard Heinberg gave local residents a glimpse into the future. Heinberg, a California writer and instructor, had come to the Vancouver Planetarium for a panel discussion on energy. The price of oil was hovering at about US\$25 per barrel, but he predicted a sharp increase before the end of the decade.

“At this point, we’re discovering about one barrel of oil for every three or four that is pumped and burned,” Heinberg said. “So, clearly, a production peak is inevitable at some point.”

This thin, middle-aged, and casually dressed intellectual seemed an unlikely prophet. Sure, he *said* all the right things. His car ran on biodiesel, which is a chemically altered vegetable oil. He also mentioned that he placed photovoltaic panels on his home’s roof to generate electricity from sunlight. But Heinberg was so unassuming, so cerebral, and so completely lacking in evangelistic fervour. He seemed hardly the type to trigger a cataclysmic change in the way people perceive the world around them.

But that evening at the planetarium, Heinberg had a profound impact on the audience. Two other panelists—UBC professor Bill Rees and Vancouver environmental philosopher Julian Darley—provided equally chilling commentaries. Rees noted that for more than 20 consecutive years, the world had consumed more oil than had been discovered. Darley, director of the Vancouver-based Post Carbon Institute, emphasized a looming crisis with natural gas.

“I call this the carbon chasm,” Darley told the audience.



Since that evening, the international price of oil has shot up by 160 percent. Vancouver motorists now routinely shell out \$1.20 per litre of gasoline at the pump. The cost of natural gas has almost tripled.

The International Energy Agency has reported that Hurricane Katrina shut down 1.4 million barrels of daily oil production and curtailed activity at 14 refineries. This caused retail gasoline price hikes of more than 30 percent in Europe and 13 percent in Asia, according to the IEA. Since then, Hurricane Rita has wiped out more oil and gas production in the region.

Darley and other analysts claim that a looming global shortage of oil could cause gasoline prices to spike even more sharply in the coming years. Darley told the *Georgia Straight* that this could cripple the world economy, which is mostly based on moving goods and services around the globe.

“It’s like saying to a person, ‘You’ve got to become an argon breather tomorrow because we’re switching away from this oxygen stuff,’” Darley said.

Matthew Simmons, a former advisor to George W. Bush and a Houston energy investment banker, wrote a book earlier this year suggesting that Saudi Arabian oil production may have already peaked. The Saudis claim to have a quarter of the world’s proven reserves: 262 billion barrels. Saudi Arabia has been the world’s largest oil producer for many years. Simmons told the *Straight* in a phone interview that 90 percent of this production has come from five aging oil fields on the eastern edge of the Saudi peninsula.

According to Simmons, 60 percent of all Saudi oil has come from just one field, Ghawar, since it began producing in 1951. He said the northern portion of Ghawar is almost depleted. He also claimed that the quality of the oil isn’t nearly as high in the southern portion of Ghawar.

Greatest “Proved” Oil Reserves by Country (barrels)

Saudi Arabia 261.9 billion
Canada 178.8 billion
Iran 125.8 billion
Iraq 115.0 billion
Kuwait 101.5 billion
United Arab Emirates 97.8 billion
Venezuela 77.2 billion
Russia 60 billion
Libya 39 billion

Nigeria 35.3 billion

“In the last couple of years, there have been so many ‘supply additions’ coming on that we don’t have any idea whether Ghawar is producing five million barrels a day or three-and-a-half million barrels a day,” Simmons said. “The fact that we don’t [know] should scare the bejesus out of people.”

Simmons, author of *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy* (John Wiley & Sons, \$31.99), said that the second-largest Saudi field, Safaniya, can theoretically produce two million barrels per day of very heavy oil. “I think its peak production was 1.2 million barrels a day, and it’s about 600,000 barrels a day now,” he said. “Therein lies all the world’s spare capacity. That should scare people.”

