Nancy: Hear that? That's the sound of delegates and attendees at the COP 28 climate talks in Dubai.

It's December 13, 2023, and these UN sponsored climate talks have finally concluded with what many are calling a landmark deal. For the first time ever, the COP agreement names the elephant in the room – fossil fuels. It commits countries to developing plans for "transitioning away from fossil fuels in energy systems ... in this critical decade and... in a just, orderly, and equitable manner," with the aim of bringing net greenhouse gas pollution to zero by 2050 — "in keeping with the science."

In the hours after the agreement was released, many countries and non-governmental organizations pointed out the problems and loopholes found in the text. Nevertheless, the agreement finally puts into words what we all know. Fossil fuels need to go.

I'm Nancy Bazilchuk, and you're listening to 63 Degrees North, an original podcast from NTNU, the Norwegian University of Science and Technology.

Today, in this podcast extra, I'm going to talk Anders Hammer Strømman, a professor at NTNU's Industrial Ecology Programme who has been in Dubai for the climate talks. He's one of the many scientists whose work the countries of the world have pledged to act "in keeping with" as they take action to curb greenhouse gas emissions.

Anders was a lead author on the Transport chapter for the last Intergovernmental Panel on Climate Change report on mitigation of climate change, released in April 2022. The goal of that report was to examine a huge range of options that countries can enact to cut greenhouse gas emissions.

The panel, often abbreviated as IPCC, asked Anders to come to Dubai to talk to a two-day meeting with the shipping community about options.

So… I talked to Anders while he was in Dubai to see what was it like, not quite behind the scenes, but watching first hand as science meets industry.

Let's start with one of the biggest surprises, to me anyway. When policymakers are talking about the greenhouse gas emissions cuts that countries pledged to make in the 2015 Paris Agreement, these pledges don't include shipping! Instead, the shipping industry is governed by the International Maritime Organization, the IMO:

Anders: (16:41)
So they are on the side of the standard way of working with how science and policy

interfaces in terms of agreeing on how we should reduce our emissions. They are not a part of the Paris Agreement. They're separate, governed by the International Maritime Organization.

Nancy: Shipping is a small, but significant contributor to greenhouse gas emissions. The IPCC chapter that Anders co-authored points out that Maritime transport volume has increased by 250% over the past 40 years, reaching an all-time high of 11 billion tonnes of transported goods in 2018!!! The chapter says that maritime shipping contributes to about 2-3 per cent of all greenhouse gas emissions.

Nancy: One of the key issues here is that shipping companies are constantly building new ships to keep up with demand and to replace ageing ships. Anders told me for a recent article I wrote that "The big question for many ship owners is what type of fuels and solutions do we choose for the next generation of ships. If the policies aren't in place, they're not going to be investing in the low carbon solutions we need to get the sector on track toward meeting the goals of the Paris Agreement."

Given that challenge, what impressions did he have of the industry after his presentation and meeting with them?

Anders: (19:03)
The general sentiment is that there's been a fairly large change in sentiment across the sector, going from a clear, hard-to-abate, hard to negotiate, sector to becoming more of a sector which is actually eager to do their part and eager find ways forward, and a broad interest in what solutions might be feasible, and what they can do. So it appears going from not being overly interested in the matter at hand to becoming quite engaged in finding a path forward. But whether that transforms to broader action remains to be seen. But the general sentiment has indeed shifted. **Abate hard to negotiate**

Nancy: So that's some good news.

Nancy: Another thing that Anders did while in Dubai was to talk to a number of high-school classes in Trondheim — a kind of "Live from Dubai" session where he could update them on what was going on and answer their questions. I asked him why he decided to do that.

Anders: (32:48)
First of all, I think that's something we generally should be doing, reaching out to all generations because it's an intergenerational matter. It's not something we will be

resolving and it will be done in 10 years. (33:54)
And I think their generation has to be prepared and understand that this is going to be a key determining factor in their generation and how we deal with climate change going forward. Because I mean, we literally have only seen the tip of the iceberg. And we might only be able to see the tip of the iceberg. That's also the sad thing. But climate change will be even more defining factor in their lives than it has been in ours.

