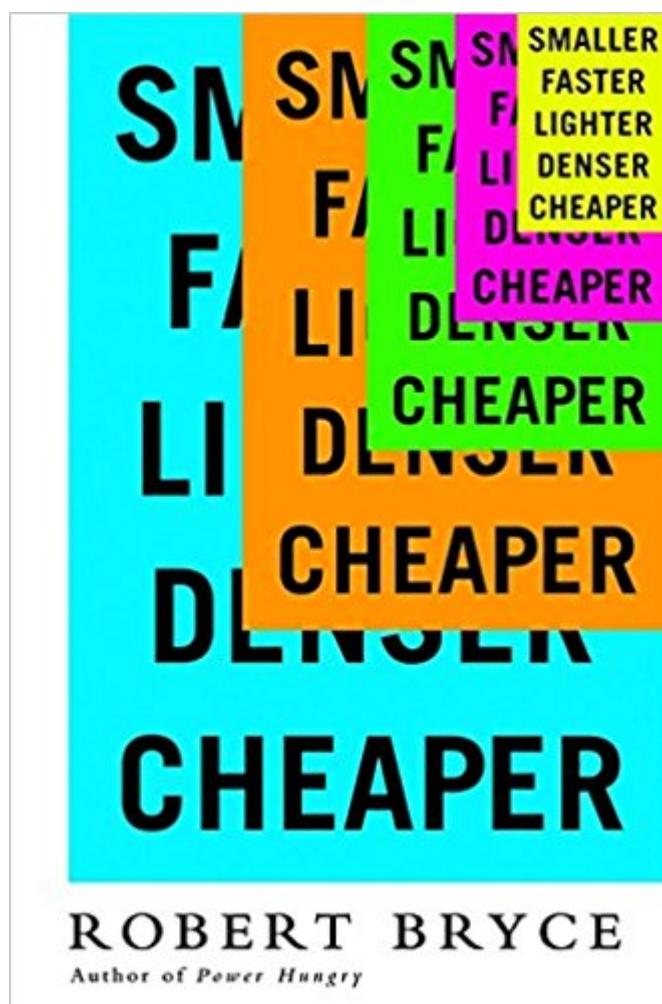


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# **Smaller Faster Lighter Denser Cheaper: How Innovation Keeps Proving The Catastrophists Wrong**



## Synopsis

In the face of today's environmental and economic challenges, doomsayers preach that the only way to stave off disaster is for humans to reverse course: to de-industrialize, re-localize, ban the use of modern energy sources, and forswear prosperity. But in this provocative and optimistic rebuke to the catastrophists, Robert Bryce shows how innovation and the inexorable human desire to make things Smaller Faster Lighter Denser Cheaper is providing consumers with Cheaper and more abundant energy, Faster computing, Lighter vehicles, and myriad other goods. That same desire is fostering unprecedented prosperity, greater liberty, and yes, better environmental protection. Utilizing on-the-ground reporting from Ottawa to Panama City and Pittsburgh to Bakersfield, Bryce shows how we have, for centuries, been pushing for Smaller Faster solutions to our problems. From the vacuum tube, mass-produced fertilizer, and the printing press to mobile phones, nanotech, and advanced drill rigs, Bryce demonstrates how cutting-edge companies and breakthrough technologies have created a world in which people are living longer, freer, healthier, lives than at any time in human history. The push toward Smaller Faster Lighter Denser Cheaper is happening across multiple sectors. Bryce profiles innovative individuals and companies, from long-established ones like Ford and Intel to upstarts like Aquion Energy and Khan Academy. And he zeroes in on the energy industry, proving that the future belongs to the high power density sources that can provide the enormous quantities of energy the world demands. The tools we need to save the planet aren't to be found in the technologies or lifestyles of the past. Nor must we sacrifice prosperity and human progress to ensure our survival. The catastrophists have been wrong since the days of Thomas Malthus. This is the time to embrace the innovators and businesses all over the world who are making things Smaller Faster Lighter Denser Cheaper.

## Book Information

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## Customer Reviews

The author of four books on oil and energy, Mr. Bryce has written a new book well worth reading; *Smaller Faster Lighter Denser Cheaper* captures the headlong rush of Western culture's endless drive for ever better technology. It is an extraordinary impulse that has created a world in which more people live longer and more comfortably than ever before. — Fred Andrews, *New York Times* For years, Robert Bryce has been calling for rationality on energy policy. In this book, Bryce goes beyond energy to explain why the innovation that drives entrepreneurs is the way of the future. I'm an unapologetic capitalist. Reading *Smaller Faster* has only fortified my belief that the best way to address poverty is through entrepreneurial capitalism that produces more innovation and progress. — John Mackey, co-founder and co-CEO, Whole Foods Market, and co-author of *Conscious Capitalism* Robert Bryce may be our finest observer of the energy scene. *Smaller Faster Lighter Denser Cheaper* displays all the virtues -- the contacts, the technical savvy, the wit and clear thinking that make Bryce indispensable. — Charles R. Morris, author of *The Dawn of Innovation and Comeback* "A book brimming with well-founded enthusiasm about the amazing present and the prospects for a more amazing future...exploding with fascinating energy facts and...super-fun to read....Bryce takes his appreciation of innovation and uses it to illuminate the past, present, and future of innovation across the board." — Forbes So what went wrong? or, rather, right? Why is the human race in much better shape than it was 200, 100, or 50 years ago? Robert Bryce reminds us of the answers in his sprightly new book and promises that even better times lie ahead; Bryce's new book is an enlightening stroll down the sunny side of the street. — Hiawatha Bray, *the Boston Globe* Engrossing survey; Arthur Herman, *the Wall Street Journal* A celebration of innovations that have produced cheaper and more abundant energy, faster computing, lighter vehicles and other technological benefits; Bryce [is a] booster for business and technology; he makes many intriguing arguments in this rejoinder to the doomsayers [and] rebuttal to the catastrophists who insist that disaster lurks just around the corner. — Kirkus Reviews Don't be misled by Robert Bryce's very breezy style. His new book makes important and positive observations about the world's energy future. You don't have to agree with every one of

