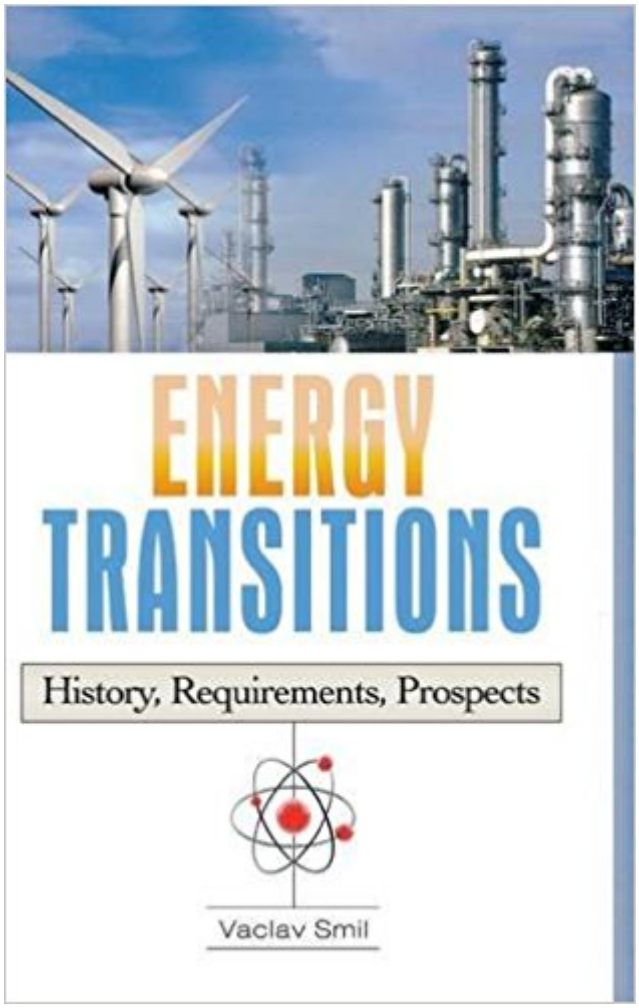
Energy Transitions: History, Requirements, Prospects



Synopsis

This bold and controversial argument shows why energy transitions are inherently complex and prolonged affairs, and how ignoring this fact raises unrealistic expectations that the United States and other global economies can be weaned quickly from a primary dependency on fossil fuels.Ã¢â ¬Â¢ Includes case studies of energy transitions in eight nationsÃ¢â ¬Â¢ Presents graphs of energy transitions on global and national scales, showing both common features and idiosyncratic patternsÃ¢â ¬Â¢ Features photographs of the containment vessel of America's first nuclear reactor and of a stationary gas turbineÃ¢â ¬Â¢ Provides a thorough bibliography

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Customer Reviews

Vaclav Smil has written another important book on energy which is quite amazing. Although there are a lot of important books about energy, as an author Smil is in a class by himself in terms of breadth and depth. -- Bill Gates[Smil] has an eye for detail as he quantifies many historical amounts, providing a much needed reality check for any energy transition scenario under consideration. --The Oil Drum"Vaclav Smil has written another important book on energy which is quite amazing. Although there are a lot of important books about energy, as an author Smil is in a class by himself in terms of breadth and depth." - TheGatesNotes.com"Recommended. Students and general readers, all levels." - Choice

"Energy Transitions is the place to go for science-based climate/energy policy analysis, as nations

are increasingly squeezed between growing energy demand and avoiding adverse climate change by phaseout of fossil fuel carbon emissions. Where will tens of carbon-neutral terawatts come from midcentury and beyond? Doable, but hard, Vaclav Smil looks unblinkingly into this abyss, drawing from his encyclopedic grasp of ecology and energy to explicate the historically unprecedented energy technology transition ahead." (Marty Hoffert, Professor Emeritus of Physics, New York University)"Smil's book soberly but engagingly reviews and reflects upon the great energy transitions of the past several centuries: how and why they came about, under what constraints and with what consequences realized. It thus constitutes a most excellent foundation for improvement of understanding on the parts of serious members of the public and policy-oriented types alike Ã¢â ¬â œ as well as everyone in-between. Replete with historically-authentic facts, bias-free trend-lines and well-buttressed and cogent interim conclusions, it's a "must read" for anyone who may wish to engage credibly in the energy debate." (Lowell Wood, Research Fellow, Hoover Institution, Stanford University)

This guy has to all together when it comes to energy. His vision is awesome. I captured some of his quotes for my web site.

