

Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

Edited by Paul Hawken. 2016. Penguin Books. 256 pages, 22.00 USD, Paper.

Climate change is a complex, multi-scale issue that needs to be discussed in the context of its social, ethical, environmental, economic and political drivers, impacts, and solutions. *Drawdown* is part of an emerging conversation that clearly identifies viable solutions while also asking difficult questions about finding our moral compass: What future do we want for humanity? How can wealth be shared more equitably? and How do we create a livable planet for humans and all biodiversity?

The book is a compilation of credible, science-based solutions intended to halt and, more importantly, reverse human caused greenhouse gas (GHG) emissions. Hence the name “Drawdown”, something they say we need to embrace if we are to successfully prevent catastrophic impacts of climate change. The book avoids jargon and acronyms, providing a plain language, straightforward discussion of 80 possible solutions under the headings of Energy, Food, Women and Girls, Buildings and Cities, Land Use, Transport, and Materials. There are also 20 Coming Attractions recognizing this is a field of emerging solutions, some of which might work, others not. Nevertheless, there are serious efforts looking for solutions!

Project Drawdown’s long list of distinguished “Fellows” and “Advisors” (short biographies provided) have selected and ranked 80 viable climate solutions based on the number of gigatons of carbon dioxide they can reduce or remove in 30 years (2020 to 2050). You will be surprised at the top three solutions: 1. Refrigerant Management (CFCs and HCFCs are 1000 to 9000 times more potent than carbon dioxide as drivers of climate change, and air conditioning and refrigeration use is on the rise globally); 2. Wind Turbines – Onshore (cited as now being the lowest cost source of new electrical capacity); and 3. Reduced Food Waste (efficiency reduces emissions associated with agriculture and food production and transportation, and increases carbon storage by preventing unnecessary deforestation).

The numbers presented are said to be conservative estimates, recognizing the modelled scenarios could do even better with potential declining costs (e.g., solar

panels), new technologies, and our willingness to invest. For most solutions the “net cost” of implementation (purchase, install, operate) and “net savings” (based on the cost of the solution compared to following a “business as usual” approach) over the 30 years of analysis are also presented. Cost effectiveness is highly variable and it is not linked to amount of GHG reduction: for solar farms there is a negative net cost of \$80.6 billion (i.e., solar farms generate revenue as electricity is sold) and net savings of \$5 023.8 billion over conventional electricity generation; for electric vehicles there is a net cost of \$14 148.0 billion (people need to manufacture, purchase, and maintain cars) and net savings of \$9 726.4 billion (i.e., it’s cheaper to stick with conventional internal combustion engine cars). So there are both obvious smart choices (solar farms) and moral choices (consumer driven purchase of electric cars). (See <http://www.drawdown.org> for the data, analysis, and references associated with each solution.)

Drawdown includes an array of topics presented as concise (2–4 page) discussions that will appeal to a wide audience. You can thumb through the book choosing interesting pieces or focus on specific areas. Did you know peatlands cover 3% of the earth’s land surface and are second only to oceans in the amount of carbon they store! *Drawdown* also includes some remarkable essays, such as an excerpt from Pope Francis’ encyclical letter “On Care for Our Common Home” and an essay on food by Michael Pollan, author of *The Omnivore’s Dilemma*.

Drawdown is enlightening, it’s not afraid to criticize itself, exposing data that are weak or probabilities of uptake might be low, and it gives climate change solutions the human dimension needed for us all to embrace the new ethos required to face the new climate world we have created for ourselves. *Drawdown* is highly recommended for those looking for hope that we will be able to face the challenges of the 21st century.

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