his attitudes or conclusions to hope that the reporting and arguments in the book are taken seriously, and that the innovators and start-ups he vividly describes get the support they need. James Fallows "[Bryce's] new book constitutes a direct assault against the policies of "degrowth" advanced by those who peddle what he calls "collapse anxiety". The book is also a sustained argument against the fundamentally pessimistic worldview that underlies those policies. . . . The claim that we can and should replace fossil fuels with renewables such as wind and solar is, Bryce says, a "damnable lie" that obscures the far more important question of what we should do to make more energy available to more people, especially 'the more than two billion people who are still living in abject energy poverty.'"<sup>15</sup> John Daniel Davidson, National Review

Robert Bryce is the acclaimed author of four previous books, including, most recently, *Power Hungry: The Myths of Green Energy and the Real Fuels of the Future*. A senior fellow at the Manhattan Institute, his articles have appeared in dozens of publications, including the *Wall Street Journal*, *New York Times*, *Washington Post*, *Guardian*, *Austin Chronicle*, *Bloomberg View*, *Counterpunch*, and *National Review*. An apriarist, he lives in Austin with his wife, Lorin, and their three children.

*Smaller Faster Lighter Denser Cheaper* is a fascinating examination of the process and progress of innovation. Author Robert Bryce has picked a wide range of examples, from cellphones and computer chips to steam engines and Tour de France bicycles, explaining how each of these became smaller, faster, lighter, denser or cheaper, and often all of the above. Bryce writes exceptionally well and is able to explain concepts that are quite complex in very readable, easily understandable prose. No concept is more crucial to his narrative than that of density, especially as applied to energy. Thin diffuse sources especially solar, wind and biofuels have become popular with politicians and the media, and are touted as the answers to all energy-related issues. Bryce shows that these energy fads are impractical largely because they all lack density and therefore need enormous spaces to replace even one coal-fired electric power plant. One can only hope that politicians read the book and move toward more effective energy policies as result. While Bryce shows that solar and wind cannot be the answer for the world's energy needs, he does not simply endorse the status quo. In fact, he sees the future of electric power as a shift from coal to natural gas in the near term and eventually from gas to nuclear power (or as he calls it, N2N). Bryce is a technological optimist and he is expecting advances in nuclear energy to make reactors smaller and above all, cheaper in the years ahead. Bryce makes the case for nuclear power effectively. Because

nuclear power emits no carbon dioxide, he regards it as the only realistic option that would reduce any consequences from climate change while at the same time providing reliable electricity to people everywhere. So often books about technology are grim tales that foresee potential catastrophe and conflict. Not Smaller Faster Lighter Denser Cheaper. It is a fine book, with a positive message about technology and its potential to better the lives of everyone on Earth.

Wow! This book lays it all out with all the details and facts to back up the competitive advantage we have in the US vs the rest of the world. The cost of energy acts like a tax on everything we do. Why does this administration want us to give up that competitive advantage to other countries? Today it costs about \$0.10 a KWH in my state and in Germany it is about \$0.45. Why do you think every manufacturer is expanding their manufacturing capacity here vs Germany? Robots and automation use a lot of energy and people costs are now taking second position to energy costs. The reduction in green house gases in the country comes from the use of natural gas vs coal. Technology enabled us to do this not government regulations! It's time for the government to get out of the subsidy business. They subsidize every energy source and that prevents market forces to act properly. If we were to do that, we would find that the misguided green strategy is a complete failure and that the market will pick the best source of energy. Today that is natural gas and nuclear and wind and solar are last. In an era of trillion dollar deficits the government needs to stop squandering tax money on energy subsidies. President Obama and every individual in the EPA and the DOE should be required to read this book. There are only 535 members in Congress. I think I'll send a copy to each of them. They need to read this book too.

But I couldn't. The author provided fact after fact, great logic and excellent rhetoric. The math and science is straightforward and unequivocal. For example: the equivalent of half of the US's crop land was used around the world to replace half of one percent of the world's oil usage with biofuels. Biofuels are a nonstarter to replace oil for anything, except replacing modern society with starvation. I knocked off one star because I do think he underestimates the ability for improper government to kill the golden goose. The ability to continue to produce Smaller Cheaper Faster Lighter doesn't happen when the guys with the guns and laws make it impossible or impractical to do so. That said, an awesome read that kept me thoroughly engaged.

Bryce's premise is basically, "humans are smart - we'll figure it out, we always do". I agree and enjoyed Bryce's examples of human ingenuity, which he pulls from multiple industries. Bryce makes

great points countering what he calls "catastrophists", showing in one example how the "end of oil" has been predicted over and over again for the last hundred years. You'll come away more at ease with the state of the world and a bit more optimistic. Overall I really enjoyed the book but Bryce, who is a self-proclaimed optimist, at times comes off pretty negative when talking about folks he disagrees with, President Obama and Amory Lovins in particular. It's unfortunate since Lovins is another optimist who embraces efficiency and many of the same ideas Bryce promotes. Definitely worth reading - I look forward to reading more of Bryce's books.

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