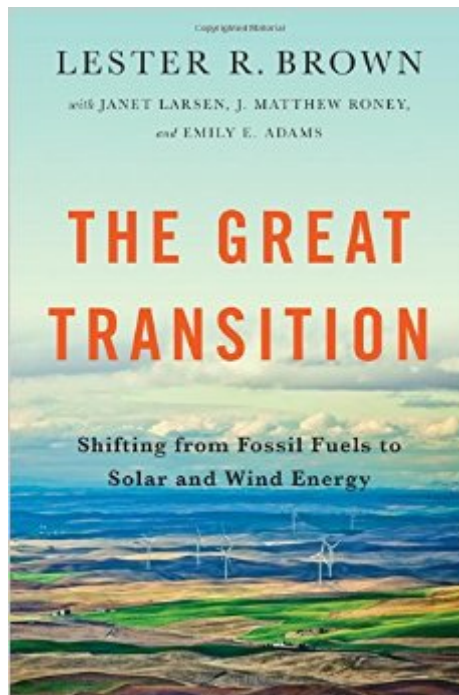


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The Great Transition: Shifting From Fossil Fuels To Solar And Wind Energy



Synopsis

The great energy transition from fossil fuels to renewable sources of energy is under way. As oil insecurity deepens, the extraction risks of fossil fuels rise, and concerns about climate instability cast a shadow over the future of coal, a new world energy economy is emerging. The old economy, fueled by oil, natural gas, and coal is being replaced with one powered by wind, solar, and geothermal energy. The Great Transition details the accelerating pace of this global energy revolution. As many countries become less enamored with coal and nuclear power, they are embracing an array of clean, renewable energies. Whereas solar energy projects were once small-scale, largely designed for residential use, energy investors are now building utility-scale solar projects. Strides are being made: some of the huge wind farm complexes under construction in China will each produce as much electricity as several nuclear power plants, and an electrified transport system supplemented by the use of bicycles could reshape the way we think about mobility.

Book Information

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Customer Reviews

This is a terrific contribution from an experienced writer on environmental issues. It has been a long struggle to bring the costs of solar energy and other renewable sources down to a point where they can actually compete in the energy marketplace, even without major government incentives. That's the case for wind and solar, as Brown describes so well in this new book. Other renewable energy

sources are also making great strides, as are efficient buildings and efficient transportation -- not to mention research accomplishments on energy storage technologies, efficient long-distance electricity grid designs, and massive new investments in green energy. The only deficiency of is the lack of graphics to support the text. But never mind that. Web searches on wave energy, tidal energy, ocean current energy, solar electric, solar thermal, energy storage, geothermal, wind turbines, electric grids, and renewable energy economics can put these images plus relevant charts and graphs at your fingertips. For example, when I started out as a solar scientist in 1976, the holy grail in the photovoltaic world was getting the price of PV down to an amazingly low price of 50¢ per peak Watt of electrical output. At that time the price was over \$76/peak Watt. Take a look at the astounding bar chart of this price from 1976 to 2015

here: https://commons.wikimedia.org/wiki/File:Price_history_of_silicon_PV_cells_since_1977.svg It turns out that we passed the 50¢/Wp point in 2013 and now the price is an amazingly 30¢/Wp, thanks mainly to China's recent burst in solar equipment manufacturing, aided along the way by the United States, Japan, and Germany.

This book briefly tells of the problems the entire world is having with fossil fuels and nuclear power and what they are doing to the environment and the deadly consequences of the persistent use of all these fuels. It also projects an optimistic change that the world is going through in the transition to clean, renewable energy, and this change is greater than we think. The entire world, including the United States is going through this change. This book covers the four fuels that are poisoning the global environment: coal, oil (along with natural gas) and nuclear power, and the four sources of renewable that can replace them: solar, wind, and geothermal energy. Hydroelectric power is also mentioned. What must always be remembered is that the production of energy of one of the world's dirtiest professions, and it always has been, even back before coal when wood was the main source of energy. The age of easy oil is over. Until recently most of it was coming from countries hostile to the U.S. With the advent of hydraulic fracturing and extraction from Oil/Tar sands (Canada), North America is once again becoming a major oil source and is upsetting the power of OPEC. The drawback is the fracturing and extraction from the Oil/Tar Sands is extremely polluting, and is contributing to climate change. Most of the oil is used for transportation, especially in automobiles. Fortunately, fuel efficiency is increasing, and hybrids (gas/electric cars) and electric cars are being introduced to the auto market, reducing the demand from other countries, along with pollution. The author does write that oil will become obsolete, but I disagree.

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