**If we humans want to have any chance of achieving a forty five percent reduction in greenhouse gas emissions by twenty thirty, which is what the Intergovernmental Panel on Climate Change or IPCC tell us is essential, then it’s patently obvious that there’ll need to be some kind of behavioural change on a scale that hasn’t been seen since the dawn of the industrial revolution.**

**The question is, how on earth do we actually make that change happen in reality. Some argue that only the wholesale destruction of our current growth paradigm will do the job**

**But others maintain that change will have to come from within the current system, however deeply flawed it may be. One suggestion is to implement market regulating mechanisms like an International Carbon Pricing system to incentivise low carbon activity and penalise high carbon emitters. And then there’s the even more direct strategy of simply ending fossil fuel subsidies.**

**That’s about five hundred billion dollars a year. Sounds like a lot, doesn’t it? But analysis published in September twenty-twenty one by the International Monetary Fund points out that that’s just the direct subsidies. When all the indirect, unpriced impacts of fossil fuels are factored in, the IMF found that the effective subsidy number jumps up to more like six TRILLION dollars a year. That’s nearly seven percent of total global economic output dedicated entirely to supporting fossil fuel greenhouse gas emissions going into our atmosphere.**

**So, do we really need an International Carbon Pricing mechanism, or do we just need to get real about the size of fossil fuel subsidies and get on with removing them as quickly as possible, or do we perhaps need the first initiative to achieve the seco… OK my brains exploding!”**

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

**Working out exactly where money comes from and where it ultimately ends up in our global economic system is about as easy as counting the grains of sand on a beach…while the tide’s coming in!**

**And it’s an even bigger challenge to identify all the secondary costs associated with activities like the burning of fossil fuels. Things like local air pollution and environmental damage are not generally factored into governmental fuel taxes or corporate spreadsheets and so they’re often not reflected in the pricing structures of those fuels.**

**The IMF analysed a hundred and ninety-one countries around the world and found that this so-called under-pricing existed everywhere they looked. It was particularly noticeable for coal, which is the dirtiest of all fossil fuels, not only emitting the most CO2, but also releasing extremely damaging particulates wherever it gets burned. Natural gas was found to be the second most under-priced, followed by diesel and then gasoline petrol as we call it here in the UK.**

**Taken as a whole, that under-pricing can be plotted as an absolute number in US dollars, which the IMF very helpfully did in this chart starting in twenty fifteen and projecting right through to twenty-twenty five.**

**The light grey bars represent the amount of DIRECT subsidy put into fossil fuels globally in government support for oil and gas exploration and also in tax breaks for certain activities. Roughly speaking, it’s somewhere in the region of half a trillion dollars each year.**

**But if all the implicit subsides are taken into account, like air pollution, health costs, infrastructure damage from climate change and stuff like that, then you get a very different picture.**

**On this basis, fossil fuel subsidies globally were five point nine trillion dollars in 2020.**

**If we plot that as a percentage of global output, better known as Gross Domestic Product or GDP, then those subsidies represented six point eight percent of global GDP in twenty-twenty and are expected to increase to seven point four percent by twenty-twenty-five, as the share of fuel consumption in emerging markets continues to climb. That means that ninety-two percent of what are effective fossil fuel subsidies are not currently accounted for.**

**The IMF report breaks those numbers down even further to show that forty two percent of the under-pricing can be attributed to air pollution, followed by a lack of compensation for the global warming effect at twenty nine percent and then other local hazards like congestion and road accidents at fifteen percent, before you get to the eight percent of subsidies that are actually declared.**

**Now you can argue about whether or not all of those criteria are valid, but if you were to adopt the clear-eyed, objective logic of an insurance risk assessor then you would most likely conclude that if the hazard had not been there in the first place – in other words if the world had not been burning fossil fuels, then those consequences and their associated costs would not have occurred, and therefore some or all of those consequent costs must be applicable to the root cause of the hazard – i.e. fossil fuel production.**

**Here’s a chart that many of you will be familiar with. It shows the global CO2 pathways for temperature targets, produced by the IPCC in their most recent report.**

**These three zones indicate where we actually need to be. Anywhere in the light green zone will limit warming to two degrees Celsius above pre-industrial levels. If we hit the mid green zone then we’ll be on target to limit warming to one point eight degrees, and the dark green zone takes us down to the relative safety of only one point five degrees of warming.**

**The IMF analysis shows that if all those implicit fossil fuel subsidies were removed and what they refer to as ‘efficient fuel pricing’ was immediately applied globally, then CO2 emissions would be reduced by thirty six percent by twenty-twenty-five, taking us right down into the safe zone.**