The IEA forecasts demand for oil this year to average 83.5 million barrels per day. This means that more than 30 billion barrels of oil will be consumed in 2005. Total supply will average 84.85 million barrels per day.

Last July, a top Saudi official, Adel Al-Jubeir, dismissed Simmons’s claims during a live on-line question-and-answer session sponsored by the *Washington Post*. Al-Jubeir asserted that his national oil company, Saudi Aramco, is “very conservative when it comes to reservoir management”.

“The data he uses is outdated,” Al-Jubeir claimed. Simmons, however, told the *Straight* that the Saudis have not released any data to him to contradict his conclusions.

During that evening at the planetarium in 2003, Heinberg explained that the United States was once both the world’s largest oil producer and largest oil exporter. In effect, he said, it was the Saudi Arabia of the latter 19th century and early 20th century.

Heinberg, author of *The Party’s Over: Oil, War and the Fate of Industrial Societies* (New Society, 2003), noted that U.S. oil exploration peaked in the 1930s. This came after discoveries in East Texas and Oklahoma. Overall U.S. oil production peaked in 1970.

Since then, America has increasingly relied on imports. The nation consumed an average of 21.4 million barrels of oil per day during August, according to the U.S. Energy Information Administration. About 58 percent was imported.

Heinberg claimed that the U.S. experience as a producer has been repeated in many other oil-rich nations. After reaching a peak, oil production has often gone into a downward spiral. Heinberg forecast that the global peak in oil production would likely occur between 2004 and 2010.

“Whatever happens in the U.S. is the precursor for what is bound to happen in the rest of the world as far as oil is concerned,” he predicted.

It’s a controversial theory with plenty of detractors. In a September 22 news release, IEA executive director Claude Mandil claimed there is no shortage of oil and gas in the

ground, just a shortage of technology to recover it. The same news release suggested there was more oil in the Canadian tar sands than all the world's current reserves combined.

Canadian author David Frum, a former speechwriter to President Bush, wrote a column in the *National Post* last January ridiculing the notion that the world is running out of oil. He claimed that consumers will respond to price signals and switch to alternative fuels. "The world will never run out of oil," Frum wrote in his article.

The B.C. Liberal government still plans to twin the Port Mann Bridge and widen Highway 1 to eight lanes, which indicates that Heinberg's message hasn't registered with the premier. Meanwhile, the Vancouver International Airport Authority is proceeding with a \$1.4-billion plan to accommodate more fuel-guzzling airplanes.

Heinberg emphasized in his book that when more than half the petroleum is withdrawn from a reservoir, the cost of recovering oil increases sharply. That's because more energy is required to extract the resource. When this occurs in a majority of fields around the world, it marks the end of cheap oil.

Heinberg's message seems to have penetrated the Washington, D.C., establishment. He appeared on a panel late last month hosted by U.S. Congressman Roscoe Bartlett. Last February, the U.S. Department of Energy released a report on the peaking of world oil production, describing it as "an unprecedented risk-management problem".

The numbers are astronomical. BP has claimed there are 1.2 trillion barrels of proven reserves in the world. But some doubt the validity of this number. In 1998, retired petroleum geologists Colin Campbell and Jean Laherrère wrote an article in *Scientific American* claiming that OPEC (Oil Producing and Exporting Countries) members had exaggerated their proven reserves. By switching to higher numbers, they were allowed to export more oil under OPEC's quota system.

"There is good reason to suspect that when, during the late 1980s, six of the 11 OPEC nations increased their reserve figures by colossal amounts, ranging from 42 to 197 percent, they did so only to boost their export quotas," Campbell and Laherrère wrote.

Simmons said that after the Saudis nationalized their oil industry, they jacked up their proven reserves by 100 billion barrels. Simmons also noted that Kuwait, United Arab Emirates, Iraq, and Iran had earlier boosted their proven reserves by larger percentages than the Saudis.

"There weren't any new discoveries," Simmons said. "There wasn't any technology going on, and there wasn't any drilling going on."

