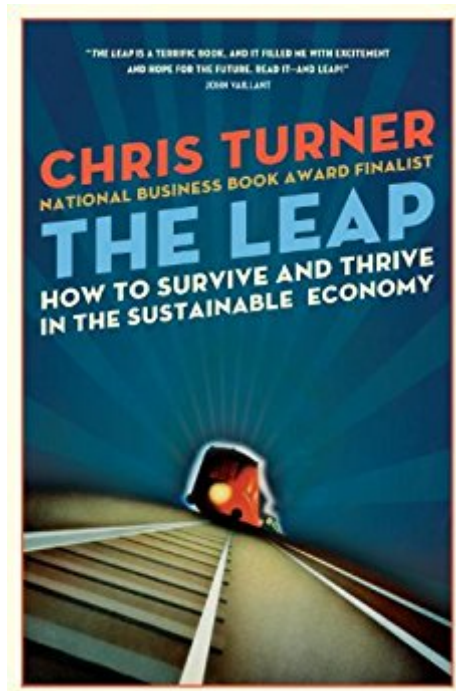




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# The Leap: How To Survive And Thrive In The Sustainable Economy



## Synopsis

The revolutionary follow-up to Chris Turner's Governor General's Literary Award and National Business Book Award nominee, *The Geography of Hope*. The most vital project of the twenty-first century is a shift from our unsustainable way of life to a sustainable one--a great lateral leap from a track headed for economic and ecological disaster to one bound for renewed prosperity. In *The Leap*, Chris Turner presents a field guide to making that jump, drawing on recent breakthroughs in state-of-the-art renewable energy, cleantech and urban design. From the solar towers of sunny Spain to the bike paths and pedestrianized avenues of the world's most livable city--Copenhagen, Denmark--to the nascent "green-collar" economies rejuvenating the former East Germany and the American Rust Belt, he paints a vivid portrait of a new, sustainable world order already up and running. In his 2007 book, *The Geography of Hope*, Chris Turner wrote about an emerging world of cleantech possibility. This led to a two-year stint as sustainability columnist for the *Globe and Mail*, during which many of the fringe developments covered in his book became vital. By the time those two years were up his reporting tracks were being retraced by mainstream outlets like the *New York Times*. In *The Leap*, he once again charts the world's near-future course. From the Hardcover edition.

## Book Information

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## Customer Reviews

Thorough reporting, well-written, good insights, an easy and lively read. Clear treatment of where we're at and what some very smart people are doing about it---without waiting for orders from god or government. I can't imagine why this book has not been more widely read, reviewed, etc. Perhaps it's because here in America we're even less inclined than Canadians to make the leap from short-term to long-term thinking/engineering/decision-making. This book won prizes in Canada.

Well worth a read to consider when incremental change simply won't happen.

In 2012, Chris Turner ran as Green Party candidate in a federal by-election in the riding of Calgary Central. That's comparable to a Hobbit walking into the heart of Mordor to defeat Sauron. Might this book be a shout-out to all Hobbits: It's time to leave the safety of your Shire and march to Mordor! Metaphorically of course. And for Turner, rather than a march it's a "Leap", and rather than forward it's "sideways" and rather than to a place it's toward "disruptive techniques." Throughout this book Turner hit's all the right sustainability notes: natural capitalism, net energy, ecological footprint, financial crisis, climate/energy crisis, geo-engineering, limits to growth, environmental degradation, industrial food production and a need for a wholesale transformation of our socioeconomic foundations, etcetera, etcetera. While this book is thoroughly and incredibly researched and as writer, activist or politician, Turner's work is admirable, courageous and necessary, in my opinion, the overall tenor of the book suffers from the same trait that Turner attributes to behavioural economics: "optimism bias." Sure the business-as-usual types believe that only a few financial and technological tweaks are required to keep us steady and fast on the rails--keeping with the train theme used by Turner to frame this book. Let's not fool ourselves. Optimism bias is not exclusive to those who see no need for a Leap sideways. Sustainability proponents suffer from it too. "We are deluded by optimism bias ... our illusion of control perverts our assessment of our ability to make favourable things happen" (page 86). Indeed! While Turner's words here weren't directed at sustainability proponents, they apply nevertheless. In the Prologue Turner writes, "This other vehicle [the train] you notice, is headed in the same direction. It's pointed at the same station, bound for roughly the same place you were already going--a place with the same goals, if you will, similar values and institutions and standards of living." The idea of leaping from one (unsustainable) train onto another

(sustainable) train is at once laudable and deluded by optimism bias. Unfortunately, even if all the micro examples cited in *The Leap* were scaled up to their feasible limits, it won't keep us from going off the rails and plunging over the cliff. All of Turner's good work misses the heart of the dilemma facing humanity. More on this later.

