

Williams' trajectory to net zero by 2050

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Matt Sallee:

Hello, I'm Matt Sallee, president of Tortoise. I'm pleased to be joined today by Alan Armstrong, chief executive officer of Williams. This is a company we've invested in through various securities going back over 20 years, including their fixed income securities at our predecessor firm Fountain Capital, which turned out to be a home run by the way. And in some ways that feels like the opportunity we see today with the midstream equity market dislocation. Now I think part of fixing this dislocation is getting on the right side of the ESG movement which is what I want to focus on today. Williams is one of the largest gas transmission companies in North America and has been instrumental in the transformation and decarbonization of the U.S. power grid. They're replacing coal with gas fire generation and they continue to expand their low and no carbon investments. So, with that as an introduction, welcome, Alan.

Alan Armstrong:

Thank you. I'm excited to be here. Appreciate the opportunity today.

Matt Sallee:

Great. Well, I guess before I jump into some of the specific questions and really I wanted to cover some of the comments that you made on the second quarter earnings call, but Alan, do you want to just provide maybe a little bit of background and history on the company to kind of level-set the discussion?

Alan Armstrong:

Sure. I always appreciate the opportunity to get to talk about Williams, especially from the culture of the company, because I do think it's very special and I myself, over the years, have thought the term culture is a very overused term and I always liked to boil it down to what the expected behaviors are within an organization. And really when you come in new to an organization, you're kind of looking around and wondering what the expectations and if the rhetoric that you hear on the outside is consistent with the inside.

I'm here to tell you that I'm very pleased with Williams and that we are a very extremely genuine company. We're a 112 year old company and I think that one of the reasons that we've been around so long is we really held true to some pretty simple principles about the way we run the business. We really think about our business really with the perpetual shareholder in mind, and so to us, the culture of doing things the right way is very much how we do things. Today, that has become the popular term, sustainable, but I can tell you that from a William's standpoint, that comes very naturally to us in terms of thinking about how to make sure that we are relevant, that we're changing with the times, that we're a good steward, and we're a company that somebody would be proud to call themselves an owner of. That's how we really think about sustainability.

I would just tell you, in terms of the evolution of how we got here today, we've always really been involved in infrastructure in one way or another back in about 10 years or so ago, we were in the E&P business as well and we acknowledged and saw that the ability to get natural gas out of the ground through shale gas was at a lower and lower cost

was really going to reform the energy industry particularly here in the U.S. and we felt like the really strengths that we had in that regard was the pipeline infrastructure and our experience and capabilities around providing infrastructure services around that for gas. We weren't confident in our ability to compete and nor did we really think there'd be as much value for our shareholders in competing getting gas out of the ground as much as there was being a great service provider for the folks that really were well-heeled with that, as well as taking, knowing that we expected markets to expand on the backs of low cost and low carbon fuels.

We really have set our strategy around that for a number of years. We handle a little over 30% of the nation's natural gas through either our gathering & processing or transmission services. We've contracted the business in a way that's very durable and we've positioned ourselves in the places where the very lowest cost resources are here in the U.S. and we've built our networks into markets that we think are going to be the fastest growing markets. And so you really should think about our business really pretty much network of connecting low cost resources into higher value and growing markets. And that's really the way we think about our business is in that broader context. And as a result of that though, the way we've contracted our business has allowed us to continue to provide very steady cash flows and very predictable cash flows, because even through the COVID downturn in the broader economy, crude oil collapsed prices, our cash flows have remained very steady. That really is because of the way we think about the business and we really contract long term. We're not really just looking for a flash in the pan, we think about our business, about where it will be for our perpetual shareholder. In other words, somebody's going to hold our stock forever and that's really the way we think about our investor base.

So today we have the largest and fastest growing major interstate pipeline in Transco and that's saying something to be the largest and the fastest growing. We also have the Northwest pipeline which is a unique provider of services to the Northwest coast and the cities of Seattle and Portland and really all of the Northwest coastline. And then we also enjoy our Gulf Stream pipeline that serves the power generation markets in Florida and that business has continued to grow very nicely for us. Particularly with demand for natural gas backing up renewables in that market because we sell capacity, we don't really sell the volume really critical to be able to match up the capacity to back up renewables in a market like Florida that is continuing to build out its renewable fleet. So I think sometimes it surprises people when we see the kind of growth we do for the demand in our capacity in markets that have very high amount of renewable energy supplies but it really is the fact that we sell capacity and therefore at nighttime, that power has got to be there in ways as well prepared to serve those customers. And then finally on the gathering side, we have the very largest gathering systems in the nation, in North America's lowest cost gas resources. Some would say industrialized nation, the lowest cost reserves in the world.

