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TRANSCRIPT

Methane Emissions and Devastating Floods

Featuring:

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Mike Disabato:

What's up, everyone? And welcome to the weekly edition of ESG Now where we cover how the environment, our society and corporate governance effects and are effected by our economy. I'm your host, Mike Disabato and we are back from a brief two-week summer hiatus with two stories for you. First, we discuss changes with natural gas and its role in the decarbonized world. Then we discuss the floods that have devastated Germany and China. Thanks as always for joining us. Stay tuned.

Mike Disabato:

Within the context of climate mitigative energy sources, natural gas, a fossil fuel has mixed reviews. Over the past decade, the gas industry has made the case that it can be a critical factor in the ongoing energy transition as a bridge fuel, one that can be used until maybe renewable energy sources are in enough abundance to power our world. And that has some merit when gas is compared to something like coal. In the US, the UK, and more recently, China, there have been large switches from coal to gas as a fuel source that powers our utilities, which has been beneficial for both the environment and consumers. For example, the International Energy Agency recently estimated that coal to gas switching globally avoided more than 500 million tons of CO2 emissions between 2010 and 2018. That's an amount similar to all central American countries' emissions over the same period.

Mike Disabato:

So, that's objectively good. It's good enough for natural gas to be labeled as a bridge fuel, but who cares about what I think. What about Chris Cote's? He's a colleague of mine and he's been researching natural gas for some time. So I posed that question to him and here's what he had to say.

Chris Cote:

An important question to always ask is natural gas is being used compared to what alternative?

Mike Disabato:

Oh, alternatives. We got to compare them to alternatives.

Chris Cote:

And I think that's really where the conversation gets tricky. If you're shipping natural gas to Asia and it's displacing coal there, then you're seeing 50% emission reductions. If you're building a natural gas plant somewhere else, or even in Asia, where you could be building wind and solar to provide zero carbon electricity and the natural gas is just being built because the company that wants to build the natural gas has the contract and it builds natural gas plants, then you have more emissions than you need. And I think that's where natural gas becomes controversial.

Mike Disabato:

So Chris' use of controversial there is kind of a light word because if natural gas is way more pollutive than as advertised, then the oil and gas industry is going to have another highly profitable product that might not survive in the decarbonized world. And regulations are coming and are planned that will tighten the rules around methane emissions that are associated with natural gas. But Chris estimates some 480 billion US dollars are at risk because of these regulations, especially for countries operating in the US and Russia.

Mike Disabato:

There's the Biden Administration's law that was passed with bipartisan support that returned Obama era regulations to reduce methane emissions from oil and gas fields. There's a pending new law coming in September 2021 from the Environmental Protection Agency, the EPA that would extend those methane regulations to everyone in the oil and gas ecosystem. Then the European Union proposed new upstream emissions criteria for the gas it imports, which would also increase scrutiny on the companies operating in the US for whom Europe is a key export market. This would also affect Russian companies by the way.

Mike Disabato:

And all these regulations are worried about methane emissions. And the reason for that is because methane leaks are invisible. They are everywhere, natural gasses. Methane is 30 to 90 times more potent of a greenhouse gas than carbon dioxide, CO2 and methane is the main component of natural gas. And natural gas companies leak methane into our atmosphere in two ways. The one that is highly visible is called methane flaring. It's the release of excess gas that is then burned off into a relatively lower-emitting carbon dioxide. If you've ever seen those dramatic pictures of metal pipes rising into the sky with the flames flaring out at the top, you've seen methane flaring.

Mike Disabato:

But there's a bigger problem, the invisible source of methane. This is when natural gas companies inadvertently vent or leak non-combusted methane into the atmosphere. Everyone kind of knew it was happening around the world, but it used to be that we couldn't really measure it, but lately due to powerful new infrared cameras, we can. And there's new research all over the place that is saying methane is being vented out more than we realized. And the average emissions that natural gas companies have been disclosing to the world do

not yet account for so much leaked methane. They're actually much higher than we are being told.

Chris Cote:

There's just a huge amount of leaks, the venting that's going on, that's not captured. And so those on average numbers are not actually representative of what's happening in the industry. So there are studies coming out from the Environmental Defense Fund through a group of researchers at Carlton University in Canada, very recently, and from the Clean Air Task Force in Europe, showing that through new technologies, and these are thermal imaging on the ground, also used from helicopters overhead, and then even satellite imagery combined with some machine learning that the picture looks really different. And in some cases you're ending up with really twice the amount of emissions from methane than you were using these sort of more standard accepted practices.

