HOUSE OF COMMONS

Treasury Committee

Oral evidence: Committee on COP26: climate change and finance, HC 519

Monday 5 July 2021

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Watch the meeting

Members present: Mel Stride (Chair); Rushanara Ali; Harriet Baldwin; Felicity Buchan; Dame Angela Eagle; Emma Hardy; Siobhain McDonagh; Alison Thewliss.

Science and Technology Committee member also present: Aaron Bell.

International Development Committee member also present: Chris Law.

Environmental Audit Committee member also present: Jerome Mayhew.

Environment, Food and Rural Affairs Committee member also present: Neil Parish.

Questions 1 - 67

Witness

I: Mark Carney, The Prime Minister’s Finance Adviser for COP26 and UN Special Envoy for Climate Action and Finance.

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Examination of Witness

Witness: Mark Carney.

Q1 **Chair:** Good afternoon, and welcome to this Treasury Select Committee evidence session. This is part of a series of evidence sessions scrutinising our preparations for COP26 in conjunction with nine other Select Committees. We are very pleased to be doing the hosting on this occasion, and to have colleagues from four other Select Committees, those being the Environmental Audit Committee, the Environment, Food and Rural Affairs Committee, the International Development Committee and the Science and Technology Committee. Welcome to the members of those committees who are joining us today.

Today we are going to be focusing on climate change and finance. We are very pleased to welcome Mark Carney to give evidence to us today. Mark, welcome. Thank you very much for joining us. I wonder if you could start by introducing yourself, your title and your role within COP26. That would be really helpful.

Mark Carney: Thank you very much. I would like to thank the members of the four committees for taking the time and for their service. My name is Mark Carney. I serve as the Prime Minister's climate finance adviser, and I also serve as a special envoy for the UN Secretary-General for climate action and finance. Both roles are focused on COP26.

Q2 **Chair:** Can you outline to us at the beginning what your goals are in terms of your involvement at COP26? What are you trying to achieve here?

Mark Carney: I lead a small secretariat that is focused on the private financial flows with respect to climate change. Our objective is that we mainstream climate finance, such that every professional financial decision takes climate change into account, just as a financial decision would take the creditworthiness of a company into account. Sometimes it is absolutely decisive, as when you are making a loan. Sometimes it is one of several points of interest, such as in an equity investment.

We are doing two very broad things. There is a lot of detail around this; I believe we have furnished the TSC, at least, with our climate strategy. It is publicly available, and we will furnish it to all members if they need it. First and foremost, what we are doing is changing the core of the plumbing of the financial system. This is everything from climate disclosure, to stress testing, to how investors treat their investments and their alignment with climate. I am sure we will get into this in questioning. There is a great deal of work on the plumbing. Just to underscore, this is a global effort.

Secondly, we are also working on developing some critical missing markets. One is for carbon offsets on a global basis. Another is for blended finance; obviously that is of interest to everyone, but particularly for the International Development Committee members.

I said we are doing two things, but I really should add a third. The third thing is getting commitments from the private financial sector to manage their assets consistent with the objectives of the UK Government—net zero by 2050 and the pathway to achieve that—but also consistent with the objective of the Paris accord to achieve net zero consistent with limiting temperature rises to less than 2°, and ideally to 1.5°.

Q3 **Chair:** You mentioned the secretariat that you have to support you. Do you feel you have enough resource and enough support from Government to meet those goals, or to give it your very best shot to meet those goals?

Mark Carney: I think we do. We are stretched, as everyone is at these times, and given the enormity of the task. We have 10 secondees from Her Majesty's Treasury. We have an additional 15 people, including myself. 10 of those are from the Bank of England and four are from broader Whitehall, including BEIS. I should not say "broader Whitehall", because three of those four are from the FCA and one is from BEIS. The other is me.

We have that core group, and we are then leveraging, if I can use that word, a series of working groups on all of the initiatives, which are staffed with a combination of private sector people and individuals from NGOs. We leveraged the TCFD. We have work on portfolio alignment. There are over 400 individuals working on the voluntary carbon offsets. It goes on and on. We are trying to make the most efficient use of resources. We are stretched, but we are able to call on broader resources, including from the COP unit.

Q4 **Chair:** Turning to the pandemic and Covid, how has that affected you and what you are trying to achieve here? Have you had to dial down any of your ambitions or activities as a consequence?

Mark Carney: Interestingly, I would say we have ramped up. As I am sure members are aware, the pandemic has focused minds tremendously on issues of the need to build resilience, to take science seriously and to reset the pathway. It has added time to the preparations for COP26, fortunately. The consequence is that we have either achieved or are within sight of achieving the objectives that we set out in February 2000. They are detailed in our COP strategy.

What we have done, as you would expect, given the urgency and enormity of the task, is added ambition to our objectives. We are doing much more work on blended finance, for example. Our ambitions for what the private sector should accomplish have been increased. We are pushing much more broadly, for example, on mandatory disclosures. Curiously, despite the challenges of working and the strains on everyone, the pandemic has certainly not impeded the results. If anything, it has reinforced them.

Q5 **Chair:** The pandemic has helped with reducing carbon, in the sense that people are working more remotely and there is less travel, and less air travel in particular. Are there any lessons that you have taken from that kind of mechanism, if you like—that something very dramatic has happened and it has led to a reduction in carbon—that you think are useful to take forward in your thinking as to how we should approach reducing carbon in the future?

Mark Carney: Without question. I will draw two conclusions; we can go more broadly. The first is the nature of remote work. All members will be familiar with the effectiveness and, in retrospect, the superfluousness of a lot of foreign travel. I recall, when I first became chair of the FSB about a decade ago, I tried to cut the number of FSB meetings in half and use video conferencing as an interim mechanism for meetings; it was met with too much resistance—let us put it that way—so we had to revert to all showing up in Basel far too regularly. That lesson is clearly learned. We, individually and collectively, are responsible for retaining and enforcing it.

The second thing is that, when we look at emissions globally—and in the UK and Canada, for that matter—they fell in 2020 at a time when we substantially shut down large swathes of our economy, but we cannot compound that. We cannot shut down bigger swathes of our economy in order to compound that 7% or 8% per annum emission reduction we need to be on the pathway to net zero. One of the lessons that is underscored is that we need to invest to move to net zero. There is a large scale of investment and it will not be achieved by efficiencies alone, as important as efficiencies are, and some of them have been pointed out to us.

Q6 **Chair:** Do you think the goal of achieving 1.5°, as set out in the Paris climate agreement, is achievable? Are you sitting there thinking this can be done or, in your heart of hearts, are you thinking this is a pretty tough gig?

Mark Carney: We have left it exceptionally late and it requires a very broad range of initiatives and absolute focus in order to achieve it. As you well know, it requires a global effort. UK leadership is essential but it is not sufficient. We can still get to a position in Glasgow where that 1.5° is within reach, both in terms of what has been done and what is committed to do. If there is another lesson we can take from the Paris accord it is that after people went home they did not do what they said they were going to do, and there was further backsliding. Execution will be essential.

I would underscore, as I am sure you have seen from your previous sessions and your own work, that there is tremendous momentum in the private financial sector around this agenda. There is real focus. Now is the time to fully align the private sector with the 1.5° goal. I would not let that go, but the direct answer in parliamentary testimony is that we have left it very late and it will be a challenge.

Q7 **Emma Hardy:** With those final words ringing in my ears, I am going to ask questions on the role that central banks and regulators can have in advancing that net zero target, especially thinking about the points you just made about our having left it very late. The FCA and PRC's latest remit requires them to "have regard" to the Government's commitment to achieve a net zero economy by 2050. When considering how to advance the objectives and discharge their functions, what do you see as the appropriate role of the regulators in facilitating and encouraging the firms they regulate to actually invest in this transition to net zero?

Mark Carney: I will speak first to the PRA. To its credit, the PRA has been early on these issues, consistent with its remit. It certainly has regard to direction as appropriate, ultimately through Parliament but the Chancellor's remit reinforces this. The climate stress test is critical; it has just been reinforced by the new NGFS scenarios, and, very importantly, a scenario that is consistent with exactly what we are all striving for, which is 1.5°, and fully understanding that. The execution of that is exceptionally important.

