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Demystifying the Carbon Markets | Episode 5
David Shukman, Journalist and Former Science Editor, BBC

David Shukman, Journalist and Former Science Editor of BBC, takes David Greely to the front lines of the climate crisis to illustrate the imminent need for effective carbon markets. Join us as he shares insight from over three decades of climate coverage at BBC — with a focus on the power of human ingenuity.

David Shukman (00s):
The technology, the ingenuity that goes into those designs of how you handle exceptionally high temperatures, how you strive to keep the noise levels down, how you strive very cleverly to maximize fuel efficiency and so forth. These are marvels of human ingenuity and the thought I have is, well, if you've got people that bright and if you've got a problem so pressing, and if you've got the right motivation, surely if those people can be just navigated into other areas, we're gonna find solutions to these problems.

Announcer (45s):
Welcome to Smarter Markets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together, we examine the questions are we facing a crisis of information or a crisis of trust and will building smarter markets be the antidote.

David Greely (01m 13s):
Welcome back to demystifying the carbon markets on Smarter Markets. I'm David Greely, Chief Economist at Abaxx Technologies. Today, as we wrap up part one of our series on demystifying the carbon markets, I feel very fortunate to be joined by David Shukman a distinguished Journalist and the Former Science Editor of the BBC, where he reported from the climate front lines for over 20 years. Hello, David, welcome to Smarter Markets. For two decades you've traveled the world, witnessing the impact of climate change on people's lives and the progress being made to stop it. Progress made in science, politics, economics, and technology. Now the progress is never fast enough and it's never a straight line, but it is real and it's a fascinating story. Thank you for being here to share it with us today.

David Shukman (02m 02s):
Well, it's a great pleasure. Thank you for asking.

David Greely (02m 04s):
I'd love to begin with the science while our understanding of a system as complex as the climate's far from complete tremendous progress has been made and a consensus has emerged. What has it been like for you to follow scientists over these years, working to improve our understanding and reach a consensus on climate and what aspects have they reached a consensus on?

David Shukman (02m 29s):
That's a great question and it's been a remarkable process to have had a firsthand ringside seat at an amazing scientific accomplishment. As researchers try to understand how the planet works, how it's changing. You know, when I started this role reporting on the environment, I was pretty cynical. I didn't like being told what to think, especially by environmental campaigners. So I set myself the goal of getting out to the front lines of the most dramatic profound changes and talking, not to campaigners, but to scientists and understanding really what they were finding out the challenges they faced. So then began a series of journeys to Antarctica, Greenland, Siberia, the Kalahari Desert, the Amazon Rainforest, to get really close to what the scientists were doing. Film them, see them understand the work that they were doing and you know, what really struck me right from the start was their diligence.

David Shukman (03m 35s):
You know, they did not rush to make assumptions about what was happening with global warming. They didn't take anything at face value. They really wanted hard data because they knew back then and they know now that so many important policy decisions and implications rest on being right about understanding what's happening. So do you know amazing sites like in the Kalahari Desert, in Southern Africa, the professor from Oxford University on his hands and knees, counting grains of sand being lifted into the air by the

wind at different speeds, because he wanted to know precisely if the world gets hotter, which it is, and the wind speeds increase, which they are in certain parts of the world what does that mean for spreading the sand dunes. I know how much bigger will the deserts get, again he wanted hard data that really impressed me in the Amazon rainforest.

David Shukman (04m 38s):
There I was with a team of researchers, swatting off hoards of huge and hostile insects. As these guys were preparing to measure the exact flow of carbon dioxide in and out of the forest, they built these huge towers with instruments at the top to get very precise readings of how the forest contributes to the global warming story as a sink of carbon dioxide and of course talking about markets, this is now vital. How much carbon do trees absorb, how much do they release when there are dropped down and what struck me was not only the diligence, but the preparedness of these guys to put up with really quite unpleasant conditions. I mean, I was stuck with them in a little tent, in a blizzard on the Greenland Ice Street for four days, one year. I mean, I'm notoriously impatient and I was going stir crazy.