That's not by accident. We pay a lot of attention to making sure that we're connected to the lowest cost resources and that really does drive long-term value for our business. Certainly with the growing urgency to transition to a low carbon fuel future, our strategy provides a practical and immediate path to reduce industry emissions and really we're well positioned to continue to support the growth of renewables and grow a clean energy economy right alongside it. So we're not out trying to greenwash our business, we simply are asking investors to look through the rhetoric and the hyperbole and focus on the facts of what our options are to quickly reduce greenhouse gas emissions in an economically sound manner. So we are very focused on being a part of the future and being a part of reducing greenhouse gas emissions. And so we want folks

to focus, not just on, we think this mantra of no fossil fuels is leaving one of the biggest and most impactful tools that we have in terms of reducing emissions via the broader use of natural gas.

We think that is stifling one of the greatest tools we have in the world really to continue to reduce greenhouse gas emissions. So we're excited to play a part of that and I'd say as an industry, we've got to do a lot better job of telling that story because there's really not very many industries that can say that they've had such an important part of reducing greenhouse gas emissions here locally and globally as natural gas has.

Matt Sallee:

That's helpful color and actually a nice segue into where I want to jump into a little more on the detail around CO₂ emissions. I know power generation is obviously one of the largest sources globally and domestically of CO₂ emissions. Can you talk about your perspective on, what's been the trend of CO₂ emissions from the power sector in the U.S. and then how you expect that to evolve going forward, and especially knowing that there's a ton of buzz about electric vehicles and electrifying the economy and I think the outlook for power demand is pretty robust going forward globally. So how does all that fit together in the impact on CO₂ emissions, both looking backwards and forwards here in our country?

Alan Armstrong:

Looking backwards, it's pretty simple. It's just fact based and just to remind folks that since '05 through the end of '18, gas as a percent of our total electric generation in the U.S. has doubled. So that's pretty impressive because it was already a fairly substantial piece and Williams is glad to have had a role in moving that gas out of places like the Marcellus into places like the Southeast and the mid-Atlantic where there's been a lot of conversion away from coal, but there's a lot left to be done there as well. And during that same period, we saw CO₂ emissions decrease by 27% on energy related carbon dioxide emissions. Pretty impressive that if you're just looking to what has actually driven the reduction in CO₂ emissions, about any study that you want to look at that is balanced is going to show you that natural gas has been a great tool for reducing emissions here in the U.S.

Now looking over the last 10 years from 2009 through 2019, the power sector generation grew by only 4%. So that's kind of surprising to people. That's not a CAGR, that's just a flat growth number of 4%. During that same period, the annual CO₂ emissions from the power sector fell by 25%. So those things line up pretty well with those prior stats. But if you look at what's going on with coal, coal dropped down to only 24% now of the power sector generation and it still represents 60% of the power sector's CO₂ emissions here in the U.S. So still have a lot of opportunity around reducing emissions from coal.

Williams is positioned in a lot of markets that still consume fuel oil and heavier hydrocarbons as their source of heating fuel and that is also a tremendous opportunity for emissions reduction and it's one that we can get to right here right now, doesn't require waiting 20 years, doesn't require waiting on technology that we don't know exactly where it's coming from. We can get after those very large emissions reduction with the benefit of natural gas right now. But I think to focus on reducing emissions just here in the U.S. and you see all kinds of stats here for the U.S. but I think it's really important for us all to remember that climate change and greenhouse gas emissions are a global issue and to fix it here at home and let it escalate elsewhere is really shortsighted.

That's really where the importance of natural gas comes through. And so let me demonstrate that with a couple of I think really interesting facts that show how shortsighted it is for us to focus on just eliminating fossil fuels just here in the U.S. and how little impact that actually would have. But there are two simple facts; first of all in 2007, the annual decline of CO₂ emissions has been 0.7% from the developed countries. But the emerging countries have been picking up the business that we've been letting go with a lot of our heavy industries with the use of looser emission requirements and have actually increased emissions by 3% per annum since 2007.

