The Final Steps – The Complete Solution

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1. Introduction

This is the fifth and final paper in a five-paper series on Climate Change. Each of the former parts to this series are from the same book,[1] and were about solutions that can mitigate climate change. This final part is about the whole process, and is from a different book by a different author, albeit one that you may have heard of.[2]

In the earlier parts of this series, I made a deep dive into a few sections of reference 1. In this paper I will take a shallow swim through the whole book, because this is mainly a book review. As with reference 1, I would strongly recommend you purchase reference 2 if you care about climate change. It is written by one of the smartest individuals in our generation, and he has a strong reputation for being able to solve the most difficult problems.

2. The Problem and Solution

Two numbers: 52 billion and zero. The first is how many tons of greenhouse gasses (GHG) we (the world's economies) currently emit every year, the second needs to be our goal for future GHG emissions. Achieving this goal will be one of the most difficult tasks that humanity has ever accomplished, but it is a necessary step. We will need to massively change virtually every one of our economies' functions. When do we need to do this by?

"Science tells us that in order to avoid a climate catastrophe, rich countries should reach net-zero emissions by 2050…"[2]

You will note two things about the above excerpt: (1) "*rich countries*" and "*net-zero*." This is explained below;

Rich countries – those countries have advanced technologies required to modify existing major GHG emitting processes. Less advanced countries do not sufficiently advanced technologies, but can obtain these low-GHG processes from the "rich countries."

Net-zero – even the countries with advanced technology will have some processes that are too difficult to modify by 2050. The good news is that the world will be able to reach net-zero because these countries have also developed carbon capture and sequestration,[3] and thus can offset both their GHG emissions from the "too difficult" processes, and the "less advanced" countries residual emissions by capturing these directly from the air and geologically sequestering them.

"In all likelihood, in a zero-carbon future we will still be producing some (GHG) *emissions, but we will have ways to remove the carbon they emit."*

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[1] Akshat Rathi, Climate Capitalism, Greystone Books, Copyright, 2024

[2] Bill Gates, "How to Avoid a Climate Disaster," Vintage Books, A Division of Penguin Random House LLC. Copyright © 2021, 2022 by Bill Gates.

[3] See "The Second Steps -- Big Oil's Transition" from this series, section 3. This should be published a week before this post, https://energycentral.com/c/og/second-steps-big-oil%E2%80%99s-transition

"In other words, 'getting to zero' doesn't actually mean 'zero.' It means 'near net zero.' "

Another point Mr. Gates makes is that greatly reducing our dependance on petroleum will be really hard.

"… the most obvious, ubiquitous, important realities are often the ones that are the hardest to see and talk about.

"Fossil fuels are like that. They are so pervasive that it can be hard to grasp all of the ways that they, – and other sources of greenhouse gases – touch our lives…"

Then, Mr. Gates uses most of the last 2/3rds of the reference 2 book describing in detail a reasonable path to get to net-zero.

In the Introduction, I strongly recommended that readers buy the reference 2 book. I do this for the following three reasons:

1. This is a clear, easy-to-understand book that is enjoyable to read.
2. It's very inexpensive (well under $20 in paperback).[4]
3. It's an excellent reference book, and will probably earn a place on your "frequent references for important subjects" shelf (It is now on mine).

[4] https://www.amazon.com/s?k=How+to+Avoid+a+Climate+Disaster+by+Bill+Gates&i=stripbooks&crid=2Q3J0I8XSZL8U&sprefix=how+to+avoid+a+climate+disaster+by+bill+gates%2Cstripbooks%2C142&ref=nb_sb_noss_1