He claimed that Canada also fudged the numbers when it suddenly increased its proven oil reserves from five billion to 180 billion barrels in 2003. It accomplished this feat by including bitumen resources in the Alberta tar sands.

Simmons said that comparing bitumen to light sweet oil is akin to comparing a 1947 Plymouth to a Maserati. “What you have in the tar sands is a slightly different carbon grade than coal,” he said. “It has nothing to do with oil. The energy intensity of turning it into synthetic crude is enormous.”

For western economies, the Saudi situation probably deserves the most scrutiny. Simmons wrote that one sign of potential trouble is the fact that billions of barrels of water have been injected into Saudi oil fields to maintain pressure.

He claimed that one giant oil field, Abu Sa’fah, has gone to “artificial lift”, which likely means the pressure is dropping. He said there are indications that Berri, another giant, is probably approaching the end of its life. Simmons also claimed that Abqaiq, a 65-year-old giant Saudi field, has pretty much been depleted.

“Five years ago, nobody mentioned the fact that Abqaiq could ever deplete,” Simmons said.

How high can oil prices go from here? Jeff Rubin, chief economist of CIBC World Markets, recently predicted in his *Globe and Mail* column that the cost will soon reach US\$100 per barrel. Last March, investment-banking firm Goldman Sachs suggested it could reach US\$105 per barrel. Simmons, the Houston energy investment banker, told the *Straight* that he thinks the price could eventually top US\$200 per barrel—three times the current level.

He explained that at US\$65 per barrel, gasoline costs 20 cents per cup. Simmons pointed out that petroleum companies have not found any massive new oil fields in decades. The last giant discovery was Mexico’s Canterell field in 1975. He also claimed that oil companies don’t want to spend money on refineries or to replace old pipelines.

“In three more weeks, they’re going to report the third-quarter earnings,” Simmons said. “The top five are going to report between \$30 and \$35 billion dollars. It will be more money than any group of five companies have made in the history of the world.”

On September 29, the Canadian Centre for Policy Alternatives released a three-page report claiming that consumers are being gouged by the oil companies. But for Darley, the more pressing long-term issue is how the world will cope with a sharp reduction in its supply of fossil fuels in the coming years. During an October 1 presentation to students at UBC, he predicted that it could lead to more warfare as nations jostle for control over resources.

“Almost anywhere where there is oil and gas, you can see a heightened military buildup there,” Darley said, echoing the views of U.S. author and military analyst Michael Klare. “This total militarization of energy policy is a very unfortunate move, but I’m afraid it’s what we can expect.”

Darley's message was bleak, but he offered a hopeful alternative at the end of his lecture. The best antidote to sky-high energy costs was something he called "global relocalization", taking care of basic needs within local communities. He harked back to the days before the oil economy was created in the 19th century, a time when people often entertained each other with music and live theatre.

Some students in the audience responded enthusiastically, breaking into a song with environmental lyrics. It was a festive moment punctuating an often gloomy presentation.

One of the student singers, 20-year-old Sara MacLennan, later told the *Straight* that she had never had the peak-oil scenario laid out in such a stark manner. "It is a scary thought," she said.

MacLennan added that in her native country of Scotland, there is a great deal of emphasis on alternative energy sources, such as wind and tidal power, which might pick up the slack. Chris Borstad, a 27-year-old civil-engineering student, told the *Straight* that Darley's message impressed upon him the need for action.

"The fossil-fuel institution was never really questioned by the older generation," Borstad said. "It was sort of handed to them as a great way to improve life."

Borstad said that when he uses the term *peak oil* in conversation with friends and acquaintances, some don't know what he means. "It's a minority of people here at UBC right now that can really understand the implications," he said.

However, if gas prices continue rising, and Darley, Heinberg, Simmons, Rees, and others get their message across in major media outlets, that probably won't be the case for very much longer.