So if all we wanted to do was keep our emissions flat with that map in mind, we would actually have to be reducing our emissions five times faster in the developed countries than we are today. And the fact is that's almost impossible to do and it gets harder and harder as a lot of those heavy industries get pushed overseas and into other areas that are going to burn heavier, cheaper hydrocarbons if all we are focused on is just eliminating fossil fuels at home. In fact really what we're going to do is we're going to drive the business over to emerging countries and they are going to burn heavier hydrocarbons because they're going to burn whatever's lowest cost. In a lot of those countries, natural gas is not its lowest cost because it has to be shipped there. So we have got to make sure that we keep our industries here and that we can use natural gas so that we're not effectively exporting the right to increase emissions to those other economies.

So I think it's always really important for people to really understand the facts on a global basis since it is a global problem. The second fact that I find fascinating and almost depressing if we don't take it on is the fact that all of the countries except China, if you take over from the beginning of '18 through '19, the countries except China, we reduced power generation from coal by 8 gigawatts. So pretty impressive, pretty decent number and certainly on the right path. Unfortunately, during that same time period, China increased coal generation capacity by 43 gigawatts and has another 121 gigawatts of coal powered generation under construction.

Again, driving the cost of energy up in the U.S. alone is not the answer because we're going to do is drive it into the hands of people that don't have such a great resource of natural gas available. And we've got to find a way to make sure that we are distributing natural gas at a low cost around the globe, because we're not going to be able to do it with the resources that we have available today without the use of natural gas. And really about any study that you look at today. I just got through chairing last year, the National Petroleum Council's study on infrastructure, and as a part of that, we looked at all of the studies around the world, and you cannot find one that doesn't show natural gas as a critical element of emissions reductions around the world, even in the most aggressive cases.

And so there really is a disconnect today between the political rhetoric around no fossil fuels and the actual facts of what it's going to take to reduce greenhouse gas emissions while we continue to grow the economy. So what we're going to wind up with if we're not careful is we certainly will have fewer emissions here in the U.S. but much larger emissions growth globally, and eventually we won't have a political or an economic voice to bring global change from the U.S. if we let our economy be retarded by the past that is not looking at the economic feasibility of reducing greenhouse gases and taking it on with sensible approaches like natural gas. So I find this very fascinating. It's most fascinating to me how far away some of the rhetoric and opposition gets from the facts and I think it's really important for leaders to really educate themselves on this and really start to bring solutions rather than just being critics. And if we do that, I feel very, very good about natural gas's future here in both U.S. and globally.

Matt Sallee:

I guess, sticking with that theme, obviously emissions are a global issue. Alan, do you have thoughts on how to influence behavior or are there things that the U.S. can do to help countries such as China bring their emissions down?

Alan Armstrong:

Yeah, I think one of the most important things we can do is take advantage of our low cost fuels and continue to invest in high efficiency technology that makes best use of fuels like natural gas, but not exporting the business globally to people because we keep putting pressure on no fossil fuel use and restrict the development of infrastructure. And as we do that, we are exporting that economic capability. So I think we have to come at it from a much more sensible perspective. And so for instance, when the FERC asked the question, "Well, what is the impact of greenhouse gas emissions going to be on this project?" Instead of saying, well, X amount of people are going to consume the power generation that this provide, and that's going to provide X amount of increase, we got to be thinking about it from a standpoint of, if we don't export this low cost product and if we don't keep our industries alive at home, what really is going to happen is a cheaper, dirtier fuel is going to be burnt somewhere in the world to meet the demands that the economy has. And so we have to politically think about this from a global perspective and not just being popular by going along with what is politically correct, but we have to have leadership around the important use of natural gas. So anyway, I think there's a lot of opportunity but it's going to come with political courage and political leadership.

Matt Sallee:

Got it. One that is more nascent and has gotten a lot of attention recently is hydrogen. Can you kind of share your views on what role it plays in low carbon energy and is Williams involved or researching it and is hydrogen a threat or an opportunity to your business?