Secondly, the day-to-day nature of supervision and provision of the supervisory expectations around managing climate-related risk is also essential, so that it is fundamentally embedded. Part of the way the PRA will embed this climate risk management is working with the FCA and the private sector through the Climate Financial Risk Forum, which was set up two years ago, during my time. It is making that truly operational

We can go into more detail on any of this as you wish, but the next thing is that what has shifted—and this goes back to where the Chair started—much more decisively in the last 15 months is that net zero has cascaded down from a country-level objective to the level of firms and the level of financial firms. When it comes to both the PRA and the FCA, those supervisory expectations move even more from a risk management question to a fundamental business strategy question: how is your business strategy consistent with net zero? In other words, what is your net zero plan? That is not necessarily a question that would have been asked two years ago, but it is very much, in my judgment and I suspect theirs, a question that would be asked now. How robust is that plan? How has it been diligenced? How well has it been executed?

This is stepping away from the regulators per se, but I took note of the Chancellor's comments with respect to expectations around net zero plans in the financial sector, with further perspective on that by the end of this year. I am referring to his comments at Mansion House.

Q8 **Emma Hardy:** You said it is important that they have a plan and that they previously might not have thought about it, but do you think there is also a role for the regulators to actively incentivise the transition to net zero? Rather than just expecting them to have a plan, should they incentivise them to follow that plan?

Mark Carney: I have two comments on that. The first is that I do not think it is the role of the regulator to step in and provide a proxy or replacement for climate policy, which is properly the responsibility of other authorities, and ultimately Parliament. The regulators should not use capital standards as a form of carbon tax. That said, the expectations—to use an imperfect term, not a supervisory term—should be hardening as climate ambition in the United Kingdom becomes greater, as should the extent to which it is backed up by more robust policy, and the tools are now in place to do that.

Let me give you a specific example. The 68% objective for 2030 and the 78% objective for 2035 are clear objectives. As you well know, there is an assessment by an independent body that assesses how well Government and climate policy match up to those. That is one point of interest.

The supervisory expectations would not stop at just what the current policies are today but would look at what additional policies are required to meet the 68% and 78% objectives tomorrow. That is a fundamental question in terms of strategic resilience of the bank or the insurer, in the case of the PRA, and maybe the asset manager for the FCA. That assessment is the judgment of the firm. It is not the requirement of the regulator, but it is the judgment of the firm and the boards of the firm whether they should adjust strategy consistent with that.

On top of that—I am now stepping away from supervisory expectations—what has happened in parallel, including through the work of the private finance hub for COP26, is that most major UK financial institutions now have net zero plans themselves. In net zero plans the expectations will of course be that those plans and commitments will be consistent with UK policy. You have supervisory expectations coming from this level, but you also have strategic commitments and board-level commitments for these plans. If I am your supervisor and you are the institution in this conversation, if you have made a public commitment to a net zero plan, I expect you to have an execution strategy to deliver against that.

You are not suggesting this, but in both of these ways it is not the regulator stepping into the responsibility of Parliament; it is the combination of good risk management plus a bank or an insurer delivering on what they say they are going to do.

Q9 **Emma Hardy:** Thinking about delivering on what they say they are going to do, in the letter that you wrote to the Committee in 2020, you said that there are difficulties in implementing the brown penalising factor, because it might deter businesses who are transitioning. Do you think the Bank should keep that punitive measure? Do you think that having an ability to punish companies and organisations that are not looking at net zero or taking it seriously enough should be something keeps in reserve?

Mark Carney: I am not sure I would necessarily use the word "punish", but it is increasingly risky to lend to or invest in a company that itself does not have a plan for decarbonising or is not consistent with that. The essence of the system we are trying to put together is that for the companies in hard-to-evade sectors—steel and cement are two classic examples—that want to invest, have plans to invest and need capital in order to move forward, we want to have a system set up so that the bank, the investor, the insurance company or whoever is not prevented from providing that capital. That is the key point.

However, if you are in a hard-to-evade sector, or even an easy-to-evade sector—a relatively low-emissions sector—and you have no plan, make your judgment accordingly, but I, as your supervisor, am probably not going to look very positively on you if you are lending to or investing in somebody who does not have a plan for net zero when the UK strategy is very clear. It is a reasonable expectation that policy might not be perfect today, and may still be imperfect tomorrow, but it is likely to be more aggressive, if I can put it that way, in terms of delivering the climate goals.

Q10 **Emma Hardy:** Finally, I was just reading about the Banque de France, which conducted the world's first climate stress test in May. The Banque de France is looking to speed up the response to climate change, and it seems to be putting quite a lot of pressure on companies. As the former Governor of the Bank of England, do you see this as something the Bank of England should be looking at doing as well?

Mark Carney: Yes, I do. In fact, when I was Governor we announced that we would be conducting a comprehensive two-stage climate stress test that would get the initial reactions from the institutions, with some expectation that they would have imperfect information from the companies they are lending to, and then have them go back and do it again.

One casualty of the pandemic, rightly so, was to delay the launch of that stress test to now, given everything that was going on. The Bank of England's stress test is quite intense and comprehensive. It will have the benefit of having new scenarios, called the NGFS scenarios, which are quite comprehensive and are consistent in terms of climate outcomes, macroeconomic outcomes and financial outcomes. It will make the stress tests that much more effective. The Bank has launched that, and it is a very important supervisory tool.

Through the example of the Bank of England and the leadership that Sarah Breeden has shown in this area through the NGFS, we are in a position where more than 20 central banks around the world, including the Banque de France, the ECB and others, are in the process of conducting these climate stress tests.

Q11 **Harriett Baldwin:** Thank you, Mark, for all that you are showing in terms of leadership in this area. I want to understand a little bit about the Glasgow Financial Alliance for Net Zero and how you would define success for that initiative.

Mark Carney: It is a very important initiative. For those who may not have tracked it, it was announced in April at President Biden's climate summit. It brings together a series of alliances, asset managers like Schroders and others, including some of the world's biggest asset managers, asset owners, pension funds, insurers and banks; for the first time, this is a true net zero alliance for banks.

The first element of success is the design of the alliance, because the commitments of the institutions that have joined this—you know this but, again, for reference, there is $70 trillion of balance sheet in this alliance, which sounds like an enormous number and is even bigger than it sounds—are net zero by 2050, interim targets for 2030, and five-year decarbonisation plans, as well as sectoral decarbonisation plans for the banks within 18 months. It goes back to a bit of the previous conversation. In addition, there is annual disclosure for financed emissions, so the emissions of the portfolios those institutions have.

The first element of success is getting the institutions in there with these gold-standard commitments. I would like to take the opportunity to make it absolutely clear that there is one gold standard for a financial institution's net zero plan, and that is being a member of the Glasgow Financial Alliance for Net Zero. That is the only alliance that is part of the Race to Zero and therefore part of the COP process. We encourage those that are not in to join. I commend Nationwide building society for joining last week.

The second thing is that it is not just about being in a club; it is obviously about decarbonisation. There are a series of workstreams that have just been launched that include what a good net zero plan is for a financial institution; what the learnings are across the different types; what is expected from companies, which is critical in ensuring that they get the right information; how to work together the different elements of financial market infrastructure—I am sure we will come on to that—and how to make that most effective; what is required in terms of financial regulations so the institutions have what they need; and also what types of policies countries can pursue that would help.

A last point, which I will underscore, is about where the gaps are in the financial system. We have the core of the system. To be absolutely clear, we are looking to grow this number between now and Glasgow and then beyond, but there are gaps. There are gaps in the private markets, for example. What can we do to fill those gaps? It is an obvious point, but we do not want to decarbonise at the core and then push things into the shadow and emissions continue. The alliance in itself is an accomplishment, but we need to grow that alliance and advance these workstreams into Glasgow.

I left out one very important thing in terms of workstreams, which we will come on to, which is mobilising capital into emerging and developing economies.

Q12 **Harriett Baldwin:** I was going to ask about that, but just so I understand the architecture, you have the Race to Zero. Within that, you have the Glasgow Financial Alliance for Net Zero, and then you have the Net-Zero Banking Alliance as a subset of that. Am I understanding that architecture correctly?

Mark Carney: That is right. What happened was that a series of alliances or groupings of financial institutions were developing over time. There was something called the Net-Zero Asset Owner Alliance, which was highly credible and quite a high standard net zero asset managers' alliance. There was then a series of other things that added value but were not as rigorous as the standard of Race to Zero. As you are familiar, Race to Zero covers the whole economy, so the real economy as well as the financial. We needed to bring something to the standard of the Race to Zero, which is a very high standard. We wanted to bring the core of the financial system to the same levels between asset managers and banks.

