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# No Exit? Climate Change and Peak Oil

## By Shepherd Bliss

British geologist Jeremy Leggett's first book "The Carbon War" was described by the influential Sunday Times as "the best book yet on the politics of global warming." Time magazine calls Leggett "one of the key players in putting the climate issue on the world agenda." His recent book—called "Empty Tank" by its US publisher and "Half Gone" in the UK—builds on his former work as the Chief Scientist at Greenpeace UK and a decade as an international climate campaigner in order to now assert the importance of what he describes as "the oil topping point."

Empty tank

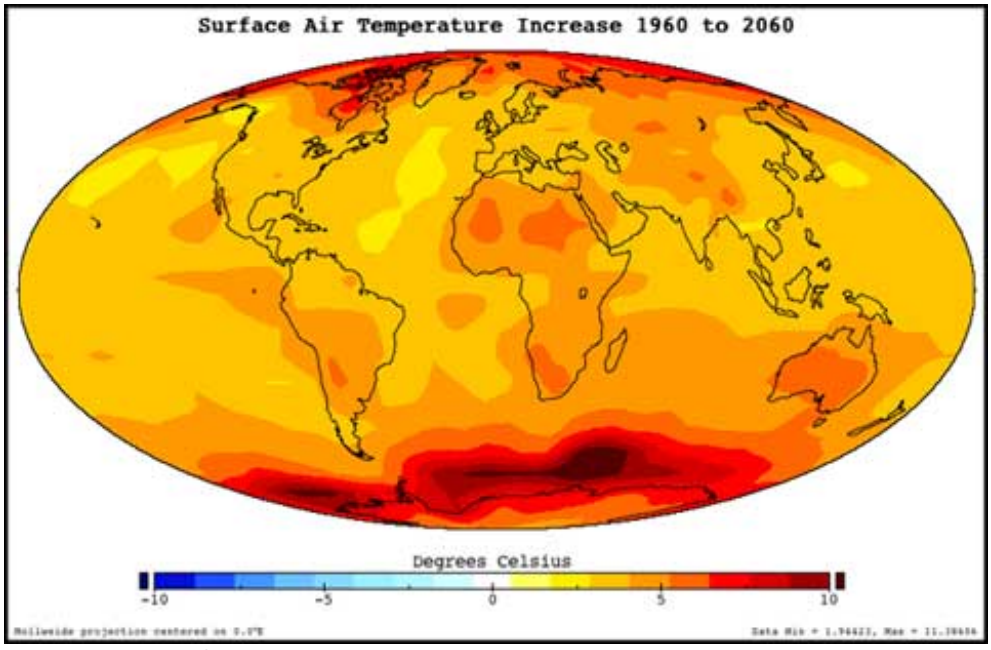
Leggett links oil depletion and climate change throughout his book, sub-titled "Oil, Gas, Hot Air, and the Coming Global Financial Catastrophe." Over half the book is a 150-page section on "Oil Depletion Meets Global Warming." Before moving to Greenpeace in the 1990's, Leggett spent most of the 1980s as "a creature of Big Oil," doing research, teaching, and consulting paid for by Shell, BP, and other oil companies. He is now CEO of the UK's largest independent solar electric company. Leggett's new book is perhaps the most thorough exploration yet of the relationship of oil descent and global warming, which he calls "hot air."

"Half Gone" (the version this reviewer read) endeavors "to prove the case for two big arguments." Leggett contends that "the oil topping point, otherwise known as the peak of production, will be reached in the 2006-2010 window and when the market realizes this, severe economic trauma will ensue. Second, global warming is a real, present, and fast-growing danger."

Though most theorists and activists concerned with oil descent acknowledge the importance of climate change, the reverse is not always true. "Environmentalists have had a tendency to downplay or ignore oil depletion, and still do," Leggett writes. "This may be due to a lack of the geological knowledge needed to appreciate the power of the argument. I have also heard the view from environmentalists that the issue is too depressing."

The matter of how work on Peak Oil and climate change are related is a controversial one. Some climate change activists describe Peak Oil with various negative terms, such as "fraud," "distraction," and "dangerous." A few even use stronger, hostile words to describe peak oilers. This reporter has never heard an oil descent writer or activist make such claims about global climate change.

One climate change activist has circulated a survey entitled "Peak Oil vs. Climate Change," which sets up an antagonistic, polarizing relationship between the two. Rather than see them as dualistically either/or, peak oilers tend to see the relationship as a both/and partnership and strive to work together rather than against each other.




NASA projections of rising global temperatures

Most scientists agree that global climate change is real, accelerating, and caused by human activity. Leggett even reports the following: "At the World Economic Forum in Davos in February 2000, several hundred CEOs of the world's biggest companies were asked by the organizers to vote on the greatest challenge facing the world at the beginning of the new century. Global warming came out top," to the surprise of the organizers. Leggett quotes two high UK government officials as saying "that global warming is now a bigger threat than weapons of mass destruction. This is an increasingly common view, especially in Europe."

Peak Oil, on the other hand, is a theory that a smaller number of people believe. Peak Oil activists work to educate people and raise awareness about the issue with the goal of reducing the damage that it threatens to do. "Our society is in a state of collective denial," Leggett explains with respect to oil depletion, "that has no precedent in history, in terms of scale and implications." The core of those concerned with oil depletion is composed of geologists and many who have worked within the oil industry, such as Leggett, being joined by a growing number of environmentalists and a diversity of other concerned citizens, including some government officials.

"Half Gone" is written from a European perspective. It draws upon the work of geologist Colin Campbell, an Irishman who worked for forty years in the oil industry. He founded the Association for the Study of Peak Oil (ASPO). It does not mention, however, the work of American authors such as Richard Heinberg and James Howard Kunstler.