**And they argue that this so-called Efficient Fuel Pricing would also raise substantial revenues, worth about three-point eight percent of global GDP, while also avoiding almost a million premature deaths from local air pollution every year.**

**But we’re in a bit if a grey area here aren’t we?**

**What one observer might regard as subsidy removal, another observer might describe as a carbon tax, which brings questions about potential economic impacts on businesses and livelihoods, and whether something like this can be achieved without simply shifting economic activity and emissions from one part of the world to another, which is what’s happened in the past.**

**Those are precisely the sorts of questions that are been posed in this insight report from the World Economic Forum, published in November twenty-twenty-one, just ahead of the COP 26 climate conference.**

**It analyses a mechanism called the International Carbon Price Floor or ICPF proposed by the International Monetary Fund in June. The cost of carbon dioxide and other GHG emissions is currently priced at anything from zero dollars to a hundred and thirty dollars per tonne depending on geographical location. And it varies even more across different industrial and commercial sectors. That variation creates an uneven playing field across territories and industries, which means there’s less incentive for some countries to reduce their emissions and a very large incentive for so called ‘carbon leakage’, when nations with high carbon prices simply shift their carbon emissions to nations with low carbon prices.**

**The ICPF mechanism proposes different emissions price points for economies at different stages of development to incentivize greater participation from all countries in all parts of the world.**

**By twenty-thirty the mechanism would set a price per tonne of carbon dioxide at seventy-five dollars for high income countries, fifty dollars for middle income countries and twenty-five dollars for low-income countries.**

**So, what would that actually do?**

**Well, the WEF found that the effect of the carbon price floor on greenhouse gas emissions reductions relative to the business-as-usual baseline ranges from nine-point five percent in what they refer to as the core scenario, through to twelve-point three percent when every region, every industrial and commercial sector and all Greenhouse gas emissions are included in the scheme.**

**I’m sure all the economists in the audience are quietly wondering what effect those measures would have on the commercial viability of those companies and therefore on economic output or GDP. Well, it might not be as disastrous as you imagine. The analysis showed that the global reduction in GDP would be less than one percent, even when all industries, territories and GHGs are included. And crucially, by fully implementing the carbon pricing floor the world would avoid the massively damaging costs of reduced agricultural productivity, sea level rises and other health effects of global warming, all of which, even under the most conservative of projections, would offset most, if not all, of the direct GDP loss from the ICPF.**

**It’s not a level playing field though. Lower income countries that rely more heavily on coal are likely to be hit relatively harder, so the ICPF model redistributes its revenues as a sort of carbon dividend to help fund the energy transition in developing nations.**

**And those geographical price gradients in the scheme that I mentioned earlier, will also significantly reduce the problem of carbon leakage. But, just like everything else in our fight against climate change, for the ICPF to work most effectively it really would need everyone to join in. This chart shows how much carbon leakage there would be if there was only a seventy-five-dollar carbon price in high income countries and no carbon price at all in middle and low income countries. Quite clearly, businesses would simply shift as much of their activity as possible to those unpriced territories. But once all three carbon prices are applied, then the incentive to move almost completely disappears.**

**Now this all might seem a bit draconian and heavy handed to some of the more libertarian viewers in the audience, but in fact even this International Carbon Pricing Floor mechanism still doesn’t go far enough. That twelve-point three percent reduction in greenhouse gas emissions that I mentioned earlier wouldn’t keep global warming below two degrees Celsius. Even if all nationally determined contributions were genuinely achieved and combined with ICPF carbon pricing then the overall reduction of TWENTY-TWO percent by twenty thirty would still be at the upper limit of the two degrees Celsius range. According to the twenty-twenty UN Emissions Gap report, to give ourselves just a sixty-six percent chance of keeping warming to one point five degrees, then that forty one billion tonnes of annual CO2 equivalent emissions would need to drop by another thirty nine percent, right down to twenty five billion tonnes by twenty thirty.**

**I know that’s a lot of numbers coming at you thick and fast, and as always, if you prefer to quietly read and absorb the analysis in a darkened room with a strong coffee, then I’ve left the links to all the relevant papers in the description box below. The bottom line though is that we’ve got approximately zero chance of staying within one point five degrees of warming with current global policies. Arguably the only way to remove fossil fuels quickly enough is to price them honestly and transparently. To borrow the rather brutal words of energy industry expert Tony Seba in this November twenty-twenty blog**

**“Without those subsidies and monopolies, left to the mercy of genuinely open and transparent electric energy markets, these doomed industries would crumble under their own economic dead-weight while allowing solar, wind and batteries to scale even more rapidly than they are today.”**

**See you in the comments section!**

**That’s it for this week though.**

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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 week.**