David Shukman (05m 37s):
These guys just said, this is what happens. This is our life. This is what you have to do if you want to get the facts and so put all that together, amazing field work with astonishing progress in satellite technology, looking down at earth, tracking the changes in the oceans and the atmosphere and on the land, put all of that data through brilliant new super computers, running very sophisticated models and you come up with a conclusion and this is a long way of answering your question, but I've watched the scientists go from having a pretty clear idea that if you keep adding CO2 to the air, it's gonna make the planet hotter, but being kind of a bit uncertain about the rate of change, precisely what that might mean to now and also about our role, but to now, just last year with a landmark report from the UN climate panel saying, actually we are now certain it's unequivocal in their language and these are very cautious people, unequivocal that human activity is driving up temperatures. So yeah, it's been an amazing journey to witness and I'm full of admiration for what they've done. You know, we're full of praise aren't we for the scientists inventing vaccines to fight coronavirus well, it's taken longer, but I think it's no less remarkable what climate researchers have done and been able to tell us and where they've got us.

David Greely (07m 08s):
And it is so important to understand the level of skepticism that the scientists bring to it, that you brought to it. The search for detail, the search for evidence, because often in more casual conversations, things are like couched as very big assumptions and to understand the detailed work, to go into understanding the mechanics is really fascinating. The other thing that I found really powerful about your stories is that many of the predictions that climate scientists are making now, they're often very obviously alarming, but sometimes they're hard to feel real because you'll read something about levels of sea level rise, but it'll say, well, you know, if we don't do something in the next 20 years, this could happen in a 100 years or 500 years or a 1,000 years and so sometimes it doesn't have the immediacy that often we need in order to act, but when I watch your stories, what I often see is you're seeing, you know, what were predictions a couple decades ago playing out now in the course of a lifetime, in the course of a career and becoming actual events, not just theoretical possibilities and having real impacts on people's lives. So could you share some of those experiences that you've had?

David Shukman (08m 25s):
Well, it really chills the blood. When you see the pace and scale of change in some of the scenarios I've been at, let's take Greenland. So, you know, my first trip to Greenland, I went with scientists to an edge of the ice sheet. I mean, this ice sheet is two, three miles thick. If the whole lot melts that raises the global sea level by 20 feet. Now, no one's saying that's gonna happen overnight, but even a bit of that at the margins, adding to sea level by 1, 2, 3, 4 feet would have a catastrophic implication for huge coastal cities around the world. So I was with this team of scientist, this was now about 18 years ago, and they were pretty stunned to see what their instruments were telling them about the scale of melting, how much ice was going to be honest for me, I was just struck by these great cliffs of ice.

David Shukman (09m 24s):
I mean, on a scale I'd never seen before and I love the mountains and skiing and I've seen glaciers, but I mean, Greenland was something else, but the scientists were saying, hang this is alarming and then I went back to the same spot 15 years later and what had been towering almost otherworldly, most other worldly landscape of ice was largely bear rock. I mean, huge amounts of ice had melted and gone into the ocean and contributed to sea level rise and the scientists died with really had genuinely, I know there's a lot of hype about this, but they had tears in their eyes thinking of what this meant and actually I'd seen what that meant because I'd been to a number of times to communities in really low lying parts of the world. I'm thinking Bangladesh. I went to a village on the coast of Bangladesh, where they had a mud embankment to keep the sea out.

David Shukman (10m 38s):
And a, a cyclone came through and ripped a couple of big holes in this embankment, which meant that every high tide sea water poured into the fields, depositing a load of salt, making the fields unusable, poisoning the drinking water and okay after we did our reporting and after a little bit, it was a bit of a public outcry and some money was sent and the holes were repaired and the back went was restored and then I couldn't go back later because of COVID, but I asked a freelance camera moment to visit to the village, the same village for me, what's happened 10 years on guess what there are holes in the embankments, the sea water is pouring in, the drinking water situation is as bad as ever and the reason is a lot of the changes we think about with climate change seem quite slow or minor.

David Shukman (11m 33s):
Like, I mean the average rise in sea level is 3 millimeters a year. You say, well, I mean, what that's, you know, that's like a teardrop, what could that do, well over 10 years, that's 30 millimeters. You know, and if, if you are living a marginal existence where your inadequate sea defenses are threatened by a storm or a high tide and you just keep adding a little bit to the base layer year by year, you just make it likelier that you're gonna get flooded. So I feel like in real time have seen what's going on, and this is just one of many, many examples. We could touch on coral, we could touch on the forest or whatever, but in the example of polar ice that is melting on a terrifying scale and having a real implication for the lives of millions of people in vulnerable situations.