Q13 **Harriett Baldwin:** You mentioned emerging markets, but what about the big emitting countries? Do you have members in those countries? Are you particularly focusing on widening membership in those countries? To go back to my question, what does success look like in terms of that geographical diversification?

Mark Carney: We have members from five continents, but we need to broaden the alliance within Asia. We have members from emerging economies, but we need to broaden within emerging economies. For example, we do not yet have sovereign wealth funds as part of the alliance. We would look to broaden that as well. To be clear, we will be asking the question of institutions around the world about whether they are in or out.

Q14 **Harriett Baldwin:** What does this mean for my constituents and all of our constituents? Would this mean they apply for a mortgage for their house with an oil-fired boiler and they will start to find it difficult to get a mortgage for that kind of house? How is that going to translate into our constituents' real, felt experience of financial institutions?

Mark Carney: The first thing is that if you are applying for something that is retrofitting or moving towards a green mortgage, there is going to be a tremendous amount of capital for that.

The second thing is that one of the core things we are doing, particularly at the retail level—your constituents—is to see where there is any inconsistency with policy. We cannot have a situation, exactly as you are saying, where substantial numbers of individuals are cut off. As you well know, under the 10-point plan, from memory, the Government have an objective of 600,000 heat pumps installed per annum by the middle of this decade. That needs to be up and running and other alternatives need to be up and running, with financing consistent with that. I would also remind you that this is, of course, about financing the transition. Just to underscore, it means there is a tremendous amount of capital that is looking to finance decarbonisation initiatives.

Q15 **Harriett Baldwin:** Does that go for around the world as well? You are as familiar as anyone with the risk weightings that Basel would put on financing, for example, solar power in an African country. Is that another part of the piece of work you are doing in this financial sector?

Mark Carney: Yes. Ultimately, as you know, the decisions around the Basel standards are the responsibility of the Basel committee. We are working closely with them and the Financial Stability Board in terms of improving and evolving the capital framework. It is ultimately their decisions, but the same risk characteristics hold, to different degrees, given different transition pathways between a sub-Saharan African country, for example, and the UK. The same broad principles hold in terms of capital and financing consistent with the transition is going to be much more cost-effective than financing that is not consistent with it.

Q16 **Harriett Baldwin:** Do you see part of your role as trying to influence the Basel committee in terms of some of these risk ratings?

Mark Carney: It is to inform.

Q17 **Felicity Buchan:** It is good to see you again, Mark. My questions focus on the role of Government. In your speech in Glasgow on the transition to net zero, you said 10 sectors would require $120 trillion of investment over the next three decades. That is a pretty big number to get one's head around. Could you first explain how you came up with that number? I am then interested in how you see it breaking down between public and private.

Mark Carney: That is an excellent question. There are a few ways to cut into those estimates, and I am going to use some cross-referencing. The first is to recognise, as you do, that on average—it varies by country—almost three quarters of emissions come from final direct demand for energy. It is petrol for the cars we drive, what heats our homes or buildings, electricity itself and everything in industrial processes. There is a core element of this that is inescapably the energy transition. There are other industrial processes that need to change; cement is a very obvious example, as well as things in agriculture, but the heart of this is the energy transition.

The scale of the investment required for the energy transition—the most recent estimate of this would come from last month's report from the International Energy Agency—is on the scale of doubling annual energy infrastructure investments from $2 trillion to $4 trillion per year. About 50% to 55% of that, it varies by estimate, is in Asia, broadly; Asia is quite large. About 13% to 15% would be in the EU, and it is something similar in North America. If I add Japan and round it, a little less than a third would be in the G7.

The core is energy infrastructure. That extends quite widely across the economy. I am oversimplifying, but the essence of that issue is to shift to renewables as fast as possible and to grow the grid by a couple of orders of magnitude over the course of the next few decades. There are certain sectors that, in and of themselves, are very high-emitting. For example, steel is 7% of global emissions; cement is a little less but similarly significant. There is a series of technological progress that needs to be made. The technologies are identified but are not yet at scale in order to accomplish that.

About 60% of those emissions—probably a little more now—can be decarbonised economically, efficiently and profitably, at anything like a shadow price of carbon, at around $75. In other words, it is a combination of carbon price plus regulation in that area. That means there needs to be further progress, as per UK economic strategy, in areas like hydrogen or direct air capture, and other technologies that exist but are not yet fully economic at scale.

Q18 **Felicity Buchan:** Given the fact you are expecting that 60% can transition economically and efficiently, in a very simplistic way, is that the rough balance you are looking at in terms of private versus public financing?

Mark Carney: I am sorry, I did not properly address your question. The short answer is no. The reason for that is the expectation. First, for the 60% that can be effectively transitioned economically, yes, you would broadly expect that is going to be private finance, with a very important caveat that in developing economies there may be some risks, such as foreign exchange risk, political risk or some element of that, that might make sense to be borne by multilateral development banks in order to scale up private capital.

Secondly, one would expect a substantial proportion of the 40% to become economic. It is a three-decade transition. There is a frontloading of the type of investment that I was talking about. If we think about hydrogen and the hydrogen economy, it may not happen but it is a reasonable expectation that, by the end of the decade, certainly blue hydrogen, and green hydrogen maybe slightly thereafter—some people would think sooner, but I will just roughly say that—will become economic at scale. The question for Government is to what extent Government can have policy that pulls forward those dates or makes those dates certain. Some of those policies are in primary research, but a number of those policies demand certainty, so that the investment goes in today and pulls forward the adjustment.

Q19 **Felicity Buchan:** Given you are talking about these enormous numbers, is that indicative of the scale of commitments that you will be trying to seek in November at COP26?

Mark Carney: Yes, it is indicative. One of the things we are doing now is assessing the commitments that we have. You will see the product of this work, this analysis and these discussions. As with anything that projects further out, take it with certain grains of salt. It provides a perspective but it is not a promise. Broad brush, we are getting to the scale of balance sheet commitments from the private financial sector that could be sufficient for advanced economy investment on the scale we need.

That does not mean it is job done, by any stretch of the imagination, because the conversion of the 40% I talked about into something economic still has to happen. Planning permission has to happen. The money has to be lent to the right people, and they have to invest and execute. Lots of things have to happen. The challenge—again, very broad brush—is that it is likely that that is sufficient, but what about the rest of the world and the scale of the capital that is needed in the rest of the world, which is as big again as what is required in the advanced economies? That is one of the big challenges we all have to face.

Q20 **Felicity Buchan:** Are you confident that you are going to be able to solve that challenge? You mentioned Asia requiring 50% to 55% of the investment.

Mark Carney: It is all interconnected. Part of the reason why it is becoming more profitable, if I can put it that way, in expectation to invest in renewables, distributed generation or even early-stage hydrogen or zero-emission vehicles in advanced economies is because policy is becoming more credible. It is also partly a product of the policy environment in other countries. I am not trying to dodge the question, but the more there is the prospect of finance, the more there is going to be ambitious nationally determined contributions from countries, the more ambitious those NDCs are from countries, the more there is likely to be finance. That is what we are all trying to unlock.

The essence of what we have been trying to do in private finance is that two years ago a lot of the focus in private finance was niche markets. They are important markets at an early stage, but sustainability bonds, green this and green that. Our view was that we had to mainstream it to get the order of magnitude of capital that is required. We are getting there, but we are not yet getting there for the emerging and developing world. Hypothetically—and we will have a chance to talk about this—the carbon offset market is very important for that as part of the answer, but so is blended finance. Lastly, to repeat myself, it is the quality of the country plans in those countries themselves.

Q21 **Felicity Buchan:** What more can the UK Government be doing here? Do we need to be using taxation and subsidies more aggressively to change consumer behaviour?

Mark Carney: One of the lessons is clarity, predictability and credibility about policy. If it is a subsidy, there needs to be commitment in having it flow through, but if it is around a regulation or a tax, it can be delayed but it has to be credible that it is coming in. For example, we have been saying for a long time that the 2030 moratorium on internal combustion engine vehicles is a very valuable policy, because that sends a signal to the type of investment we need today in order to deliver the types of vehicles we are going to have from then on. There are lots of other factors that drive this, but we are starting to see it with the Nissan investment and the Stellantis investment.

The recommendation for Government is credibility. The more we have the private finance sector looking forward with net zero plans, credibility on policy to date, but very much in the future, will pull forward adjustments now and we will get the investment benefit, and then it will be easier to put in place the regulation or the tax at that point in the future.

