

Hope for a sustainable future: the convergence of technologies yields new possibilities

January 2021

By Anish De, Partner and National Head—Energy, Natural Resources & Chemicals, KPMG in India
(3 min read)

While 2020 posed immense economic, healthcare and humanitarian challenges, the silver lining was that the world extended its firm commitment to an environmentally sustainable future. Indeed, concerns on the environment, especially on climate, have been around for several decades. The global community has made significant commitments to address them in recent times – the Kyoto Protocol of 1991, the Paris Conference of Parties (COP) Agreement of 2015, and the UN Sustainable Development Goals which were outlined in 2015 for achievement by 2030. In 2020, these commitments were tested in a difficult context. The evidence, however, points to hope.

A sharp reversal in course, not just containment of unsustainable practices, has become necessary. While the dreaded Malthusian catastrophe — when population growth outpaces agricultural production causing food and resource shortages — hasn't played out, humankind has hurtled down an unsustainable track for more than two centuries. The last century or so has especially been damaging in many ways. Between 1920 and 2020, world population has grown four times from 1.86 billion in 1920 to 7.8 billion in 2020¹. While human ingenuity has yielded rapid technological progress that in turn has provided material comforts, it has led to an enormous strain on resources. Adjusted for inflation, in 1913 just prior to the First World War global GDP was well under USD5 trillion. In 2013 it had crossed USD 100 trillion, more than twenty-fold growth². Industrial gases, non-biodegradable plastics and the rapid release of greenhouse gases have pushed the world to the brink. Rich tropical forests, among the most effective carbon sinks, have been decimated. Biodiversity is being lost at an alarming rate, with animal population sizes declining 68 per cent since 1970³. We have become the proverbial bull in the fragile china shop of the global environment.

Early in the COVID-19 period, questions had been raised on whether the march of renewable energy would sustain, especially with the global economic turmoil and consequently, subdued energy demand. However, investments and sentiments around renewables (and clean energy in general) remained healthy with investors shrugging it off as a temporary blip in a long journey. Instead, investors, including stockholders of large energy corporations, started shunning carbon intensive portfolios. It has become very difficult to find new money for traditional coal-fired plants. Valuations of carbon heavy global majors slumped last year even as those of some cleantech players surged. Meanwhile, funds have flown into new technologies, including for the capture and use of carbon dioxide and for clean production of hydrogen on a very large scale. Most large energy players have been compelled to pivot, embracing decarbonisation goals like never before.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2021 KPMG, an Indian Registered Partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. The KPMG name and logo are registered trademarks or trademarks of KPMG International.

Change has been non-linear. Technologies can hover close to commercialisation for years before suddenly becoming viable and overtaking (and often entirely displacing) traditional alternatives. A popular example from the 20th century is the rise of the automobile, which not only replaced the horse carriage, but also opened up a whole new world of travel and social possibilities. Solar energy and energy storage have witnessed similar exponential trajectories (coupled with falling cost curves), damaging the core business case for complex high carbon fossil fuel-based technologies. This story is not just about the virtues of individual technologies, but of massive convergence among them, creating completely new possibilities. It is about convergence of solar power with agricultural pumps, furthering low carbon energy generation, water conservation and feeding back the surplus energy for other uses. It is about the convergence of wind and solar power, through a smart grid enabled by battery storage, delivering clean hydrogen across the world. It is about convergence of energy, mobility and digital technologies. It is about recycling flue gasses from oil refineries, cement plants, steel mills etc. to produce ethanol and jet fuels, supporting cleaner aviation. It is about producing bio-gas on a commercial scale from agricultural stubble that would otherwise need to be disposed via burning causing massive pollution. Technology, which in some ways has been at the heart of many environmental challenges, ironically promises to be our savior.

This will not be an easy path though. Sustainability will need to be embedded in every step, every action the world takes. Recycling waste, including carbon, must become the bedrock of policy and operating philosophies. All nations will need to set ambitious goals on environment, climate and sustainability and seek to overachieve them. Several major nations have set outer limits of time for going net-zero on carbon emissions – e.g. Uruguay by 2030, Finland by 2035, Sweden by 2045, Canada, European Union, Japan, New Zealand, South Korea, Switzerland and the U.K. by 2050, China by 2060⁴. More could follow as public opinion across the world comes to recognise the need for course correction.

The transition to a sustainable future will involve many dimensions, covering infrastructure, technology, capital, our personal habits and attitudes on conservation, and individual commitment to a cleaner and sustainable future. As we emerge from the pandemic with hope of immediate remedies through vaccines, we have gained confidence that we can win this battle to turn the clock on environmental damage and global warming, the greatest challenges that the world faces.

¹ Data from United Nations Department of Economic and Social Affairs, Population Division

² World GDP – Our World in Data based on World Bank and Maddison

³ Living Planet Report 2020, WWF

⁴ Which countries have legally-binding net-zero emissions targets? NS Energy, 05 November 2020

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.