First, excerpt notes from a lecture delivered by engineer and inventor, Saul Griffith, at the Long Now Foundation on January 9, 2009: The world currently runs on about 16 terawatts (trillion watts) of energy, most of it burning fossil fuels. To level off at 450 ppm of carbon dioxide, we will have to reduce the fossil fuel burning to 3 terawatts and produce all the rest with renewable energy, and we have to do it in 25 years or it's too late. Currently about half a terrawatt comes from clean hydropower and one terrawatt from clean nuclear. That leaves 11.5 terawatts to generate from new clean sources. To do that means the following:

- (1) Two terawatts of photovoltaic would require installing 100 square meters of 15-percent-efficient solar cells every second, second after second, for the next 25 years. (That's about 1,200 square miles of solar cells a year, times 25 which equals 30,000 square miles of photovoltaic cells.)
- (2) Two terawatts of solar thermal. If it's 30 percent efficient all told, we'll need 50 square meters of highly reflective mirrors every second. (Some 600 square miles a year, times 25.)
- (3) Half a terawatt of biofuels. Something like one Olympic swimming pool of genetically engineered algae, installed every second. (About 15,250 square miles a year, times 25.)
- (4) Two terawatts of wind. That's a 300-foot-diameter wind turbine every 5 minutes. (Install 105,000 turbines a year in good wind locations, times 25.)
- (5) Two terawatts of geothermal. Build 3 100-megawatt steam turbines every day -- 1,095 a year, times 25.
- (6) Three terawatts of new nuclear. That's a 3-reactor, 3-gigawatt plant every week -- 52 a year, times 25.

In other words, the land area dedicated to renewable energy ("Renewistan") would occupy a space about the size of Australia to keep the carbon dioxide level at 450 ppm. To get to a goal of 350 ppm of carbon dioxide, fossil fuel burning would have to be cut to ZERO! Which means another 3 terawatts would have to come from renewables, expanding the size of Renewistan further by 26 percent. Meanwhile, for the world's population to remain at an energy budget of 16 terawatts, many of the poorest in the world might need to raise their standard of living to the global average of 2,200 watts, while everyone now above that level would have to drop down to it.

[Side note: Griffith calculated that even in 1800, Americans used energy (mostly by burning New England forests) at a rate close to double that of the average global citizen in 2010. This implies that if energy equity is to be reached, those in the developed world need to reduce their energy use to half that of an American living in 1800. Energy equity can realistically be equated with lifestyle.] Griffith determined that most of his energy use was coming from air travel, car travel, and the embodied energy of his stuff, along with his diet. Now he drives the speed limit (and he has

passed no one in six months), seldom flies, eats meat only once a week, bikes a lot, and buys almost nothing. Can the Renewistan be built? Griffith said it's not like the Manhattan Project, it's like the whole of World War II, only with all the antagonists on the same side this time. It's damn near impossible, but it is necessary. And the world has to decide to do it. \* \* \* Okay! Now that we know what's actually required, what's the likelihood of it happening? If I say it's less than zero, am I being too pessimistic? Consider net energy--the difference between the energy expended to harvest an energy source and the amount of energy gained from that harvest. Traditional crude oil, depending upon source, is 100-200 energy units out for every 1 unit put in. Turner correctly identifies the net energy of Alberta, Canada's tar sands to be in the range of 3 to 6 units of energy out for every 1 unit put in. What Turner doesn't tell us is that's the same net energy ratio (more or less) for all types of renewable energy. If, as Turner envisions, humanity is to arrive at the same station, with the same standard of living, then the constraints of net energy means that all remaining fossil fuels need to stop being 'wasted' on their current use and redirected toward building the renewable energy infrastructure, the so-called Renewistan. Think about it. What would it take to move us from where we are now toward such a "damn near impossible" future? Try this on: a world government, the elimination of democracy, the end of capitalism, and some form of enforcement that restricts the lifestyles, of 10 billion people in 2050, to half that of Americans in 1800. Griffith is quoted, in the New Yorker, May 17, 2010, pp. 42-50, "I know very few environmentalists whose heads aren't firmly up their ass. They are bold-facedly hypocritical, and I don't think the environmentalism movement as we've known it is tenable or will survive." From my perspective, the quote applies equally to the sustainability movement as well. Are we ready for an authentic 'adult' dialogue about our collective future? I often ask myself this question: What will cause more harm, the impacts of the climate/energy crisis if left unaddressed or the causal outcomes from attempting to implement all socio/political/economic measures necessary to effectively deal with the climate/energy crisis? Telus, a major telecommunications provider in Canada, run ads that proclaim, "The future is friendly." Is that so?

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