No Miracles Needed

How Today's Technology Can Save our Climate and Clean our Air

By Mark Z. Jacobson

With a Foreword by

Bill McKibben

To the young people of today, who will take us to the finish line tomorrow

Foreword

This is among the most important books you'll ever read, because it lays out in clear and frank terms the great problem of our age, and the great solution.

Burning things—coal, gas, oil, and biomass—has produced the prosperous world that we in the West inhabit. It has allowed us to heat and cool our buildings when the temperature is not to our liking, to light our spaces so as to extend our days, and to move ourselves and our stuff great distances with great ease. It has liberated us, that is, from many of the constraints that had traditionally governed human life.

But we now know that those liberations have come with unbearable cost. Breathing the smoky byproducts of all that burning kills more than seven million of our brothers and sisters each year, far more than covid, or HIV/AIDS, or malaria, or war. And that combustion has filled the air with invisible greenhouse gases that now threaten the very stability of our civilizations by raising the temperature and in the process melting the icecaps, destabilizing the jet stream and the Gulf Stream, raising the sea level, and sundry other catastrophes on a scale of destruction we'd previously imagined only in connection with atomic weapons.

So replace them we must—but with what? Mark Jacobson and his team have provided, after two decades of work, all the answers we need. Wind power, hydropower, and solar power—wind, water, and sun, or WWS to use his formulation—are sufficient to give us more than enough energy for our needs, and to do it at a cost that should allow for quick transition. This book lays out those essential facts in interesting, accessible, and readable fashion: it is a user's manual for a planet in transition, and one that should settle the panic in anyone who thinks we lack the resources to do what needs doing.

To state it plainly: there is no longer any technical or economic obstacle to the swift transition of our energy system to something far cleaner, cheaper, and more rational. We have the miracle technologies we require firmly in hand. You can point a sheet of glass at the sun and out the back will come light, air conditioning, information, mobility: all the requirements of modernity. Jacobson dutifully considers the possible drawbacks—will it use up minerals we don't possess in sufficient quantity, or occupy too much land—and comes back with mathematical assurances. He has the data.

But of course winning the argument is not the same as winning the fight. Shifting in the short time that climate science requires will mean overcoming both inertia and vested interest, which means that all of us, even if we are not engineers, have a role to play in getting the job done. Indeed, some of the most interesting sections of this volume describe Jacobson's own evolution into an activist of sorts, or at least someone trying to make the case for change. If he can overcome the sweaty panic that overtook him in the seconds before his nationwide interview with David Letterman, the rest of us can learn to make this case in letters to the editor and to our elected leaders.

In fact, it would be a dereliction of intellectual duty to read this book and then not take some actions to change the debate. If we had no readily available answer to the twin crises of climate change and air pollution, then I suppose we could in conscience ignore them. But the solutions are readily at hand. This book should empower you—and with not a moment to spare!

Bill McKibben

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