Alan Armstrong:

To the degree that you are producing power in excess and you effectively have free electricity, the economics of producing hydrogen through electrolysis become a lot more interesting. Most of the studies that you look at today will take power at a 10 cent per kilowatt kind of pricing level and at that level it's about five times more expensive than producing hydrogen from steam reformation using natural gas. But if you think about producing hydrogen when the power cost is zero and you get the benefit of transmission of that energy through your existing pipeline systems and you effectively then have free storage and now hydrogen is competing for energy storage, not competing up against natural gas but it's really competing as an energy storage product then it really starts to become a lot more interesting. And so that's how we're looking at it on that front is what the cost of producing hydrogen with effectively no cost power, and because you'd produce it when you have excess power not when it's priced. And also then you've got the ability to store that energy where obviously that's a lot more expensive with the limited battery technology that's available today.

And so we would blend that into our pipelines, which obviously then make the burning of the gas in our systems lower carbon content. And we think that provides a nice political solution into some of those difficult markets that we serve. If we can show that we are bringing a cleaner fuel into those markets, we think that has some appeal to us as well in terms of

our ability to get infrastructure constructed in some of these more difficult areas. So we definitely are digging into it. We're a long, long way from that being commercialized, but I would just put us down as making sure as we think about the perpetual shareholder, making sure that we are staying up with the demand for decarbonized future and thinking about the benefit of our network of assets in how those can both store and transmit clean energy like hydrogen. And so I fully expect us to be a leader in that space.

Matt Sallee:

So maybe some more basics. If you're producing hydrogen in West Texas, how do you get it to an end use market where it's consumed and how would it be consumed? You're saying it's just consumed along with the natural gas so it's kind of fungible, just so I understand it?

Alan Armstrong:

Yeah. So you would just blend it in with your natural gas. But think about that, whether you burn that hydrogen in its pure form or you burn that hydrogen in a blended form, you save the same amount of emissions, no matter what. Now that's an intellectual argument that some people struggle with, but it's pretty simple in terms of, if you're replacing a BTU of methane that would have produced CO₂ with hydrogen then you've effectively accomplished the same of emissions reduction no matter if you burned it on a blended basis or if you burned it with CO₂. So the emissions reduction is completely fungible and I would hope that we're smart enough country to think of it that way and let science and not politics dictate how we take advantage of that clean energy.

Matt Sallee:

Really interesting. So continue on that theme, how much could you blend into the gas stream? Is there a limitation to how much you could do?

Alan Armstrong:

Yeah, there's a couple of limitations. First of all, there is concern over causing brittleness in the steel pipelines. And so today there's a lot of studies out there but there was one done here about two years ago that they proved that 15% was pretty safe. Later studies are showing that to be more like 20% that you could blend without putting at risk the integrity of your pipeline. So that's still in debate but that'll resolve itself. The bigger economic limitation provided that you could solve the integrity issue beyond 20%. First of all, if we ever start moving 20% of hydrogen in our pipeline systems, we will accomplish a lot. That is a very large number in terms of the amount of hydrogen. So let's say that you could get to that level.

The couple of challenges that come with that first and foremost is the way that equipment and appliances are tuned. And once you lean up, because when you add hydrogen, hydrogen is only about 40% of the BTUs on a volume metric basis as natural gas is. So if you're moving it along with natural gas and burning it, you effectively have to have more volume whether you're going through an orifice, on a burner, on somebody's furnace, or whether you're going through a turbine

and a gas fired injection on a turbine, you would have to retrofit a lot of appliances to go down to that level. So there is a limit and a point at which there would be a lot of capital investment required to go to pure hydrogen in an end use level.

And I think again, that's something that needs to be studied. But there's a tremendous amount of opportunity in emissions reductions to getting to that level. Same reason we shouldn't be saying no fossil fuels, we ought to be focused on emissions reduction and the atmosphere doesn't know whether that hydrogen was blended with the gas or whether it was burned separately and that's the kind of intellectual thinking that we need to have come forward. But I would say the other practical issue that people should think about, if you think about hydrogen being two and a half times more volume that you have to move if you want to get the same amount of energy moved, then that means that's just going to be more and more demand for pipeline infrastructure. Said another way, if you actually were moving the 20% of hydrogen in your natural gas stream, it's going to mean more pipeline capacity, not less pipeline capacity because the pipeline only knows volume, it doesn't know BTUs and the pipeline capacity would actually have to be expanded for the same amount of energy.

