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Join Beth Hardy, VP
International CCS
Knowledge Centre



*in conversation
with...*
&
Dr. Katherine Romanak
Research Scientist
University of Texas at Austin



Mike Ryan
Vice-President
OGCI-CI

TRANSCRIPT: BETH HARDY, DR.KATHERINE ROMANAK, MIKE RYAN

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Beth: Hi guys, thank you so much for joining me today in one of these mini videos in the series that we're doing, trying to reach out during these times, still talking about CCS and also the realities that we're facing.

So, I want to introduce you to my guest today. I have Dr. Katherine Romanak. She is a Research Scientist at the University of Texas at Austin at the Gulf Coast Carbon Center. Katherine is an expert in environmental monitoring for geological CO₂ storage sites. She's developed and implemented environmental monitoring programs at several of the US Department of Energy projects. She has been the principal investigator for leakage claims, the non-leakage, and the go-to person in storage assessment.

Katherine Romanak: Thank you, Beth.

Beth: I'm going to introduce you also to Mike Ryan. He's the Vice President of CCUS at the Oil & Gas Climate Initiative Climate Investments. He has over 30 years of oil and gas experience. The OGCI-CI is doing big things in the investment space for CCS, and Mike is leading the charge in a lot of those efforts to identify suitable projects.

Beth: (1:20) Okay, so let's talk about 45Q first. We know that 45Q is a US initiative aimed to make a substantial impact in CO₂ emission reductions. It's a tax incentive that will allow up to US\$35 a ton for EOR, enhanced oil recovery, and the use of CO₂ and then US\$50 a ton for permanent sequestration. With these economic stimulus packages that are rolling out now in response to the coronavirus and will do so afterwards, there are many impacts on timing

So, Katherine, I'm going to turn to you first. Last time we were together at the COP, you were talking about how 45Q has your phone ringing off the hook. Why do you think there is that demand for the Gulf Coast Carbon Center?

Katherine Romanak: (2:05) Well, Beth, you know, I think first of all, what this means is that 45Q is working. It really is stimulating companies with tax liabilities to look into developing CCS projects. The Gulf Coast Carbon Center really is the geological survey of Texas. And Texas actually has some of the largest CO₂ emissions. We're double what the next highest state is. We also have a very large

sedimentary wedge that we can store CO₂ in Texas. And so, really, I think that 45Q presents a great opportunity to businesses in Texas that because we have what we need to do CCS, and because the Gulf Coast carbon has had 20 years of experience, doing all kinds of projects in CCS, and I think that's why our phones are ringing off the hook.

Beth: (3:00) That's awesome. Thanks so much. I'm so glad they're looking to your advice as they should. Mike, you and I just spoke just over a month ago in Saudi Arabia when we were allowed to leave our homes. 45Q opens the door for the ability to have early stage projects receive investments with that derisking from the government backing. OGCI-CI's recent investment in the Wabash Valley Resources ammonia CCS fertilizer plant and the newly announced Elk Hills Power CCS project for natural gas and California are examples of that. Can you tell us more about those?

Mike Ryan: (3:37) We were able to partner with DoE funding that was given at Wabash was around the characterization of the geology, which is about 80 miles away from the ADM, Archer Daniels Midland Plant in Decatur, so very good geology for sequestering CO₂. And it was a repurpose of an old gasifier to, as you said, make low carbon ammonia using petroleum coke as a feedstock. So, it's got a good link to the oil and gas business and you can think about the carbon coming from the bottom of a refinery, making hydrogen, combining it with nitrogen from the air and following the carbon back into the ground. In the Elk Hills Plant, that one was more joining kind of simultaneously with DoE around looking at the capture technology. And this one has got capture costs that we're looking to reduce and working with EPRI and FLUOR to see how we can understand how to make dispatchable power and design a system where it can operate to generate, to take the CO₂ from an existing power plant and that CO₂ is going into be used by California Resources for their enhanced oil recovery.