Q22 **Dame Angela Eagle:** I want to spend a little bit of time exploring the climate-related financial disclosure requirements that you were involved in helping to prepare, and see how far they have got. What progress do you think has been made in getting firms to voluntarily disclose climate-related financial risks?

Mark Carney: There has been some significant progress, but it shows me the limits of a voluntary approach in this regard. To be more specific, there are about 2,000 firms around the world—they tend to be larger firms—that are supporters in reporting against the so-called TCFD requirements. These requirements came out literally three years ago, but they have begun to disclose. There are annual reports that are produced that assess those reports, in terms of what the companies are actually disclosing. They are much better at disclosing on governance, a bit on risk management and some on metrics, but they are less good on the forward-looking aspects of disclosures. To be candid, they are really poor on scenario analysis, which is the critical element of disclosure. What that strongly suggests to us is that there is a need to make them mandatory.

Q23 **Dame Angela Eagle:** The G7 said that climate change reporting ought to be compulsory. Clearly, once you have established the appropriate matrix upon which to report and have got some agreement on that, that would be ideal. How long do you see it taking to get to that desirable end?

Mark Carney: What the G7 did, initially with the Finance Ministers in London and then ratified by the leaders in Carbis Bay, was very important. It is exceptionally welcome, as was the UK’s leadership on this with the Chancellor’s announcement last November. How long will it take? As you know, the UK is phasing it in in stages between now and 2025 in order to have a proportionate approach.

What we are looking at is to have global application of these standards as quickly as possible. In this regard it is very significant that the IFRS, which is the body that oversees financial disclosures, is setting up a second pillar, which is around sustainability disclosures, the International Sustainability Standards Board, the ISSB. That is something we helped catalyse as part of our strategy. It will all be official at COP, and it is off and running. Its objective is that, by the latter half of 2022, it will come out with its first disclosure standard. It is taking TCFD recommendations, which are high level, and mapping them down to a level of disclosure standards that then have the prospect of being applied across 120 countries. As I suspect you know, the basis of that—and they have been explicit about it—is the TCFD standards.

Q24 **Dame Angela Eagle:** That is good news if it can be done; it would be rapid, lightning speed for a body of that sort. I sometimes feel that before we got global agreement on a standard, we would probably be past the point of no return on climate change. Are you optimistic they will manage to do it, because it took about eight years to change the Basel Convention after the global financial crisis?

Mark Carney: Your scepticism is well grounded. We should always be sceptical over international initiatives, or at least the timeframe for them. Here is why I am much more confident than I normally would be. First, we have been working on this, including with them, since we started this process. Secondly, as part of the process, Lucrezia Reichlin, a professor at the London Business School, who is heading this and basically devoting all her time to this, has brought in all of the existing bodies that are related to this. That is not just the TCFD, but something called SASB, which is the Sustainability Accounting Standards Board, the Carbon Disclosure Project and the Impact Management Project, which Clara Barby, who has headed that up, has been seconded to.

All of these bodies are funnelling in through the IFRS project, and the individuals who are the experts are working with the IFRS. It is not being reinvented. If you had asked me this question 15 months ago, I would have voiced a concern that what would happen is they would start with a blank sheet of paper, just take a little reference to the TCFD, reinvent the wheel and take five years to do it, but they are very focused on building on what is there, focusing in on this, and they have set themselves an aggressive timetable. Candidly, I shaded to the second half of last year; their timetable is the middle of next year.

Q25 **Dame Angela Eagle:** Once mandatory reporting is up and running, and perhaps that could be by 2025 in the UK, will it be globally agreed?

Mark Carney: Not globally, because the US is always separate. I will come back to the US, but the IFRS financial standards cover more than 120 countries. Of course, they are applied somewhat differently in an African country or another developing country than they would be in Canada, for example, entirely appropriately. It is the same with their derivative financial disclosures, which are applied differently. There is the prospect of that broad element.

It is important that the G7 made the commitment, because that brings in America, but it also brings in the core of the major financial centres with the commitment on TCFD. I will come back to America in a second, but China has committed to TCFD disclosure in the last few weeks, which is incredibly significant. A series of other major financial centres such as Singapore, Switzerland and others are also there.

With respect to the US, the President signed an executive order within the past two months recommending this approach. Their equivalent of the FPC is called FSOC. It is chaired by the Secretary of the Treasury, who is supportive of this. It is delegated to the SEC, which is an independent regulator and is now consulting on its approach to climate-related disclosures. Ultimately, the decision will be of the SEC, the professionals, as it should be, but all the signs are that the US is headed in the same direction.

You referenced Basel. The last point I should make is that it is never perfect. Everyone is starting from the same base and everyone is working at the same time; both of those are very positive, but I am sure it will not be perfectly matched up.

Q26 **Dame Angela Eagle:** No. We must not let perfection get in the way of making progress. How about ensuring the integrity of the new measurements and disclosures to avoid what might be called greenwashing, or what you and I might call cheating?

Mark Carney: Exactly. "Cheating" is a better term for that. There are a couple of ways. Again, they are not perfect, but it the system we have. First, the disclosure becomes overseen by the auditing profession. Part of the point of TCFD disclosures and IFRS disclosures will be that it is in the main company accounts, so it is not in a separate glossy brochure called a corporate sustainability report.

Secondly, the involvement of the securities regulators for public issuers reinforces that. Thirdly, in terms of the standards of disclosure of carbon footprints, there are increasingly accepted approaches to doing this. For example, banks and anybody in the financial sector are coalescing around something called PCAF standards.

The toughest element of this disclosure is the bit that there is the least of, which is forward-looking scenario analysis, but the advantage of the NGFS, which is this group of central banks, which numbered eight three years ago and is 90 today, is that the latest version of their scenarios that they have just released has provided an open-source reference point. It would be odd not to use the NGFS scenarios as your base, particularly in the financial sector, which provides some discipline around that scenario analysis.

Dame Angela Eagle: If we can reduce carbon by as much as the number of acronyms that all of this work has produced, we will have stopped climate change in its tracks.

Q27 **Rushanara Ali:** Good afternoon, Dr Carney. It is good to have you back at the Committee, albeit with a different remit. We all hope you can help save the planet. On that note, I will continue with the theme of cheating. I want to draw your attention to a recent report by a coalition of NGOs that stated that the world's 60 biggest banks have provided $3.8 trillion of financing for fossil fuel companies since the Paris climate deal in 2015.

Despite everything you have done and others are doing, it seems that the argument these banks make—and some of them have made it here on this Committee when I have raised it, Barclays being one of them—is that there is a transition that takes time and it will all be fine in the end. By God, we hope it will, but from what you have said already there is a long way to go.

What else needs to be done to get companies to focus on that objective? Are you confident that all the measures that are in place, both in terms of what central banks are doing together, as well as what Governments are doing, including ours, is going to be sufficient to make that transition as fast as possible, to stop this fuelling of fossil fuel financing around the world?

Mark Carney: A number of the initiatives are now in place and are just starting to be executed, and that will reveal the scale of the gap and the potential scale of stranded assets related to fossil fuels, which is something that has hitherto been a high-level conceptual. You know this well, but for those who do not follow this closely, more than three quarters of proven coal reserves, up to around half of natural gas and somewhere between a third and a half of proven oil reserves cannot be harvested or burned if we are to stay within our carbon budget.

That is the issue, and the extent to which there is financing against any of those assets goes to the heart of the risk that some financial institutions are facing. There is the process of climate stress testing and the process of having net zero strategies. Particularly for the banks, which are at the heart of your question, those that are in the Net-Zero Banking Alliance, which is part of the Glasgow Financial Alliance for Net Zero, within 18 months they need to produce their decarbonisation strategies by sector. They choose the sector, but obviously energy is one of the sectors. I do not want to be unfair to any institution, but it moves from a talking point or a concept of "Don't worry, we have to finance the transition," to, "This is what we think the transition looks like in the energy sector, and this is the time path of the investments and loans that we are going to be making."

Of course, that is cross-referenced against scenarios such as the NGFS, which has a 1.5° scenario, and the IEA, which has produced a 1.5° scenario that has very strict limits on new financing for fossil fuels in order to be consistent with 1.5°. The crunch is coming, if you will, because of the element of transparency and the fact that there are stranded assets in some scale out there, and it will be increasingly apparent which ones are being financed and by whom.

Q28 **Rushanara Ali:** I have a quick question on the COP26 private finance priorities paper. You have already touched on some of the priorities around risk management, returns, mobilisation and reporting. Which of those four priorities are the toughest in terms of action that needs to be taken? What else needs to be done to address them?

