**In case you missed it, last Thursday , the 22nd of April, was Earth Day 2021. To coincide with that event, US President Joe Biden and his Climate Envoy John Kerry held a Climate Summit involving 40 world leaders, to try to lock in some concrete actions ahead of the pivotal COP 26 Climate Conference to be held in Glasgow in November.**

**By coincidence, last week also saw the publication of the 2021 Global Energy Review from the International Energy Agency, or IEA, which you regular viewers of the channel will know is one of the organisations I often refer to for reliable data and statistics on current and future global energy use. They’ve been going for decades now, and they’ve kind of earnt a reputation as the gold standard of analysis on how our world is progressing with the transition to renewable technologies and a more sustainable way of organising our societies and infrastructure.**

**There was a lot of media reporting last year about green recoveries and new paradigms in work life balance potentially leading to a permanent reduction in urban pollution and global emissions, and no doubt we all caught a glimpse of what the world might look like without fossil fuels constantly belching out their filthy exhaust fumes all over the place.**

**We all marvelled at before and after photographs from some of the world’s most polluted cities, and looked forward to the promised great green reset in the way we all live our lives as a result of the existential soul-searching we’d all been given the chance to partake in during the enforced lockdowns.**

**It was all very enlightening. In some cases quite literally!**

**But it looks like we might be edging ever closer to the end of the pandemic tunnel, so what does the IEA prognosis for our global greenhouse gas emissions trajectory look like now?**

**You might want to sit down for this one…**

**Hello and welcome to Just Have a Think**

**We all know only too well what an extraordinary year 2020 was, you don’t need me to reiterate what we all went through, especially if you or a member of your family was one of the people unfortunate enough to be directly afflicted by the dreaded C-word.**

**One very slender silver lining to last year’s horrendous thunder cloud was the fact that global greenhouse gas emissions took an historical nosedive, dropping seven percent year on year. According to the IEA, global energy demand fell by four percent in 2020 – the largest decline since the second world war.**

**Oil consumption was the biggest loser, dropping by a whopping nine percent year on year. That shouldn’t come as a huge surprise, given that the transport sector makes up almost two thirds of total oil demand. As the lockdowns kicked in all over the world, hundreds of millions of daily road users suddenly found their morning commute now required only the navigation of their own staircase rather than the highway into town.**

**Air travel briefly came to an almost complete stand still too. For the full year the aviation sector was sixty six percent below 2019 levels, which meant demand for jet fuel and kerosene dropped by three point two million barrels per day.**

**Even freight transport saw a contraction of six percent or one point eight million barrels of oil per day.**

**Coal consumption also took a pretty good kicking in 2020. The decline in electricity demand resulted in an overall drop in global coal use of four percent - again the biggest single year drop since World War II.**

**It looked pretty grim for coal actually, as energy suppliers in many markets gave preference to renewables on their grids. That put a squeeze on both coal and gas in the energy mix. Gas producers were able to lower their prices in an attempt to compete, something the coal industry wasn’t able to do. And building and infrastructure projects came to a grinding halt in many parts of the world too. That meant a big slow-down in cement and steel production – both big coal consumers. The effects were most notable in the United States, where coal use dropped by twenty percent overall, and in the European Union, where it dropped by twenty one percent. In stark contrast though, the world’s biggest coal producer, China, actually managed to increase consumption as it re-opened it’s coal mines and restarted it’s immense industrial capability following a brief initial lockdown right at the start of the year. We’ll come back to that in a minute.**

**Global gas consumption declined by seventy-five billion cubic metres, which in absolute terms is the biggest drop ever recorded. And even in relative terms it still equals the record drop of 2009 following the stock market crash. Most of the decline was concentrated in the first half of the year though, not just because of lockdowns, but also because we had exceptionally mild weather in many parts of the northern hemisphere in the first half of 2020, which meant fewer heating systems were being fired up, resulting in a four percent decline in the first two quarters. The slow-down in the power sector accounted for a quarter of the overall gas consumption drop, with another thirty percent coming from the abrupt halt in the building industry and about twenty percent from industrial shut downs. But, as I mentioned earlier, the gas industry responded quite aggressively by lowering their prices to squeeze themselves back onto national electricity grids, most notably in the United States where gas demand for electricity generation actually went up by two percent despite the overall reduction in electricity demand.**