Beth: (4:53) So Katherine, back to you. The US is really a player in the next wave of CCS. And yet developing countries are always a top of mind when we're talking about an energy transition. And especially now with grid stability being a concern and energy security as well as human health during this pandemic, what are your thoughts?

Katherine Romanak: (5:13) Well, Beth, absolutely, you're right. I mean, I think that developing countries are really, really, important. And in fact, the International Energy Agency has said that 75% of the emissions reductions that we will gain through using CCS will need to come from developing countries. As you talk about grid stability, you know, and we want to transition away from fossil fuels, and we want to be using renewables, but in developing countries, fossil fuels are some of the cheapest and most available fuel sources. So, it's really, really, important as these countries build their economies and as they weather through the climate change and the adaptation that is needed, it's really important that they understand and are aware of their potential for CCS as they build their resilient energy systems. It's important that they know that CCS is an option. It's important that they know that there are funding sources within the United Nations Framework Convention on Climate Change that can help them build CCS into their countries. And it's also important that they understand that there are international bodies that can support them, such as the International CCS Knowledge Centre, IEAGHG, Gulf Coast Carbon Center

Beth: (6:35) Yeah, exactly. So, Mike, I love that each time you and I talk you have a new CCS investment announcement to discuss. This time is no different. Tell us about your most recent project.

Mike Ryan: (6:46) I think by having meetings with you is causing us to announce – maybe you're my CCUS muse that causes these things to happen that I've been missing. But, yeah, in the past year we've made three investments. And this, along with Net Zero Teesside, will amount to about 9 billion tons a year, which is equivalent to about 2 million cars off the roads, so we're very happy because that's for climate investments, that's our number one key performance index, is impact. We want to create investable projects. And so, we're very happy and we're optimistic that each one of the four

projects will get to a financial close, it makes it investable. And as we were talking about before 45Q is instrumental in making that happen.

This latest project; we can't disclose the location or even the volume, but this one will not have a DoE money but it is another combined cycle, natural gas combined-cycle plant. We need all the kind of incentives we can get to make these projects investable until we get the cost down and create a more fungible industry. So, stay tuned for that as kind of the current effort that we're working on. And we're very excited that that can start to gain traction with state and federal regulators on funding for larger infrastructure projects.

Beth: (8:10) I think this is the time where we collaborate and figure out how we can make sure these projects stay lower cost and go forward more successfully. So, what I want to ask you guys now, is there anything you want to talk about that you, you know, have had to postpone, or that you are doing amid the pandemic that you want to highlight?

Katherine Romanak: (8:32) Not really other than just to thank you, Beth, and everybody at the International CCS Knowledge Centre for all that you all are doing. We've really enjoyed collaborating with you and we're really grateful for all the good work that you have done in getting the cost of capture down and in looking at industrial sources. And so, you know, like you said earlier, I think it's really just something that we need to all come together and collaborate on.

Beth: (9:01) Wow, that's really kind. Thank you so much. Mike?

Mike Ryan: (9:05) Well, I think what's interesting about this virus situation that we're going through is very much like climate, you know, it doesn't know any boundaries, it probably disproportionately affects the underprivileged or unprepared. And so, and it's showing what Katherine just mentioned that collaboration and sharing of techniques and things that have worked and learn from each other because it's a global, a global pandemic, and climate is also a global problem. The antidote to climate change issues is very similar to the antidote for the virus. We're going to need a plethora of things, and CCUS, I think, is a key critical component to it. And we have a lot of work to do on it, but we're very optimistic that it's going to be a big part of the solution.

Beth: (9:53) Thanks. That's some great insights. So we'll have a lot of the highlights of this on our website as well as links to your organizations so people can reach out if they need to and please share with your friends and hope that everybody stays healthy.

Mike Ryan: Thank you, Beth.

Katherine Romanak: Thank you, Beth.