Mark Carney: I view the reporting and the risk as foundational. We cannot get anywhere without reporting, without the information. The risk management discipline has to be embedded in the institutions. That is not to undersell them, but they are foundational.

Both the return side and the mobilisation are now critical. It is what you build on that foundation. Where we are very much encouraged is that there has been this move at the core of the financial system—as evidenced by GFANZ, the Glasgow alliance—to having net zero plans. What we look to do is to make those as rigorous and transparent as possible, so that we can see where the financing needs to go.

That said, it is about creating these missing markets. The carbon offset market is important as a complement to absolute emissions reduction. Just to be clear, it is a complement; it is something that stretches a very limited carbon budget for a period of time so we can get the real investment going on absolute reduction. As we sit here today, the biggest challenge is mobilising capital in scale to the developing world, given the scale of investment that is needed and given that is the most challenging type of investment to make.

Q29 **Rushanara Ali:** I have some questions on that. Before I go on to that, are you seeing enough international leadership on this agenda now? You said earlier that we have left it exceptionally late and it requires a global effort. Recently Gordon Brown referred to the IMF report about what we would gain if we invested, for instance, in vaccines across the world, yet wealthier countries are falling well short of doing enough to get vaccines across the globe, even though we are in the midst of a crisis.

We have been warned that the climate crisis is even greater in countries such as Bangladesh, with which I have a strong connection; I was born there. By 2050 it is likely to face 30 million climate refugees. There are many other countries like that; already many people have been forced into refuge. Is there enough leadership? If there is, why is it that the $100 billion of annual climate aid that was promised during the Paris summit had not been met by 2020? What are you doing to make that happen?

Mark Carney: The $100 billion is absolutely a top priority of the UK presidency, in partnership with Italy. From my understanding and from what I have seen, I know the Prime Minister and the COP president Alok Sharma do not miss an opportunity to raise this issue with those who are responsible. It was a big push for the G7. Canada and Germany stepped up. The UK has already stepped up. The US still needs to. There are others who need to make bigger commitments to bridge the gap.

Q30 **Rushanara Ali:** We were attempting to bridge the gap. We missed it. How much have we missed it by? My understanding is that $78 billion has been committed. Is that right?

Mark Carney: This is an area for which I am not directly responsible, to be clear, but the OECD numbers for 2018 are $78.9 billion. There is a

$21 billion gap and it is a top objective of the UK to close that gap for Glasgow.

Q31 **Rushanara Ali:** Is it feasible to make that happen? Should we expect it to be reached, albeit late, by November at the Glasgow summit?

Mark Carney: It is one of the criteria for success at the Glasgow summit, so every effort is being made.

Q32 **Rushanara Ali:** Do you know who is responsible for making that happen? We have a UK Government that have cut the aid budget. You mentioned the Prime Minister emphasising these points at the G7 summit. He has slashed the aid budget. You cannot do climate change, climate finance and resilience while cutting the aid budget. With no disrespect to you, because you have shown great leadership on this agenda, even when you were the Governor of the Bank of England, it is not clear who is going to take this forward and make this happen.

Mark Carney: You are more familiar with exactly what has happened in terms of the aid budget and overall priorities. In terms of this specific issue, the UK has increased its commitment. Do not quote me on the decimal point but it is $10.6 billion or $10.8 billion of commitment, which is slightly more than consistent with the UK's share of that $100 billion.

Can I make a bigger point, if I may, because it goes to the intersection of the private and public sector? The $100 billion is an absolute priority and the Government's responsibility. We need to radically scale up blended finance above and beyond this, because the orders of magnitude of the type of private capital that is being catalysed by the multilateral development banks—and even, to some extent, the development finance institutions—are just too small. That is the bottom line. The units of account are, I would suggest, in the order of $100 billion per annum. It happens to be the same number, but it is a different number. We need to be putting in place a pathway to those types of numbers that are catalysed. To be clear, I am talking about private finance that is catalysed.

One of the things we are going to do, or are in the process of doing, is lining up the private sector's potential commitments, provided there are other vehicles to blend with public finance, for broad investment in the developing world.

Q33 **Rushanara Ali:** There has been a failure of international leadership, frankly; we are beginning to see that shifting, changing and improving in the pandemic. There are also the pressures that the pandemic has posed. Has developed countries' ability to mobilise finance to achieve net zero diminished in relation to developing countries? You have spoken quite a bit about developing countries and mobilising finance. Given that Governments have not managed to reach their target of $100 billion, why should we believe that we are going to achieve the mobilisation of private finance, especially given all the other pressures, or am I being too pessimistic? Should I be more optimistic? Will you come back to this Committee and tell us that you have changed it at the Glasgow summit? Should we be more hopeful of what you and our Government can achieve?

Mark Carney: The UK and other major economies are substantial shareholders in multilateral development banks. Those development banks are not yet Paris-aligned. We have the curious situation where the private financial sector is becoming Paris-aligned at a much faster speed than multilateral development banks. One of the things that multilateral development banks are not doing as a group is investing in adaptation. You rightly gave the example of Bangladesh and climate refugees. That is adaptation finance and part of what they need to do. As shareholders, our expectation should be for material scaling up of the types of facilities that will crowd in private finance on the type of scale that I was discussing.

Q34 **Rushanara Ali:** Does our Prime Minister understand the benefits of multilateral institutions like the World Bank, given the way the aid budget has been slashed this year?

Mark Carney: That is a question for the Prime Minister. I know that the Prime Minister, at the G7 summit, had a push on, to use his term, a clean and green approach to financing for these countries. President Biden had a different terminology for it: Build Back Better World. Whatever it is called—to quote Ian Hislop, we can call it a banana—it needs to be translated into action on the ground. It is not going to happen overnight but it needs to be a pathway to those orders of magnitude, if we are going to address both the mitigation and the adaptation challenges that the world faces.

Rushanara Ali: We very much hope that your influence will be a positive one on our Government. In the light of what has recently happened, it leaves us feeling pretty concerned, with the mixed messages that are being sent. Thank you very much for your work.

Q35 **Chris Law:** Thank you, Mark, for taking the time to be here today. I want to ask you specific questions around climate adaptation, which you have just touched on. As we know, climate adaptation is a severely underfunded area of climate finance. How do the UK Government intend to mobilise private finance for climate adaptation, especially in support of least developed countries and marginalised groups?

Mark Carney: First, I would like to recognise what a big challenge this is. It is absolutely essential, but the commercial return to that form of finance is less obvious. The question is partly how we address it from a blended finance perspective, which we were just talking about. I would like to highlight something that we are doing on the private finance side for Glasgow, which is that we are taking the best and most sophisticated bits of the insurance industry to map out these adaptation challenges. It goes under the rubric of the Global Resilience Index, but it is not just one index. It is a series of metrics and mapping of the types of adaptation challenges, where the biggest risks are globally and where the protection gap is the greatest. "Protection gap" is a short term for a terrible thing—in other words, where people have big risk but no insurance, so therefore the countries are most at risk.

That will be a big push, with tonnes of resources being poured into it for delivery at Glasgow. It does two things. One is that it gives some ability to pool those risks, so to lessen some of the protection gap, because you are better informed on those risks. A similar thing was done with earthquakes and natural disasters, not climate disasters, by the insurance industry. The second thing is about profiling where the biggest risks are and also channelling public or multilateral development bank funding, where it exists, to the biggest need.

Q36 **Chris Law:** Are you suggesting that, with insurance firms doing the risk assessments on this, it will press companies to invest or, conversely, not invest? That is my concern.

Mark Carney: First and foremost, it will create some opportunity for the insurance companies to cover some of those risks—the classic insurance diversification. It will create some ability for them to cover more of them when blended with things like MIGA, the World Bank's insurance arm, for example. It is a possibility. It should also, importantly, focus capital to where the greatest need is. In and of itself, it is a building block on the issue but it does not change, in some cases, the economics. By definition, it may, as you just suggested with your question, shine a spotlight on the scale of the risk in certain geographies and the challenges for private capital to go in and address those issues on its own.

Q37 **Chris Law:** To what extent are the UK Government relying on the support of the private sector to achieve the goals of international climate finance? Are they likely to be met?

Mark Carney: I want to make sure I get the terminology right. Are you asking with respect to the famous Government-to-Government $100 billion? There can be a private finance component to that. In fact, under the official accounting of that $78.9 billion we just discussed with Ms Ali, from memory, $10 billion or so is private that has been catalysed by public, if that follows. I do not know the answer to that question. The principal focus of the UK Government, at least as I have been exposed to it on closing this gap, has been to increase the commitments of Governments themselves.