**Overall global demand for nuclear power also dropped noticeably last year, by about four percent. That was the largest decline since the Fukushima accident a decade ago. The EU saw a drop of eleven percent as a result of the overall slowdown and also some scheduled and unscheduled facility shutdowns for maintenance. Japan’s nuclear demand dropped by a whopping thirty three percent as they temporarily closed many of their nuclear power plants so that they could install new anti-terrorism safety features to comply with new legislation, and the general slump in consumption in the US translated into a reduction of two percent in nuclear power generation there.**

**There were some new nuclear power stations coming online though, most notably in China, resulting in a five percent increase in that country, and in Russia, which saw a three percent increase.**

**The real success story of last year though, at least in terms of energy consumption, was renewables.**

**Overall global renewable energy use increased by three percent as the demand for all the other fuels declined. The main driver was an almost seven percent growth in electricity generation from renewable sources. New renewable plants were continually being installed throughout the year despite the obvious supply chain challenges, and construction delays in many parts of the world. Those installations combined with long-term contracts and priority access to the grid, meant the share of renewables in overall electricity generation reached twenty nine percent, up from twenty seven percent in 2019.**

**According to the IEAs analysis, renewable electricity generation is set to expand by more than eight percent this year to reach eight thousand three hundred terawatt hours. That’s the fastest year-on-year growth since the nineteen seventies. Two thirds of that growth will come from Solar PV and wind with China projected to account for about half of the global increase.**

**Wind power will see the fastest growth of all the renewables, increasing by seventeen percent or two hundred and seventy-five terawatt hours in 2021. China is expected to generate 600 TWh and the United States about 400 TWh. Those two countries together will represent more than half of total global wind output.**

**China will also remain the largest market for solar PV but strong uplifts are expected in the States, India, Brazil and Vietnam – all countries where strong policy support is driving growth.**

**Overall solar PV electricity generation is expected to increase by a hundred and forty-five terawatt hours in 2021 to reach a total of**

**1,000 Terawatt hours.**

**Increases from all renewable sources, including hydropower and bioenergy from waste, should push the share of renewables in the electricity generation mix to an all-time high of 30% this year. If you combine that with nuclear power, then low and zero carbon sources of generation in 2021 will significantly exceed output from the all the world’s coal power plants.**

**All sounds very encouraging so far doesn’t it?**

**According to the United Nations, the seven percent decrease in greenhouse gas emissions that the world experienced in 2020 is almost exactly what’s required in every single year between now and 2030 if we’re to stand any chance at all of keeping average global atmospheric temperatures below 1.5 degrees Celsius above pre-industrial levels, so there was some understandable speculation last year that maybe we’d accidentally stumbled upon a blueprint for how we might actually achieve that goal, and those increases in renewable energy generation numbers certainly look like cause for optimism. And of course, you know there’s a massive ‘but’ coming don’t you…**

**That might be poor choice of phrase, but I think you know what I mean…**

**Despite everything we’ve just looked at, the IEAs research shows that global energy-related carbon dioxide emissions are currently heading for their second-largest annual increase in history. Demand for all fossil fuels is set to grow significantly in 2021, and overall CO2 emissions from all sectors are expected to rise by almost five percent. That’s an increase of one point five gigatons over 2020, immediately wiping out eighty percent of last year’s drop and bringing us right back to just one point two percent below 2019 emission levels.**

**I did say we’d come back to China’s coal production at some point, and now seems like as good a point as any…**

**We’ve already seen that China was the only country to actually increase coal production in 2020, and despite John Kerry’s recent visit there and an apparent agreement to cooperate on stricter measures towards climate change mitigation, XI Jinping shows no signs of curtailing the behemoth coal industry any time soon.**