Mike Disabato:

The risks are being seen as a laggard on methane emissions, not really caring enough about methane emissions as a company go beyond this reputational risk. And even the cost of complying with regulators. The thing is, is that markets are beginning to price these emissions in. As some companies choose to act and they reduce their emissions from methane releases or flaring or venting, they show that there are industry best practices out there. And then the people that don't do well, they get looked at by governments for example, and say, well, why can't you do this? Why can't you lower your emissions?

Mike Disabato:

For example, France stopped negotiating with a company to build its liquid natural gas plant earlier in the year, because it wasn't confident that the company was doing enough to prevent methane leaks. The thing is the necessary equipment already exists to eliminate most of the industry's methane and flaring problems. But according to Chris' research, companies have so far decided to invest elsewhere, which is really strange because not only is it bad for the climate to have methane leak, but that's your product floating out of a tank. You want to keep and sell all that gas. So why let it happen?

Chris Cote:

I think that the answer is simply that they haven't been pressured to. So the regulations haven't sort of caused them to upgrade these devices. And so a lot of this is, if pressure gets too high in a system, let's say a pipeline system, it can explode. And so the industry has installed these devices, which are pressure controllers, pneumatic controllers that are meant, they're designed to leak methane into the atmosphere if pressure gets too high. And often they do this, so they have these high bleed controllers, which they're not designed with any climate design in mind. They're called high bleed controllers and they just leak methane into the atmosphere.

Chris Cote:

This is really old technology. Many companies are upgrading these devices, they're replacing them, but it's not uniform across the industry. And many companies are waiting for, I would presume a regulatory signal to make these investments because a dollar spent there is not a dollar spent on extracting more natural gas or selling more natural gas to customers in the short term. In the longterm, it actually may be. That's why the payback periods for upgrading these devices is relatively short because you do get a return on your investment in terms of you're not leaking the gas, the product that you're selling into the atmosphere. Instead, you're capturing it and then you can sell it onto the market.

Mike Disabato:

Okay. So the fix is there. The other big problem with this is natural gas has built itself up as a bridge fuel that can lower a world's emissions. If we were to lose that, it could be a problem for the longterm viability of the industry. So some have reacted to this and tried to develop what is called a carbon neutral form of natural gas.

Chris Cote:

We have been keeping an eye on these companies and the industry developments in general that are selling and buying carbon-neutral liquified natural gas. So specifically some of the big players in this space have been Cheniere, Shell, and PetroChina. So Shell and PetroChina just signed a five-year longterm contract where PetroChina will import gas from Shell. And Shell is an interesting player in this space because they've agreed to sell carbon-neutral LNG to PetroChina over longterm. The carbon neutral here is where the rub lies. The emissions that are coming from a carbon-neutral cargo of gas are the same as coming from any other cargo of gas. It's just that they're being offset through protecting a forest or planting trees equivalent to the amount that has been not only combusted at the end of the supply chain, but also any gas that was leaked into the atmosphere or flared. So, carbon emissions flared in the upstream part or any emissions during the transportation of the gas itself.

Mike Disabato:

Some companies have seen this demand and have tried to put themselves in the best position to capitalize on it. Because in order to create a carbon-neutral gas, you need to know the emissions of the gas you are consuming or selling. And in a first, Cheniere, the largest exporter of liquid natural gas from the US is going to start publishing and thus establishing an industry standard for the emissions of every cargo ship of liquid natural gas that they sell. And they are partnering with upstream gas producers to have them not only be more transparent with disclosures, but to actually improve the measurement of emissions at their facilities. This is done through high frequency monitoring, checking for leaks and measuring emissions every day, rather than on a monthly, quarterly, or even annual basis. It's become such a popular idea that one of the biggest commodity trading markets has gotten in on the game.

Chris Cote:

So the CME, one of the big commodity exchanges is now advertising for customers, how to create their own carbon-neutral gas by buying natural gas futures, and then buying offset futures and creating your own. This is an interesting development, but it also could have its own problems, right? There's a limited amount of nature-based offsets. There's a limited amount of forests to protect or to help plant. And do we want to be spending them on natural gas? There are alternatives to natural gas in some scenarios. And this is a question that market participants are asking themselves and need to be asking themselves as they are considering carbon-neutral LNG.

Mike Disabato:

There have been two sets of deadly floods this week. The first were caused by extensive rains in Western Germany and Belgium that have killed hundreds and left client scientists stunned. The second came five days later in the central Chinese province of Henan where at least 25 died, including a dozen trapped in a city subway as waters tore through the regional capital after days of torrential rain. Both of these events have more than likely been exacerbated by climate change and both represent what we call physical climate risks, or what can happen to long-standing structures as the climate begins to change and natural disasters worsen? Because in addition to the incalculable loss of life, the floods have also shut down the critical infrastructure in the area. I'm talking about water sources, electricity and transportation systems.