Matt Sallee:

Got it. Interesting. Well, thanks for indulging me on that. It's a fascinating topic. I want to shift gears now and I know you've been extremely generous with your time so I could keep going forever. But you guys came out recently with a goal of a 50% absolute reduction in greenhouse gas emissions by 2030. Can you talk to me about just broadly, and you mentioned this earlier about you're very focused on controlling CO₂ emissions and methane emissions within your existing infrastructure. Can you just talk to me about, what are your goals, obviously lined out in that recent press release, but how are you measuring that, reporting it? What are your aspirations longer term?

Alan Armstrong:

Well, there's pretty good standards thankfully on reporting it. And so we track and report both scope one and scope two greenhouse gas annually for all of our assets that we own and operate, then we calculate the total CO₂ and methane emissions in accordance with what's called the Greenhouse Gas Protocol or GHGP. So pretty good standards around that and that is how we measure that. In addition, there's an annual greenhouse gas emissions inventory that is submitted to the EPA here in the U.S. and that is also in accordance with their protocols in the greenhouse gas reporting program. So there's getting to be pretty good standards out there around that reporting. But we also, because we see this as a really ripe opportunity for people reporting there's a lot of different ways and for credibility to start to be questioned so we engage a third party assurance review of our greenhouse gas emissions reporting.

So almost like an auditing firm frankly because I can see this having been around this industry for a long time. I can see this be the next issue where people start to doubt and there starts to be different ways of recording it. And so we really want to make sure we can talk with confidence around our greenhouse gas. Or said another way, I'd hate to win the battle of claimed emissions reduction and lose the battle of long-term credibility and so we're really working hard to make sure that we've got good reporting, good auditing and a third party review of what we do report. And I do think that's important. And I think investors really ought to be demanding that because very few people actually understand how this is all recorded and some of the claims that are being made. And so I think it's really important to get that. And kind of on that

front, our near term goal is 56% absolute reduction from 2005 levels in our company-wide greenhouse gas emissions by 2030 is the very specific goal that we've put out there.

And that would put us on a trajectory to be net zero carbon emissions by 2050. But I can tell you that the reason that we've chosen a 2030 marker is that's actually something investors can be looking to us and be understanding how we're going to get there and holding this management team accountable, as opposed to something that's out in 2050 that the world's going to change a lot by the time we get to 2050 and certainly the management teams that are making those claims won't be around to be held accountable for that. And so we really think it's important to think about it that way in the short term. Emissions are cumulative and whatever emissions reductions we capture today are very lasting.

So we want to be credible with our measurements and we want those measurements to be meaningful and something we can be held accountable to. So things that we're going to go after, a lot of things we've already been doing. So for instance, we've changed the practices on our pipelines tremendously. We used to, if we were going to evacuate a pipeline of natural gas for maintenance purposes, we would just lock it in and blow it down to atmosphere and that methane would be emitted. And that's just the way the business has then for a long time and it's the way the practice is done.

We also have controls systems on our pipelines that were run off of pneumatic controls and the pneumatics were gas powered pneumatics. We've been replacing all of those and we've positioned our pipelines and we've added extra compression on our systems to be able to pull our pipelines down to near atmospheric conditions before we open it to atmosphere. Therefore we've evacuated all that methane. I would tell you, we're going above and beyond a lot of the companies that we operate around, but we think it's important for the sake of the natural gas industry and the reputation of the natural gas industry, we think it's important that we very quickly show what we can do to reduce methane emissions from this business and there is a lot that could be done if we simply were focused on emissions reductions and not just stopping the use of fossil fuels.

Matt Sallee:

You make a really good point, it's important to make the impact today given that emissions are cumulative. So I think for me, this has been a really enlightening discussion Alan. I really appreciate your time and look forward to speaking again in the future.

Alan Armstrong:

Hey Matt, thank you very much. We really appreciate the opportunity to talk about what we're doing. We're excited about it. We think we can make a huge difference and we think our industry and Williams in particular is extremely well positioned to really help improve the greenhouse gas emissions goals here. And frankly, we think we should be setting even tougher goals for ourselves in the near term rather than that long-term goal that none of us really know how we get there. So we're excited to be a part of that and we're in the right here, right now, crowd and tend to play an important role in that.

Matt Sallee:

Agreed. Thank you.

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