David Shukman (12m 36s):
And that makes you think it, I mean, on assignment, you're busy, you're focused on getting the shots you're focused on not getting ill. You're focused on getting in and out and finding the right people and so forth and filing and getting a good satellite link back to the newsroom and it's only later like back home, maybe even weeks later, you think, God, those people, I mean, what is gonna happen if the sea level keeps rising, which it's projected to do so. Yeah, I feel I've had a sort of position as a witness and I feel it internally to really what's happening how this isn't a problem for the future. It's a problem now.

David Greely (13m 21s):
And it can be really heart wrenching to see that the people most vulnerable are also the people who have the least ability to move away, you know, the least ability to hop on a flight and go back to London or to New York, and were also the people that benefited the least from the, you know, the energy systems and the industry that led to the carbon being in the atmosphere and has led to this, you know, these impacts and I think that's a good way to start now thinking about the politics, because it seems like with this scientific understanding coalescing, and as you pointed to the IPCC report really kind of being a galvanizing moment, you know, you've also seen the convergence of scientific understanding, the increased real world impacts of climate change, shaping the political response, and what's going right with the political response and what's going wrong because it always feels slow and we know it's politics and there are fits and starts and there are real equities to be addressed between, you know, the poor developing nations and the wealthier developed nations, but what's been your experience of the politics and is it rising to the occasion or?

David Shukman (14m 37s):
I love the way you've framed that and I think the honest answer is that it's a little bit of a multiverse situation. I mean in one universe the scientific conclusions have got through to more and more governments and I have to pinch myself sometimes. I mean, the number of governments who have now set themselves a net zero target of some date, whether it's 2050 or 2070 in the case of India and so forth, like four, five years ago, that was really inconceivable. So something quite big is moving politically in the same way when political leaders gather for these big conferences or these summits, the language they're using is, again, it's a pinch yourself moment because if you just closed your eyes and sat back and listened, they're using the language that green peace used 10 years ago, it's all about for the sake of our children and for our grandchildren.

David Shukman (15m 44s):
And we hear the message of the streets, and we know we have to leave the planet in a better state than we found it, all that language, which used to be just heard really from environmental campaigners has kind of transitioned into the political sphere, but let's enter the other parallel universe here you know, when politicians get together internationally and negotiate line by line policy on climate change, they may have had their political leadership, the presidents and the prime ministers do the whole, we've got to save the planet thing, but when you get into it, governments have national interests and they have voters and they have constituencies and if you are a big coal economy or a big oil economy, if you're a big industrial economy, this whole agenda presents real challenges and it's quite

extraordinary to see quite hard faced. I mean, understandably but hard faced negotiators at these conferences engaging in what's really trench warfare word by word line by line dragging their feet resisting.

David Shukman (17m 06s):
I mean, in the last hours of COP 26 in Glasgow last November, there was an argument over the appearance of the word coal for the first time in a UN climate negotiating document and the Indians led a little resistance movement and objected to the quote phasing out of coal and insisted on phasing down, which I think they argued would give them longer with that, but there you saw in real time, the hard politics of this and I think put that together with the fact that, you know, last November in Glasgow was COP 26. I mean the 26th of these conferences and despite quarter of a century of negotiation from the outset with the aim of quotes avoiding dangerous climate change, that was the language in the treaty everybody signed up to back in the early 90 and this shows carbon dioxide, driving climate change have just risen almost every year over that period.

David Shukman (18m 20s):
So you have to say, well, is this process working and I would argue on the one hand, it's the only forum the world has to tackle this question, but it's not very efficient and it works by consensus, which means that you do get a few holdouts and everything slows down, which I think then raises a question about another universe. If you'll allow this a third parallel universe, which is the real world by which, I mean, what are business is doing, what are entrepreneurs doing, what are cities and individuals doing in their own lives about this agenda and with or without the international diplomacy you're just seeing more and more people either because they believe they must or want to act, or frankly, because they see a terrific set of business opportunities and doing that I think almost regardless of COP 26 or any other big international process, they're doing it because they can see which way the world is going and they want to be part of it.

