

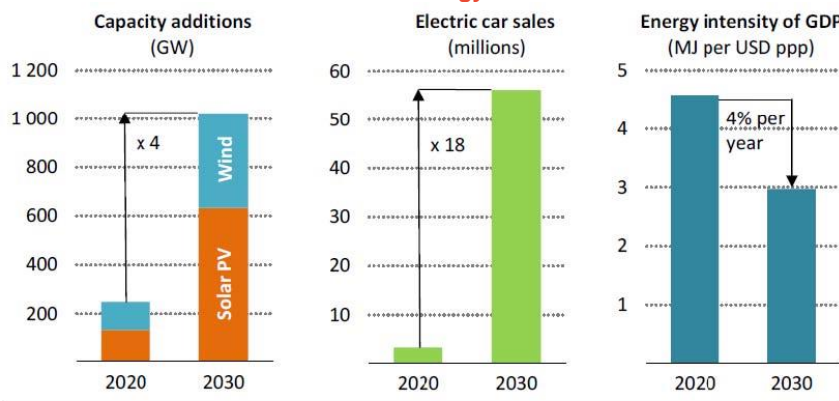
Fereidoon Sioshansi

This article originally appeared in July's edition of *EEnergy Informer*, a newsletter produced by Fereidoon Sioshansi of [Menlo Energy Economics](#) and editor of *Behind and Beyond the Meter: Digitalisation, Aggregation, Optimisation, Monetisation*.

The International Energy Agency (IEA) did something totally unexpected when it released a report that not only damned all additional investment in fossil fuels but offered a roadmap for reducing and eventually eliminating their use in most applications across the globe on a path to a low carbon future (see Figure 1). To say that it was a landmark publication, not least coming from what used to be an oil centric and fossil fuel loving international agency, would be an understatement.

While many in the fossil fuel business as well as fossil fuel exporting countries were probably caught off guard by the IEA's blunt message, the reception among the environmental and the climate change scientific community was jubilant. The prominent and respected global energy agency said that fossil fuel consumption and associated carbon emissions must be curtailed immediately if the politicians are serious about averting the worst effects of a warming climate.

Figure 1: The path to a sustainable future: More renewables, EVs and efficient energy use



Note: MJ = megajoules; GDP = gross domestic product in purchasing power parity.

Source: *Net zero by 2050: A roadmap for the global energy sector*, the International Energy Agency

clean energy transitions needs to accelerate much more rapidly to meet climate goals, according to IEA's *World Energy Investment 2021* published in early June.

The IEA expects 2021 to be the sixth year in a row that investment in the power sector exceeds that of traditional oil and gas supply. Global power sector investment is set to increase by around 5% to more than \$820bn, its highest ever level. Renewables are dominating investment in new power generation capacity and are expected to account for 70% of the total this year. The report, however, adds that clean energy investment would need to triple in the 2020s to put the world on track to reach net zero emissions by 2050.

IEA: The path to net zero by 2050

Published in mid May 2021, *Net zero by 2050: a roadmap for the global energy sector* is the "the world's first comprehensive study of how to transition to a net zero energy system by 2050 while ensuring stable and affordable energy supplies, providing universal energy access and enabling robust economic growth".

The IEA says the 2020s needs to be the decade of massive energy expansion, stressing that the technologies needed to achieve the necessary deep cuts in global emissions by 2030 already exist. Policies should be implemented to increase the deployment of clean and efficient technology, such as mandates and standards on energy efficiency to drive uptake, as well as targets and competitive auctions to increase wind and solar

The IEA's unambiguous message was further reinforced by a G7 motion to essentially end coal financing by the end of 2021 – the most carbon-intensive fossil fuel. The German Federal Constitutional Court's decision further reinforced the message that the time has arrived to take the threat of climate change seriously.

According to the IEA, global investment in energy is set to rebound by nearly 10% in 2021 to \$1.9trn, reversing most of last year's drop caused by the pandemic. But spending on

deployment.

In tandem with this, fossil fuel subsidy phase outs, carbon pricing and other market reforms can ensure appropriate price signals. Disincentives should apply to the use of certain fuels and technologies, such as unabated coal-fired power stations, gas boilers and conventional internal combustion engine (ICE) vehicles. Governments must lead the planning and incentivising of the massive infrastructure investment, including in smart transmission and distribution grids.

For the final period – 2030 to 2050 – IEA says achieving the level of emissions reductions required for net zero will rely on further rapid deployment of available technologies as well as widespread use of technologies that are not on the market yet. This means that major innovation efforts must occur in the 2020s to bring these technologies to market in time. The pathway finds most of the global reductions in carbon emissions to 2030 come from technologies readily available today, but in 2050, almost half the reductions come from technologies that are currently at the demonstration or prototype phase. This proportion increases when it comes to heavy industry and long-distance transport.

The roadmap has over 400 milestones, including, starting immediately, no investment in new fossil fuel supply projects and no further investments for new unabated coal plants. By 2035, there are no sales of new internal combustion engine passenger cars, and by 2040, the global electricity sector has reached net zero emissions. IEA also urges a ban on new fossil fuel boilers to be introduced globally in 2025, driving up sales of electric heat pumps.

Already major companies including Iberdrola of Spain and Mitsubishi of Japan have formed a partnership to develop renewable industrial energy. While the energy transition is a threat to many incumbents, it offers opportunities to newcomers as well as those willing to shift gears.

What the IEA, and numerous others who have been looking at the trends, are saying is a massive transformation of the global energy infrastructure on an unprecedented scale and speed. According to the IEA, solar PV and wind capacity additions, for example, must be four times what they were in 2020 by 2030 while electric vehicle (EV) sales must increase 18 times their current levels by the same time. In the meantime, the energy intensity of the global economy must decline by around 4% per annum.

A number of global companies, including a few oil majors, are beginning to recognise the emerging opportunities in clean energy rather than the threats inherent in the energy transition. Ultimately, it will be the businesses and the financial sector who will have to make the necessary investments. Governments can help by providing policy clarity.

CORNWALL INSIGHT

CREATING CLARITY

Energy Spectrum Europe: Delivering insight and analysis covering the pan-European market

Distils the important elements of sectoral developments across Europe, and EU policy and regulation in a concise and accessible manner, allowing you to stay ahead of market developments and gain unique insight into their potential impacts.

T: +44 (0) 1603 604400

E: enquiries@cornwall-insight.com

W: cornwall-insight.com