Very incisive and thought-provoking work though excessively technical at times. Smil does a good job demonstrating that energy technology transitions are protracted affairs with frequent "bumps in the road." While he favors renewable energy, he recognizes that the claims of many renewable energy proponents, most notably con artist Al Gore, are vastly overblown. One area Smil could have done a better job in is describing the consumer costs of transitioning to renewable energy; particularly in areas such as transportation, fuel prices, and fueling convenience. Until it is possible for consumers at large to purchase renewable powered vehicles at prices comparable to today's cars, recharge or refuel them in the amount of time it takes to fill up at the gas station, the utopian fantasies of renewable energy as a panacea to carbon emissions will remain the expensive pipe dreams of limousine liberals.

We certainly are the uncouth ones, leaving nature's paws and feathers for tires and metals driving cars on the endless pavement covering more and more of the land, flying in ever larger, faster more numerous airplanes that have netted the sky with vapor trails. Smil's book is about our transition into all this. He starts with wood fires, water wheels, windmills and animal powered wagons and machines then goes on to the steam engine, internal combustion engine, and gas turbine.From Fire

to Wire. First crouching before fire in smokey caves then recently flourishing everywhere by wire, to be lit, heated or cooled by electric machines from distant power plants.As usual with Smil, the book is very good but it leaves out so much. All these machines are like a giant Stalagmite that has formed thanks to a drip drip of precious life, everything is built on a deposit of what came before, all the equipment, the power and convenience.Smil is a historian of this stalagmite, a study of energy, apparatus, formed by human hands. I see him, the professor from Prague in a white lab coat lecturing us. We are spellbound, the topic, science and Smil partakes of it, he wants to be part of it why else would he choose the joule, a mere watt second as a base unit of energy? We buy energy at least by the kilowatt hour as we buy gasoline by the gallon not the drop.Three million six hundred thousand joules per kilowatt hour. Smil wants to use big numbers. There he is in his white lab coat woven with fleece of the metric system a historian now with a chance to use big numbers like one of the scientists. We really have to bear down on those who want to appear scientific. They are after undue influence from the scientific badge. Smil, ever the erudite European professor with scores of fascinating books gives them a charming Dr. Strange love touch by occasionally leaving out the English article as on pg. 126 "to make profit".Should one speak of the distance from Los Angeles to New York as hundres of millions of inches or use miles? (1.56M (million) inches or 2,462 miles?)This insistence on stupefying measurements of man made energies has him neglect the really awe inspiring dimension of nature. He is like an agent for self important but actually dwarfish technologist preening themselves despite their uncouth accomplishments. He forgets mention of the sun unless it is transformed into electricity or of less interest, hot water. Smil, historian of science never mentions glass, silent, odorless, long lasting glass surely an energy invention as important as an engine. Power lines, railroads, freeways oil and gas lines are all to be noticed but not glass and certainly not clotheslines. We have better examples think of our migrating cranes who leave no vapor trails and thrill us with their musical calls.I was upset to find the y axis of historic energy use graphs suddenly change from an easily understood quantity to the Fisher-Pry plot. f/1-f He never explains it and I have now forgotten already what I finally learned from someone else. What is the point? Those who understand a mystery can bully those who don’t. The old energy vs. time plots were fine by me.Smil leaves out one transformation that plays a large part in our affairs. This is a kind of technical overshoot where developments are made compulsively for their own sake. Like the famous shark feeding frenzy that has sharks once started on bloody meat next gobble tin cans, bottles and garbage in a "feeding frenzy".We build solar power plants to feed a grid that lights shopping centers with fluorescent lights during the sunniest weather. At much less expense we could put in skylights turn off these lights, and forget the PV power plants. This is the essence of

overdevelopment. We are forgetting good old use of the sun, windows and skylights faster than we develop cost effective new uses.The same frenzied over development places mysterious unitary valves that cause me technical panic on motel showers, the old hot and cold faucets worked fine.This compulsive development seems not the same as that which transformed the last centuries but maybe it is the same and the steam engine and the diesel engine on which his transformation are based never really got us anywhere.Read more Smil, a recent book and one of his best Prime Movers of Globalization dwells on a key inventor Rudolph Diesel 1858-1913 whose engines power so much of the world today. Diesel told his son Eugene "It is wonderful to design and invent in the way an artist designs and creates. But whether it all has a purpose, whether people have become happier as a result that I can today no longer decide."Diesel drowned in the English Channel in 1913 an apparent suicide, he was not yet 60.His ghost may have something to tell us but the throb of the diesel engines make it hard to hear.

Globalization and Islamic Finance: Convergence, Prospects and Challenges Sales Prospecting: The Ultimate Guide To Referral Prospecting, Social Contact Marketing, Telephone Prospecting, And Cold Calling To Find Highly Likely Prospects You Can Close In One Call The Advertising Solution: Influence Prospects, Multiply Sales, and Promote Your Brand How to Follow Up with Your Network Marketing Prospects: Turn Not Now into Right Now! First Sentences for Network Marketing: How To Quickly Get Prospects On Your Side