David Greely (19m 36s):
To me, it's a powerful part of the story in that as governments have moved slowly, least slow relative to the need, and it's understandable the wealth redistribution implications of the energy transition are enormous. When you think about redesigning entire energy systems, changing entire energy grids, suddenly massive reserves of fossil fuels declining in value you know, there's a lot of money on the table. So you want to have your shortest negotiators working through that, but as you said, at the same time as the public sector is trying to move forward and negotiate, the private sector is really moved fairly dramatically over the past couple of years, you know, it seemed like a few years ago, you know, ESG investing impact investing was a very small space in investments. And now it's really moved to center stage and you've got investors, bankers stakeholders, forcing companies, corporations to make these net zero commitments to take action on their own kind of ahead of governments or alongside of governments. You've talked with many CEOs and members of C-suites and heads of large corporations. You know, what finally drove this level of corporate engagement, was it just the pressure, was there like a personal epiphany and do you see these corporate leaders, do they view this as a passing fad, like another storm to be weathered and then they can get back to business as usual, or do you think they're seeing this as the new reality for how they need to run their business?

David Shukman (21m 15s):
So I think it's a mixed bag, to be honest. I mean, I think it's extraordinary how the corporate sector has engaged with this in a way that was unimaginable a few years ago, I mean, I'm getting invitations to speak to senior corporate people and gatherings in a way that just didn't happen 5, 10 years ago and I think that's down to several different things. I mean, one is some of them read the science and just look at the way things are going or have someone else read the science for them and say, look, this is serious and you mentioned the IPCC report particularly of last year. I think for many people that was a very big deal. There was another one in 2018 from the IPCC, which said that basically a temperature rise above 1.5 degrees Celsius gets you into dangerous territory.

David Shukman (22m 14s):
In other words, the problem scenarios are gonna be much sooner down the track than later and if you're gonna act better to act now rather than delay, I think there's also peer pressure. I've noticed that. I mean, I was talking to a Chief Sustainability Officer for one major corporation in the FTSE 100 saying that the reason their CEO had set a net zero target of 2035 was because their big rival had not long before set a goal of net zero by 2050, frankly. I'm not sure they understood what it all meant or why, but like we've got to do this because the rival is, I think also there's now the art of the possible, you know, not that long ago, renewable energy kind of had a bit of a mixed record to be honest. I mean a lot of it was quite expensive.

David Shukman (23m 14s):
It was hard to deploy. It didn't always seem to have stack up financially. Was there gonna be the right government support or incentive to make it work. Now we have a situation where solar panels and wind turbines are produced in such volume and the technologies and the engineering expertise have advanced so rapidly that a lot of these technologies make sense without any intervention or government support. You're seeing major corporations just decide on their own to cover their roofs with solar panels or to make their own investments in wind. I mean, I've been reading just today about some huge investments by major corporations just on their own in this space and that really changes things. I mean, let's take the example of offshore wind. I mean, I went to film the first two offshore wind turbines planted just off a beach in very shallow water of Northeast England.

David Shukman (24m 25s):
And at the time every expert I spoke to I mean, what a joke, you know, don't, these people realize that there are storms and tides and waves and how do they think they're gonna get the power back to land and you know, there was, and it's so expensive. 10 years later, I went filming out in the RFC where they were building five megawatt turbines, giant structures in the ocean, banging these things up and the prices are tumbled and they had the engineering know how to do this and now the UK until just the other day was the very proud holder of the world leading position for 10 gigawatts of offshore, wind and pioneering this technology. Now we read that China has installed more than that. Just last year alone, further driving down prices. Now, you know, these C-suite guys and CEOs that I talked to, of course they may be motivated by philanthropy or environmental concern or their kids are nagging them daddy, what are you doing about this or they just look at the prices and think, well, actually it kind of makes sense to get involved in that agenda, put all that together and you feel the ground shifting not everyone's involved. There's plenty of money to be made in fossil fuels right now where prices so high, but our sense more and more people are sensing which way to go.