Nancy: At this point, he'd just had a big videoconference with a number of classes in an auditorium. And because Dubai's time zone is three hours later than Norway, it was fairly early in the morning for them.

(09:24)
Nancy But so did, did the students have questions for you?

Anders: (09:31)
Teachers, the teachers had….

Anders: (34:42) it was eight o'clock in the morning. I mean even my university class wouldn't be asking questions at eight o'clock in the morning. They would be wondering where the coffee machine is. I think it was just early in the morning, they were in an auditorium, many classes together, and people were sleepy and shy.

Nancy: But you never know what kind of long term impact this kind of outreach can have.

Nancy: I also wondered if Anders was meeting with other Norwegians while in Dubai, but he told me he was mostly meeting with other IPCC authors like himself. I asked him what they were talking about over coffee.

Anders: (21:40) Well, that it's going a bit slow in the 28th meeting which is led by a state which has strong traditions in oil and gas is not a big surprise. What I think many of my fellow scientists, including myself, is that we're observing how the science and the scientific language, especially that which is used in the summary for policy makers from the IPCC is being interpreted and used in political processes.

Now, we don't have insights into the back rooms, but we see how wording comes into the drafts and how snippets of the summary for policy makers from the IPCC. So sort of that knowledge chain is quite interesting to observe for us who are part of generating or synthesizing that information, if you will.

Nancy: (23:52)
Does it make you think that as a scientist you have to be more activist in your language so that it finds its way into the policy?

Anders: (24:03)
Uh, no. No, I don't think we have to be activists. I think we just need to be more conscious, be more aware of the political context, the language that we are phrasing and being used. So phrases that go into those synopses, the summaries for policy makers clearly are key central objects in discussions and how that language is converted into the language in the agreements.

Nancy: Not long after the COP28 agreement was released, the Guardian newspaper reported the reaction of **Susana Muhamad, Colombia's environment minister.**

Her words should be encouraging for scientists like Anders.

"The text reflects the political reality of this plenary. President Petro defines the struggle of this century between fossil capital and life," the Guardian quoted her as saying. President Petro, I will add, is what she is calling the President of COP 28, Sultan al Jaber, who also happens to be CEO of the Abu Dhabi National Oil Company.

"We were able to live an intense discussion that was able to make a step forward, but there are also loopholes which may create difficulties for us making 1.5C. It is the first time science has influenced the decision of the Cop in such a deep way. I invite scientists to continue with their hard work around the world, because it is opening doors."

Nancy: So what should listeners know from Anders's experience in Dubai? Whatis the takeaway?

Anders: (40:13) To limit global warming to 1.5 degrees, global greenhouse gas emissions will have to peak before 2025 at the latest and be reduced by 43% by 2030. And to limit global warming to two degrees, emissions still will have to peak before 2025 at the latest, but then be reduced by about 27% by 2030.

But all in all, when the IPCC wrapped up its assessment what the countries said they would be doing, would be taking us towards 2.8 degrees. So that's quite a bit of a gap still.

Insert. The Key message… pace and scale are insufficient

Nancy: Nevertheless, no matter any deficiencies in the COP28 language, Anders says it's important to underscore that moving away from fossil fuels is not a hopeless effort, at least from a technical and scientific standpoint.

Anders: (37:55)
We have shown that there are options available across the board that could allow us

to half emissions by 2030 and thereby keep the 1.5 degree target alive. So I think it's for all of us as citizens to engage. It doesn't have to be that you just need to raise your voice, but using the voice you have in voting, making sure that those that we elect in our democracies, and represent us fully understand the challenges and that they will seriously address it. I think that's the most important message.

Nancy: I'm Nancy Bazilchuk, and you've been listening to 63 Degrees North, an original podcast from NTNU, the Norwegian University of Science and Technology. If you want to know more about Anders's work with the IPCC report and other NTNU researchers who have been active with the IPCC and the COP28 talks, check out our show notes. Thanks for listening.