Mike Disabato:

We're going to focus on the latter today, specifically on railroads. And to do that, I have with me, my co-host Bentley Kaplan, because Bentley also, in addition to hosting ESG Now covers the transportation sector for us. And you might be thinking, why are we covering this on the latter part of our episode in the shorter period, if the floods were so devastating? Well, we're actually going to cover it in detail on August 13th. So please tune into that. We're going to have a lot more information on floods, railways, physical risk, and all that kind of stressful stuff. So make sure you tune in. But Bentley and I just wanted to kind of discuss what was going on and put it into context before we had the longer episode.

Mike Disabato:

So Bentley, before you begin, I just want to set the stage for everyone as to what happened to Germany's rail system. The CEO of Germany's national railway, which is called Deutsche Bahn estimated that it will take two and a half years before the 400 kilometers of destroyed track and more than 200 damaged train stations can be put back into full service. And that they have lost almost €1 billion due to this flood. So it's a massive, massive disaster that really, it seems like no one saw coming. I'm curious to hear, Bentley, your thoughts about this.

Bentley Kaplan:

Cool. Thanks, Mike. Yep. One thing to keep in mind about rail infrastructure, for example, like you mentioned, in Europe, it's particularly important and that's because it acts as a conduit

not only for freight, so shipping things around countries, but also for people as well. So when you have an interruption to the railway service, it has a big ripple effect across the economy, but also into people's lives.

Bentley Kaplan:

The other thing about rail infrastructure is that it is very long lived and is very difficult to move. So in some sense, it's there to stay. And it's a question of just sort of bedding down and trying to manage this increasing physical risk as best you can. And I think that is where we are at the moment. And the questions become how do you properly calibrate what these future risks will look like?

Bentley Kaplan:

And I think what we're learning pretty quickly is not only are these impacts becoming more extreme, but the complexity in predicting exactly when these events will happen and where is in some sense, impossible. There's always going to be some sort of margin of error. So companies are going to face a pretty complex time. And obviously we're talking now about the floods in West Germany and Deutsche Bahn, which is the national railway. There's talking damage in the sort of billions of Euros. But in central China right now as well, there's a similar sort of very massive flooding event caused by a slightly different climate effect, but in terms of the physical impact on the ground, very similar kind of big infrastructure damage, loss of life as well.

Bentley Kaplan:

So we're going to see these kinds of impacts happening all over the world. And I think what is interesting is also that it's not... People may have in their minds that flooding is associated with coastal regions, areas that are going to see increasing sea levels or storms pushing waves onto seafronts, but these events in Germany and in China are both inland flooding. So in some sense, it reveals the complexity in predicting these kinds of events.

Mike Disabato:

While it's complex, do you think this is going to have off-effects on governance structures? I'm talking the Government of Germany, for example, or on companies that have these critical infrastructures that they are responsible for. Do you think it's going to have an off-effect and people are going to look at them and say, you have to have a more robust climate disaster plan now because of this massively devastating flood that was basically unexpected and took everyone by surprise?

Bentley Kaplan:

That's a great question. And I think we're seeing it play out immediately in Western Germany. There's an election coming up, a national one in September, and the way different cities or towns have responded to this event is sort of crystallizing that political debate. But if we take a step back, at the same level, at companies, there's going to be questions asked about how

prepared were different companies for these physical climate risks, which even though there may be some variations in how predictable and how precise the models are, we know there's going to be increasing flooding risk.

Bentley Kaplan:

So what's going to happen, I think, is there's going to be an increasingly strong spotlight put onto the governance of companies and asking questions about how well management and directors are suited to deal with these challenges, not only understanding physical risk models, but in being able to motivate for early steps to be taken, whether that's in terms of not only mitigation, but adaptation to these climate risks and learning to work with different stakeholders, with government actors, with investors, and stitching all of that together into an appropriate response to what is going to be an increasingly complex challenge. So for investors, I think the governance of these companies and sort of the climate savviness of directors and managers is going to be an increasingly important question.

Mike Disabato:

Yeah, I definitely agree with you there. But I want to stop here because I want to give you enough time to prepare a longer episode. And I hope everyone that's listening joins in to hear about that. We're going to have a colleague that actually did academic research on the topic, and he has a lot of really interesting things to say.

Mike Disabato:

And that's it for the week. I want to thank Chris and Bentley for joining me to discuss the news of the industry twist. And I want to thank you so much for listening. I really appreciate it. Don't forget to rate and review us wherever you get your podcasts and subscribe, if you feel the need. Talk to you next week and stay safe.

Mike Disabato:

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