As with his American counter-parts, Leggett provides an informative history of the oil story. He carefully documents oil depletion with multiple graphics and hundreds of footnotes in this indexed book. Leggett then refutes various potential sources of additional oil and energy advocated by oil optimists as adequate to substitute for petroleum—deep-water oil, tar sands, natural gas, oil shale and other unconventional oil.

Leggett links oil depletion to climate change by noting that the simultaneous heightened demand for energy (especially by China and India), coupled with the diminishing supply of petroleum, will lead to "a rush to coal." Burning coal, unfortunately, is even worse on the environment and climate than oil. It increases carbon dioxide emissions more than oil for the same fuel yield.

"The coal industry utilizes a technology that is so clearly mortgaging the future and yet it continues to grow largely unapologetically around the world," Leggett asserts. He is concerned about "the future death toll from unmitigated global warming and dire air quality," as well as "the actual to-date death toll from getting this stuff out of the ground." Coal mining disasters are common and deadly; its extraction is hazardous to the lungs and health of miners. Thousands of Chinese coal miners apparently die in the mines each year.

Leggett observes that the US has the world's largest supply of coal, as well as the greatest addiction to the abundant energy supplied by cheap oil. So as the petroleum supply declines it is likely to scramble for energy substitutes and rely more on coal. He describes the "burn and be damned" policy that is being pursued in China and India, which also have substantial quantities of the fossil fuel coal. Nuclear power is also considered by Leggett. Experts indicate that it could not deliver much more power before 2020, and only with an expensive investment that would take at least seven years for a return. Three other factors that work against it are the threat of terrorism, what to do with the waste, and its poor safety record at Chernobyl, Three Mile Island and elsewhere.

Open face coal mining in Ohio

The possibility of hydrogen as a major energy source is given more credit by Leggett than by Heinberg, Kunstler, and many other American peak oilers, who tend to prefer de-centralized, local energy production to another centralized system. Leggett echoes the support of hydrogen by Amory Lovins at the Rocky Mountain Institute. Since hydrogen is not a fuel, but an energy-storage medium, it requires an energy source to make hydrogen fuel cells; coal is the most likely source. Hydrogen is not something you can mine or drill for; you have to manufacture it, which takes energy.

However, it is renewables that Leggett sees as the main solution for both oil depletion and climate change. He is a major solar promoter. After his first 200 somewhat gloomy pages, Leggett turns to 50 more positive pages. "It will be possible to replace oil, gas and coal completely with a plentiful supply of renewable energy, and faster than most people think," Leggett argues. He adds "a very big however"—these alternatives will not "be able to plug the gap in time to head off the economic trauma resulting from the oil topping point," since we're already "too late."

Various renewable technologies are described: solar photovoltaic cells, wind power, tides and waves, and biomass. He contends, for example, that "America could provide all the electricity it uses today from the wind-power potential of just three states: Texas, North Dakota, and Kansas." Together, he calls these alternatives to burning fossil fuel solarization.

Another writer from the UK, James Howard of Powerswitch.org.uk has written a stimulating essay, "The Fusion of Peak Oil and Climate Change," published at www.energybulletin.net. He warns against "Climate Change activists" who would "shun Peak Oil." Howard concurs with Leggett and contends that "Peak Oil and Climate Change have to be understood as on overall package," and proceeds to document why. "Peak Oil and Climate Change are a bigger threat together than either are alone," he contends. They "must be fused as issues."

However, Howard is not as hopeful as Leggett about renewables. He points out, "As for renewables, these are built from materials that need oil. Developing alternatives will become more costly; the cost of everything will increase, because oil is behind everything we do."

Industrial society's dependence upon cheap and abundant petroleum is what Howard contends links oil depletion and climate change. He mentions specific issues of how climate change is impacting the globe, such as water delivery, agriculture, heavy rains in Germany, drought in Italy, forest fires, and the capacity to fight diseases. With "the cost of everything going up," Howard asserts, it will be harder "to deal with the problems brought on by Climate Change. Cheap oil has enabled us to tackle many of the world's problems. The decline of oil may simply exacerbate Climate Change."

"Leggett avoids directly addressing the issue of centralized energy production versus localized production," notes Yen Chin, who has worked professionally for two decades in residential energy conservation and lives in Hawai'i. "I read his meaning to be that large

corporations will continue to dominate a capital-intensive industry. The players differ, but the basic economic relations will remain the same."

In contrast, groups such as the Post-Carbon Institute advocate re-localization and multiple low-tech solutions of communities working together to provide their own energy, rather than being dependent upon a central outside source. "I see Leggett as a Magic Bullet advocate," Chin notes, "albeit one who says things that are more palatable to progressive-minded folks."

Near the end of "Half Gone" Leggett describes "the forces which, directly or indirectly, will favor a massive retreat into coal when the panic descends in the wake of the oil topping point." At that point "two ideas will confront each other. We can call them solarization and coalification. This, I contend, will be the battleground that will decide the fate of the planet."

As this reviewer considers the seriousness of the multiple problems posed by Climate Change and Peak Oil which Leggett and numerous other authors have proven, the solutions proposed by Leggett do not seem adequate alone to solve these problem. Shifting back to "solarization" is certainly necessary and helpful, but will it be enough to avoid major catastrophes?

Leggett concludes by making his "most important point of all"—"There is much that people can do to influence the outcome of this struggle to increase renewables' production faster than coal, hence to ameliorate the worse excesses of the global energy crisis, and to create a better society in the process." Among the measures that Peak Oil activists point to as helpful in developing post-carbon societies are to conserve energy, be more efficient in its use, and re-localize.

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