Q38 **Chris Law:** That is helpful. Are the UK Government likely to meet their targets, given the aid cuts, which have been huge across the whole of the House? We are already seeing the impacts of these cuts.

Mark Carney: My understanding, to be confirmed by the Government, is that the UK commitment of the $10.6 billion or $10.8 billion is a clear commitment and is at least consistent with, if not more than, the UK's share of the $100 billion. If there are aid cuts, it is not my place to comment on them, but they have taken place elsewhere.

Q39 **Chris Law:** Some of the aid cuts have been to projects around climate change, including deforestation in Indonesia.

I want to turn your attention quickly to your role as vice-chair of Brookfield. Earlier this year, you said that Brookfield was a carbon-neutral company because of the emissions it avoids through its renewable energy investments. In the wake of those comments, you clarified that "avoided emissions do not count" towards net zero. Can I ask you, Mark, if you do not mind, whether you regret making your initial comments?

Mark Carney: I do not regret it because, in that regard, they were right. There is a difference between carbon neutrality and net zero. If it served anything, it got me knocked around a few times, but that is okay; I am used to that. It has clarified the difference between neutrality and net zero; they are one and the other.

Maybe I should use this opportunity to make a broader point, which is that a net zero pathway, at least as it has been defined, is a company reducing its absolute emissions. When it gets to the point that it cannot reduce anymore, it is removing that residual carbon from the atmosphere at this point in the future, to be clear. I and some others are of the view that the company should be compensating for its emissions on that pathway to net zero as well, because, after all, it is using up the carbon budget and is only net zero at the point where the technology runs out. Therefore, there is a role for emissions removals, avoidance and reductions. We will have more to say about that in the future.

Q40 **Chris Law:** Brookfield is a huge business, with investments of $600 billion. There are significant investments in oil and gas pipelines. What are you doing in your role with this company to reduce its reliance on fossil fuels as a source of profits?

Mark Carney: I should not put it all on my shoulders, but since I have joined, we have done a couple of things. What I do there is climate transition strategy, to be clear, so it is to help companies to decarbonise and to be very clear about that, taking assets in companies that are not Paris-aligned or on the path to net zero consistent with 1.5° and putting them on that path, exactly with the transition.

That is a specific strategy, and you are asking about the overall portfolio. Along with one other company, Brookfield is the only large company of its sort that is part of the Net-Zero Asset Owner Alliance and, therefore, part of the Glasgow Financial Alliance for Net Zero. It has a commitment to these decarbonisation strategies and annual reporting, and it is in the process of going through all of its assets and assessing not just the current carbon footprint but what can be done, so it is in that gold-standard bucket.

In general, the private equity industry as a whole—and there is time, because it is not November and we are not in Glasgow yet—needs to join alongside that, or else we will have a world with Brookfield and a couple of other companies, along with a core of the public financial sector, committed to net zero, transparent and moving in this direction, but where we have a gap in the private sector. That is what we have been doing.

Q41 **Chris Law:** You are the PM's finance adviser for COP26. Can you tell us today whether Brookfield will no longer invest in fossil fuels, certainly after Glasgow but, if possible, before?

Mark Carney: It owns infrastructure, which is different from owning a producing oil well or something like that. The infrastructure that it owns is, in most cases, infrastructure that can be repurposed for a hydrogen economy, for example. I can assure you that there is a very clear focus, which is required. I will generalise this point. What is required in the financial industry as a whole is a very clear focus on which assets are consistent with a transition to net zero, with 1.5°, and which are not, and on making the appropriate decisions from there. Brookfield is very focused on knowing the difference between the two.

Q42 **Siobhain McDonagh:** My questions will consider the climate change challenges in the UK and explore how adaptation might help. The Climate Change Committee warned last month that the UK is unprepared for the impacts of climate change, including more severe heatwaves, intense rainfall and increased flood risk. Have the committee's conclusions impacted your work advising the Prime Minister?

Mark Carney: I have not met the Prime Minister since the committee's report came out. I am absolutely aware of the committee's report; in fact, I contributed a video foreword to its launch.

Q43 **Siobhain McDonagh:** Will you be raising it with him?

Mark Carney: Yes.

Q44 **Siobhain McDonagh:** Will you ever get to meet him again?

Mark Carney: The Prime Minister does make himself available, given all the demands on his time, so I will raise it with him.

Q45 **Siobhain McDonagh:** Baroness Brown, the chairwoman of the Climate Change Committee sub-committee on adaptation, said Ministers appeared to be deterred from taking action by the upfront costs of protecting infrastructure, because the benefits sometimes are not seen for several years. Do you agree with Baroness Brown's assessment?

Mark Carney: I do not have line of sight on the detail of the issues that the Climate Change Committee does. I recognise the problem, having seen it elsewhere, but I do not have any particular expertise on the UK situation.

Q46 **Siobhain McDonagh:** Has the UK left it too late to tackle these climate-related challenges? The Climate Change Committee has suggested that the Government have to do more to respond to the climate challenges in the UK and proposes further adaptation to climate-change risks as a feasible option. What are your views on this, and what adaptation measures are most urgently needed in the UK?

Mark Carney: Again, it is not my specific area of expertise. The general principle, though, is that, even with overall success, not just with Glasgow but beyond, and let us say that we stabilise the temperature at 1.5°, which is the ultimate objective, severe weather events will intensify in the UK and elsewhere. If we are unprepared at present, which is the very clear conclusion of that report, we need further investment for not just our current situation but our prospective situation. Those investments will, in general, be less expensive if commenced sooner rather than later.

Siobhain McDonagh: Thoughts with all your fellow countrymen and women, with the terrible heat that is happening in parts of Canada at the moment.

Mark Carney: Thank you.

Q47 **Siobhain McDonagh:** I will move from adaptation to prevention. What is your view on the Government's decision to scrap the green homes grant after just six months? Some £1 billion went unallocated when the scheme failed. What kind of message does this send about the Government's priority on this issue?

Mark Carney: My understanding is that the retrofit component is still quite substantial, as is the intention. To be honest, I do not know whether it is the case that the heat pump element, for example, of the 10-point plan has yet been budgeted for—in other words, whether that is yet legislation—but the intention is there. My understanding is that this is part of a much broader set of initiatives. The reason for the specific decision has, I am afraid, slightly passed me by. I am otherwise engaged on trying to get the Glasgow financial alliance together.

Q48 **Jerome Mayhew:** Thank you very much, Mr Carney, for this marathon session. You must be exhausted already. I am tired just listening to your answers. I am going to focus wholly on carbon border adjustment mechanisms and on trying to tease out your view and your advice as to whether they are a good idea, a bad idea or somewhere in between.

If we want to make maximum use of the free market to invest in low-carbon alternatives to current manufacturing processes, most economists would argue that we need to bring inside the externality of carbon. The risk is that, if you raise carbon prices in a single economy, you are putting up the cost of energy for your manufacturing processes, which leads to offshoring and carbon leakage. It is a sad fact that about 40% of the decarbonisation of the UK economy since 1997 has been as a result of the offshoring of our carbon emissions.

In an ideal world, we would want the globe to adopt an increasing price of carbon and we would all go along at the same pace, as John Kerry suggested in the run-up to the G7. In the real world, how can this be achieved without some form of carbon border adjustment mechanism?

Mark Carney: I absolutely agree with your first premise, which is the value of pricing in the externality, and I suspect that you agree. Of course, it would be wonderful if there was one single policy that could solve this overall issue, but there is none. The most effective policy is a price on carbon, appropriately applied and predictably scaled, which is of course the objective. My read of the UK onshoring of the ETS and CPS being introduced is that that is the strategy here.

Secondly, that creates the risk of carbon leakage, if others do not move. That is also absolutely right. The first best strategy is ambition from everybody, and that is the strategy for COP26. The objective is to have a high-ambition COP, so that this issue is a conceptual one as opposed to a practical one. The Prime Minister and others are working very hard for that to be the case. The European Union and, to some extent, the Americans and even the Canadians are talking about CBAMs—carbon border adjustment mechanisms—so there is a possibility of these being put in place.

The role of the UK is, first and foremost, one of high ambition, so that this stays in the realm of concept because it would be better not to have to do this. Secondly, it has a role in terms of making sure that data and other aspects are absolutely clear. There are certain areas of the economy where this is potentially significant, but not in most areas. It is conceptually significant, but they tend to be heavy-emitting sectors that are traded.