**The Chinese government has put in place some big stimulus packages to support steel, cement and other coal intensive industries, and that comes on top of the already alarmingly rapid pace of new coal mine openings in that country, which accounted for eighty five percent of all new coal mines opened in the world last year.**

**Now in fairness, adding a hundred gigawatts of renewable power capacity onto their grid in 2020 was certainly a step in a positive direction, there’s no doubt about that. It means that coal will account for less than half of all new electricity generating capacity in China in 2021. But despite that the IEA still projects that coal demand in China will increase by a further four percent this year, which means consumption will surpass the 2014 peak to reach the highest level ever in that country’s history. China’s electricity generation increases in an almost one to one ratio with its economic growth. More than sixty percent of that electricity still comes from coal. So, the growth or decline of coal in China depends entirely on how quickly low carbon technologies like renewables and nuclear can come online.**

**The world’s largest democracy and second most populous country, India, saw a six percent increase in coal consumption in the fourth quarter of 2020, driven partly by a decline in hydro power generation. The IEA projects that the Indian economy is set for a strong economic rebound in 2021, which they reckon will drive up coal demand by almost nine percent, pushing it back up to one point four percent above 2019 levels, although the latest news about a nasty variant causing a dramatic surge in hospital admissions over there might yet bring about another national lockdown that would make a big dent on that prediction.**

**You might be tempted to think that coal is now a dying industry over in the United States, and the IEA does highlight a structural decline in the industry there, but even so, 2021 is still projected to be the first growth year for US coal consumption since 2013 as electricity consumption recovers to pre-Covid levels and gas prices creep back up again.**

**Those rising gas prices will subdue the growth of gas in America, with the IEA expecting gas consumption to stay about two percent lower than 2019 levels. But globally, the picture is a bit different, with a colder than normal Northern Hemisphere winter driving demand for heating higher. The IEA is projecting the overall global demand to increase by three-point two percent this year, which will erase all of the reductions seen last year.**

**Oil consumption will jump back up by about five point four million barrels per day, which is six percent higher than 2020. That’s still three percent lower than 2019 levels though, with aviation demand projected to remain twenty percent lower for the whole of 2020. But even with this most sluggish of all the fossil fuel demand growths, oil consumption is still projected to be back at the same levels as two years ago by the start of 2022.**

**The IEA’s Executive Director Fatih Birol discussed the report in a recent interview with the Guardian newspaper. He said**

**“This is shocking and very disturbing. On the one hand, governments today are saying climate change is their priority. But on the other hand, we are seeing the second biggest emissions rise in history. It is really disappointing.”**

**Birol compared the current surge of emissions to the period just after the 2009 financial crisis, when emissions rose by more than six percent as countries tried to stimulate their economies through cheap fossil fuel energy.**

**“It seems we are back on course to repeat the same mistakes,” he warned. “I am more disappointed this time than in 2010.”**

**So, the metaphorical green green grass of home is still some way further off than last year’s brief respite might have led us all to believe. All of which means the decisions and agreements made by our world leaders in Glasgow this November will determine whether we really are committed to keeping atmospheric temperatures below two degrees Celsius and as close as possible to one point five degrees, or whether we’ll set ourselves on a course to sail straight past those dangerous limits into a warming world with consequences that our species has never had to face at any time in its entire existence.**

**I’m quite sure there’ll be strong views on this report one way or another, so if you feel you want to express yours then jump down to the comments section below and leave your thoughts there.**

**That’s it for this week though.**

**Thanks as always to the fantastic group of incredibly generous people who support this channel via Patreon and help me keep the video content independent and ad free. And I must just give a quick shout out the folks who’ve joined since last time with pledges of ten dollars or more a month.**

**They are**

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**Deepak Farmania**

**Grant Wilson**

**Stephen Ward**

**Ali Gunes**

**Gordon Stallings**

**Simon Lewis**

**Rob Urselmann**

**Michael Isaacson**

**Richard Upton**

**Electrified ICE**

**And Sean McNamara**

**And of course, a big thank you to everyone else who’s joined since last time too.**

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**As always, thanks very much for watching, have a great week, and remember to Just Have a Think.
See you next time.**