

Some concluding remarks

After 26 chapters and about 600 pages some concluding remarks and observations are in order.

There has been substantial funding and innovation in this space. Consumer awareness and active support for sustainable green products are on the rise. However, commercial adoption has been slow and uneven.

Today, scientists and policymakers generally agree that climate change is an existential issue worldwide. Consumers and companies offering products to serve their customers in myriad markets, and applications are in tune with this assessment and starting to address them in a concerted manner. One standard economic policy prescription for cutting greenhouse emissions that drive climate change is adopting a carbon tax. This gives consumers an incentive to use less fossil-fuel-based products and an incentive to produce improved low-carbon technologies leading to electric vehicles, green power, and sustainable bioproducts.

Incentives for capturing greenhouse gases from current fossil-based products is a pragmatic, possibly interim, step (sometimes called blue products) in the transition to the ultimate goal of total green products. Another trend is an increased focus on recycle and reuse of products at the end of their useful life. Yet another one, mostly at the consumer level, especially with generation Z demographics, is reduced consumption. This is partially reflected in a 2021 book by J. B. McKinnon, entitled *The Day the World Stops Shopping: How Ending Consumerism Saves the Environment and Ourselves*. There is increasing awareness that life in a lower-consuming society really can be better with less stress and more time for personal growth and enjoyment. One of the challenges is balancing economic growth, a major engine for capitalism, against lower conspicuous consumption.

In the basic science and technology fronts, including R&D and manufacturing, of bioproducts rapid advances are taking place, and they are expected to keep accelerating facilitating market adoption of bioproducts.

And thus overall, prospects are bright. It is not going to be a linear path to the goal line. By the way, it is going to cost more for all.

Fight On!