We want to understand what the embedded carbon is in a product and to have product standards that are defined. That, plus a price—and I am sorry to jump around slightly, but I know you are an expert in this—leads to something that is most likely to be WTO-compliant, which, from a UK perspective, is very important. Ideally, it is then about working with the affected parties, so that it is not entirely necessary.

As we sit here today, four months in advance of COP, I am duty bound to say that the objective is to have such a great COP that this is not—

Q49 **Jerome Mayhew:** As you know, the European Union is publishing a draft Bill on a CBAM on 15 July, which is next week. Would you consider it to be a failure of COP if the European Union progressed to the implementation of a CBAM in 2023, as it currently suggests?

Mark Carney: Here is the challenge: a responsible CBAM has to recognise a couple of things. The first is common but differentiated responsibilities, which is part of the essence of COP. Second is differentiated policies, by which I mean that some countries may have carbon taxes and others may have emissions standards or product standards. For example, I am not aware of any planned carbon tax in the United States, yet it is interested in having a CBAM. It uses a different term, but it has the same effect.

That then requires mapping—an emissions policy, if you will—a carbon tax in a shadow price of carbon. That leads me more to a product standard as being the question. If we use steel, what is green enough steel that we are comfortable having it traded? I single out the European Union and say that any policy would responsibly have to take both of those factors into account—common but differentiated, and ultimately the impact of other policies. There may, by the way, not be other policies that are relevant for one of the trading partners.

Q50 **Jerome Mayhew:** One of the concerns is about transparency and that this is not a green excuse for protectionism. Many economies will have a bias towards protectionism. Picking one at random, if the EU was to implement a CBAM in the next couple of years, should the UK have its hand forced, more or less, into following suit and not having the CBAM imposed upon it? What advice would you give to the UK in that situation?

Mark Carney: The UK is in a strong position because of its leadership of COP, its scale of climate ambition and its developing trade record. This is an issue that very quickly becomes a global one. It is not an issue that has been tested in the WTO. We do not have CBAMs.

Q51 **Jerome Mayhew:** How many years would it take to progress to a determination at the WTO?

Mark Carney: Like everything at the WTO, with appeals processes, it would take a few years. My point was going to be about the UK, Canada and others working together to get a responsible framework for this approach. I am not questioning the merit of the issue, to be clear. If it comes to that, the execution has to be fair and responsible, and I do not know that any one jurisdiction, in and of itself, would be the arbiter of what that approach is.

Q52 **Jerome Mayhew:** We have talked about some of the challenges of implementing CBAMs internationally. Is there an economic advantage opportunity for the UK if we were to impose a CBAM? Could it lead to a resurgence in low-carbon, green manufacturing in the UK? I know UK Steel is in favour of it.

Mark Carney: What will happen is that lower-carbon businesses are going to be more competitive. On whether a tariff will do that as well, I am not sure that necessarily follows, although I would not make a blanket comment. As you alluded to, there is a relatively small number of industries that are high-emitting, carbon-intensive, internationally traded and for which this could potentially be very important. Steel is absolutely one of them.

Q53 **Jerome Mayhew:** Steel and cement are, as you said, getting on for 14% of global emissions in those two industries.

Mark Carney: Steel in particular is internationally traded and, therefore, relevant. I agree with that.

Q54 **Neil Parish:** Mr Carney, it has been a very interesting session. I want to ask you a question about Brazilian rainforests and forests in Malaysia and elsewhere, where you have a lot of companies that invest, and a lot of banks, such as Santander, HSBC and others, that fund these companies. In Brazil, an area twice the size of Devon has been deforested this year. Some big cattle ranches and ploughing up the savannah has all been sponsored by various companies. The Government are putting something down in the Environment Bill. I want to try to do more to call these companies to account. Do you have any wise ideas of how we can get around this?

Mark Carney: I am not sure they are wise, but I have a couple of ideas that are relevant to this. I note the Chancellor's reference at Mansion House to sustainability accounting standards, which go beyond TCFD and go to material impact on the environment, so not just climate impacting my business but my impact on the environment. Certainly, deforestation of the Brazilian rainforest would seem to me to qualify as that, so that level of disclosure would be there. The question then becomes what you actually do with it.

The second thing is that part of the work that we have catalysed, which will come out this week and which has been performed by the private sector and NGOs, has been for this voluntary taskforce and voluntary carbon markets, which is the setting up of a truly professional offset market. For reference, that market is less than $1 billion a year today; it should be $100 billion a year. About 15% of that potential market would be in Brazil, and another 15% or so in Indonesia, related to the prevention of deforestation. It has to be a highly credible market with true additionality and a whole governance structure. The Bill Winters taskforce is reporting in the next few days, precisely on the details of how to do that.

Q55 **Neil Parish:** One of the issues in Brazil is that, although there may be rule of law and environmental rules, they are largely being ignored. My argument would be that we starve these particular companies of cash. Pension funds or others may be investing indirectly in these companies. How do we bring about a situation where there is much more transparency? There is even an argument that our own parliamentary pension fund might have some involvement. How do we go about that?

Mark Carney: Climate disclosure gets that information there. If it is doing its job, it is getting that information in the public domain. The judgment of the fiduciaries or us, whether I am a depositor in a bank or it is my pension, is to ensure that it is aligned with the values. To use a technical term, double materiality—not just what affects me but how I affect the planet—is relevant in this regard, and I welcome the Chancellor's announcement around that at Mansion House.

Neil Parish: Thank you very much. I will keep it short. Those were some very good answers. Thank you, Mr Carney. I shall pursue it further through Parliament and Government.

Q56 **Aaron Bell:** Thank you, Mark, for your answers so far. I want to touch on the overall costs associated with the transition to net zero. What is your broad estimate of the costs to the UK of our transition by 2050 at net present value?

Mark Carney: There are several ways to cut into it. Although I do not have a personal estimate, the first thing to recognise is that the cost of not transitioning to net zero is considerable. The NGFS and Bank of England scenarios show costs of the order of somewhere between 5% and 7% of GDP by the middle of the decade, and 7% by the end of the decade. A transition consistent with 1.5° would be a net gain on the transition risks, which is quite a large swing. The cost estimates from the Climate Change Committee and others—I am doing this from memory—are less than 1% of GDP. It surprises me a bit that that is the cost.

Take this for what it is worth, because I have not performed the macro-modelling of it, but I would take note that, in work with the IMF, in the most severe version of the International Energy Agency's 1.5° scenario, with no new oil and gas, and quite substantial changes, there is a 0.35% to 0.5% add-on to GDP growth per annum over the next decade, because—surprise, surprise—substantial investment is required to get to net zero. There are a variety of studies and experience on the renewables side, and that investment is more job heavy and has bigger GDP multipliers.

All the modelling I have seen shows that, while we cannot solve this ourselves, there are substantial costs to doing nothing and that the bias on costs is returned from the investment multipliers.

Q57 **Aaron Bell:** Overall, you are confident that, in the long run, the savings expected to result from the transition will more than cover the upfront costs of all this investment. You mentioned the benefits of the investment in terms of jobs but, in the next decade, there is going to be a lot more capital spending going out than operational savings coming in.

Mark Carney: That is right. There is modelling that is not all yet in the public domain; it is going to come soon. For example, given your position on the Science and Technology Committee, you would well know that the levelised costs of renewables are well through fossil fuel generation, and pretty quickly the operational cost savings by the middle of the subsequent decade start to match the annual investment costs, so there are quite significant savings to come.

Q58 **Aaron Bell:** In terms of a figure, the ones generated by the Climate Change Committee and by analysis from National Grid ESO had an overall net present value cost in the order of £3 trillion. Does that sound like a reasonable estimate to you?

Mark Carney: It is not a figure that I recognise. What does a net present value cost mean? It is a bunch of numbers added up without looking at it in general equilibrium. That is a fancy term, but general equilibrium is about what that investment does to create a job or to lower the operational cost of electricity, and the associated multiplier effects that come from that.

Secondly, we had a conversation about adaptation a moment ago. I was quite rightly challenged on that. What is the cost of the investment? I can add up the cost of adaptation investment and say it is going to cost a lot, but it is saving money down the road. It is just a number on its own that I do not recognise. I am not saying it is not the net present value calculation, but it does not strike me as a comprehensive way to look at the macroeconomic impact.