David Greely (26m 06s):
Right and the, you know, the, the points on the renewables on solar and wind, we were fortunate to have Phil Hardwick from Base Carbon kick off the series for us and, you know, he raised a similar point where back, you know, when he was first involved with the environmental in carbon markets in the 200s projects, solar wind, like you needed carbon finance, you needed, you know, the higher prices that offsets could add to a project in order to be economical and fast forward to today, the prices of those projects have come down, the costs have come down. They become so much more economical that many of them wouldn't meet the test of additionality that they're economic on their own and you don't need a carbon price in order for them to be preferable, to, you know, more carbon intensive forms of energy and I think that's really the hope, right that with the improved scientific understanding that it's a problem that we need to deal with and can deal with the public sector and the private sector, getting engaged much more than they have in the past that we still need technology. You know, we need the tools in order to be able to transition from, you know, the conventional high carbon energy system, fossil fuel energy system. That's been built up over the past several hundred years to this low carbon economy and I think solar and wind holds out hope of what that might look like that if we get investment, we can start to drive down that cost, but what other technological innovations do you see, do you think that there's enough in your experience that's rising to the challenge of climate change and you know, from your reporting, what do you think's next on the technological side?

David Shukman (27m 48s):
That's so interesting, isn't it and I've got the feeling that whatever I predict won't be proved wrong quite quickly. I mean, I went off with great enthusiasm to film the production of fuel from algae in Southern California and at one stage that seemed to offer great hope it may yet, but the iteration actually eye witnessed proved very expensive and with all kinds of challenges, I filmed at the spectacular site in Spain, and there are others around the world of concentrated solar power. You have a great tower with a boiler at the top of it and surrounded by an enormous field of huge mirrors that are all rotatable and they track the sun and they beam the sun's ray up at the boiler generate terrific heat, turn the water into steam, drive turbines, make power. Now cameraman and I climbed the tower and it was amazingly hot at the top.

David Shukman (28m 49s):
And I'm not totally sure about the safety risks of that, but anyway, we wanted to show viewers kind of what this was all about, but actually that particular project, those spectacular and logical at face value has had a lot of financial challenges and changes of owner and all the rest of it and it may be that it really comes good as an efficient, effective way to generate power down the track, but it may take a while for that to really settle down. Do you know some of the things that really inspire me are some years ago, I filmed at the Rolls Royce Arrow Engine Factory in Darby in England, where they were producing engines for the Airbus A350. I mean, these are beautiful examples of engineering and of course there are other companies doing similar work, but I mean the technology, the

ingenuity that goes into those designs of how you handle exceptionally high temperatures, how you strive to keep the noise levels down, how you strive very cleverly to maximize fuel efficiency and so forth.

David Shukman (30m 05s):
The, these are marvels of human ingenuity and the thought I have is, well, if you've got people that bright and if you've got a problem so pressing, and if you've got the right motivation, surely if those people can be just navigated into other areas, we're gonna find solutions to these problems, whether it's new designs of wind turbine, whether it's electric power of aircraft, whether it's new designs of batteries. I mean, I went to a conference some years ago in China, Chinese engineers discussing a whole range of different battery technologies and I'm sure there was more going on that I wasn't allowed to see. I mean, when the energy and resources of our highly versatile kind of species is set to work on a problem, I'm optimistic that we can come up with solutions, but we need them fast because let's not forget that we've been talking so far about technologies that reduce emissions or eliminate them.

David Shukman (31m 20s):
But if you look at the projections, the climate models for how to get out of the worst of global warming down the track, these scary temperatures that that we're on course for right now, you also need carbon dioxide removal. We're going to be having to find ways of trapping CO2 as the fuels are burnt and burying it somehow and finding a business model for that, not easy, but also pulling the staff out of the air and doing so in a way that doesn't break the bank and I'm glad to say there are brilliant people experimenting with a range of technologies, grinding up basalt, spraying it on fields as a very effective fertilizer and a carbon removal process. For example, brilliant ideas for air capture of carbon dioxide at the moment, very expensive, but with the right kind of backing, maybe that'll come down amazing notions for high altitude, wind turbines.

David Shukman (32m 26s):
You know, if it's still conditions at ground level, it's never gonna be at 10,000, 20,000 feet and Bill Gates, I know is putting money into systems that would try to operate turbines at high altitude, can bring the power down effectively and how's that gonna work, but I mean, I think there's a kind of frenzy now of inventiveness and it's a good thing because the clock is ticking. I think, you know, the human beings are on one level, you know, shortsighted in the extreme, you know, if there's a chance of polluting a river and not worry about killing all the fish downstream, let's just do it, but if our backs are really against the wall, think of those bands of early humans, leaving Africa, cornered in a cave by saber-toothed tiger, right. I mean they found, they found a way of surviving somehow and that's the sort of scenario we're in right now

Announcer (33m 33s):
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