Q59 **Aaron Bell:** I understand that. Looking at some of the modelling that is done, the surface transport stuff starts to pay back relatively quickly, but the costs in housing stock, buildings and retrofitting are meant to be about £11.7 billion of average annual investment. That takes a much longer time to pay back, and there will be potentially significant costs for householders. The reason I am asking this is not because I think the costs are too great, necessarily, but because I can see, as I am sure you can see as well, that it potentially creates a political problem that puts at risk the overall delivery of the net zero strategy. If there are going to be winners and losers and upfront costs, do we have to subsidise the losers? Do we have to avoid loading any of these costs on to householders in order to make the politics of this work and to deliver what we want to deliver?

Mark Carney: You have to consider and make tough decisions about a couple of things. One is in terms of industrial restructuring, if you will, and a just transition associated with that. Anytime you have a big structural change, there will be new jobs gained and old jobs lost, so that transition, which is very discrete but no less painful for it, needs a focus on that.

Secondly, in terms of incentivising and smoothing the costs of the payback on, for example, home retrofits, there is quite a strong economic case for Government participation in that, because the payback terms are quite long. They are there but they are long. All of this should be—and I believe is—looked at by others in the context of what some of the most efficient steps are towards net zero, given technologies that are here today.

Q60 **Aaron Bell:** Not just from the British perspective but more generally, Governments all over the world get a lot of tax revenue from carbon and from the externality when we tax fuel and vehicle excise duty. If we transition to cleaner, electric vehicles, there will be an expectation that they will not raise as much tax, which creates a further problem for Governments. Do you have any suggestions as to how Governments and exchequers around the world can balance the books in a world where there is not as much externality to tax?

Mark Carney: That would be a good problem to have, and there will be plenty of time to develop a strategy for that. I would note that in Canada, where I am from, the proceeds from the carbon tax, which are considerable, are all returned to Canadians. It changes relative price and ensures that it is not regressive, but it still has the incentive impact. I do not have a quick answer for the revenue side, except to note that there will be plenty of time to deliberate on the issue.

Q61 **Aaron Bell:** You just mentioned Canada, and you have an international perspective. Are there any countries in particular that we should be learning from at COP26 in terms of how we finance net zero and adjust our economy otherwise?

Mark Carney: We can all learn from each other. I am not sure there is one country that stands out. Many of the building blocks of the right approach are in place in the United Kingdom, with very clear carbon budgets put in place and an independent gap analysis done of where policy is relative to those. There are some issues in terms of carbon pricing. I will make an obvious observation, because I am not political, but there are inconsistencies between fuel pricing and carbon pricing and the things that are there. More positively, there are elements of emerging UK climate policy where clear objectives are being put in place and a longer-term demand pull in emerging industries. I think of hydrogen, offshore wind and carbon capture as three examples.

Q62 **Aaron Bell:** In rough international terms, we are relatively well placed, but there is more that we can learn.

Mark Carney: I was asked that question by a different Parliament and gave the UK as an example of being well placed.

Aaron Bell: That is very good to hear.

Q63 **Alison Thewliss:** Thank you very much, Mark, for coming to give evidence this afternoon. I have some questions on the legacy of COP and what that will mean. First of all, what do you consider to be a good outcome from COP26? What would you be looking for in a Glasgow agreement?

Mark Carney: For a Glasgow agreement as a whole, having the NDCs of countries being consistent with sub-2° and keeping 1.5° credibly within reach would be a major achievement. It is the objective, but I would look for that first and foremost. Ultimately, that is what we are striving for. Other outcomes include securing the $100 billion that was talked about earlier and finishing the rulebook for COP as a legacy of Paris.

These are all very important Government-level issues, but it is about cementing the progress that has been made in mainstreaming this issue, not just in the financial sector but for businesses across the world, so that this is an organising principle for business. It is just known that you have to be transitioning to net zero and that you are expected to deliver on that. That is part and parcel of your strategy. We are on our way to that, but we need to lock it in.

I am aware that sometimes, when you have a big issue like this and a lot of focus, there is a natural tendency afterwards to look to other things. We really have to lock it down at the core, so that real progress is made in the next few years.

Q64 **Alison Thewliss:** That is useful. You talked earlier about people not doing what they promised to do under Paris. How do you ensure that COP26 does not end up being another talking shop in that way, where people commit to things that they then do not carry out?

Mark Carney: The architecture of Paris, if I can put it that way, is helpful in that regard. There will be an add-up and assessment of these objectives and of the gap between the two. As we sit here today, at least from the IEA's perspective—not that that is the last word on this—in terms of what countries say they want to achieve, their pathway for net zero is about 2.1° but their policies are up at 2.7°. We have made some progress but we need to make a lot more in the next four months to move both of those numbers down.

The private financial commitments will be reported on an annual basis and are incredibly important in terms of holding to account. It is also going to be relevant because one of the things that has happened in the private sector is that there is an assessment of the degree-warming potential of the London Stock Exchange or the Toronto Stock Exchange. If everybody looked like them, where would the temperature end up? That adds to it.

Maybe I should have started with this, but the expectations of the public, youth and broader stakeholders in terms of holding to account will be important. I hope we are not going to be relying on that and on the pressure that comes from that, but the pressure will, undoubtedly and rightly, be there if there is backsliding.

Q65 **Alison Thewliss:** Do there need to be firm international rules on capital to enable net zero in the hope of getting that level playing field for finance everywhere, so that you cannot just pick on one and the bubble in the wallpaper moves somewhere else?

Mark Carney: If you are a financial institution of size in the world, you will, by Glasgow, have to justify why you do not have a net zero plan. If you have a net zero plan and you are not in the Glasgow financial alliance, you will have to justify why not. That is the gold standard. We have major institutions across the board that are in it. It is linked in to the UN process. It has public transparency. It is not like all the institutions that are in are done; they have to execute against it. I do not like the concept but I recognise the analogy, sadly, given my skills with wallpapering and painting. You are either in or out. There is one tent in Glasgow, at least in the financial sector, and that is the GFANZ tent.

Q66 **Alison Thewliss:** Are there any major obstacles between now and COP that need to be removed before we get to that? You talked about time being very tight, which is obviously the main one, but are there other things where it is not going to work unless they happen?

Mark Carney: There are a huge amount of issues that the COP president and leadership are working on. On the private financial side, we have to continue to execute. The biggest issue I would underscore is that we have a private financial sector that is aligned with Paris, and a multilateral development universe that is not yet there. It should be leading, not following. Getting aligned means truly being in a position or growing to catalyse the enormous flows of private capital that are going to be required.

Q67 **Alison Thewliss:** I want to ask about relevance. There has been a lot of talk about organisations, youth movements and some institutions being really interested in COP. How do you make this relevant to the woman or the man in the Gallowgate?

Mark Carney: On some of the issues we have been talking about today in terms of domestic policy, it is about how their lives are going to change and improve, not just in terms of cleaner air but cheaper heating, better vehicles and less draughty houses, if I am allowed to say that. In terms of finance, it is knowing what your money is doing. Whether you have a small or a large amount of money, is it helping to preserve the climate and save the planet, or is it burning the planet? Part of what we are doing is working so that companies have to answer that question. Is my money in a building society that is consistent with 1.5°? Maybe for the UK we ask if it is consistent with Glasgow or not. That type of clear kitemark becomes very important.

This might not quite translate down to the street, but there are enormous positive opportunities, not just in terms of our lifestyle and what we are preserving but in terms of new technologies around better ways to drive and better ways of heating. We can fly without guilt. There are lots of very positive things that are, ultimately, consistent with being on this pathway. Better people than I will be able to translate those into words that resonate.

Alison Thewliss: I look forward to welcoming you to my constituency later in the year. If you want to come and speak to some people on the Gallowgate, you would be most welcome.

Mark Carney: I will definitely do that, if you will have me.

Chair: That is a rather nice way to conclude. Mark, thank you very much indeed for joining us and very generously giving so much of your time this afternoon. We have discussed trying to reach net zero and remarked on the huge level of investment that is going to be required, and the many changes that will be needed in the way that investments are determined, how regulators regulate, how businesses adjust and how new technologies emerge and develop. What we know is that we cannot do this on our own—we are but one country of many—and that is why COP26 is so vitally important, drawing countries around the world together in this common endeavour. We are extremely grateful to you for all that you are doing in making sure that, hopefully, COP26 is a huge success, so thank you once again.

On behalf of the Committee, perhaps I could also thank you not only for what you are doing with our Government around COP26 but also for what you did when you were Governor of the Bank of England and for the service you provided to our country. Thank you very much indeed, and thank you for appearing before us.