

*Paul Lemar:*

Hello. Thank you for joining the webinar today. We're going to give folks another minute or so to log in, and then we're going to get started just after that.

Okay, let's get started. Hello everyone and welcome to the 2023 Better Buildings Summer Webinar series. This series is dedicated to bringing you the latest actionable insights from leading industry experts, and that's what we're going to be doing today. This series is an annual series, and it's a chance to explore topics, technologies and trends that affect your organization as well as efforts to accelerate decarbonization as well as energy efficiency. So today's webinar is called Paying the Price: How Does Internal Carbon Pricing Support Emissions Reduction.

And before we dive in, we just want to go over a few housekeeping items. So, like most of our webinars, today's webinar will be recorded and archived on the Better Buildings Solutions Center. And you'll get a follow-up note via e-mail about when that's available, when the recording and the slides are available, if you want to share that with your colleagues.

Secondly, as attendees you'll be in listen only mode, so your microphones will be muted. But when we do get to the end and get to a Q&A section, you'll be able to, we'll tell you how to put questions in the Q&A so you can get those answered.

My name is Paul Lemar. I'm one of the technical account managers under the Better Plans Program. And, the Better Climate Challenge as well. And I've been with the program since it started back in 2009. Been working with partners on energy metrics and helping them with their regression models, setting up their energy management systems, like the ISO 50001 and in general I've been working with them on everything they need to do to start working towards their goals.

I also help a lot with treasure hunts and energy assessments. I've done quite a few of those, both in U.S. and in Europe. And also broader background, I've been working for many, many years in combined heat and power, renewable integration, and interconnection as well as just general industrial energy efficiency.

So with that, I want to go ahead and go through what our agenda's going to look like today. So first, we're going to go through a few introductory background points about what we're seeing in the area of internal carbon pricing. And then we've got a couple of polls. We've got a couple on the front end, a couple on the back

end, where we want to ask our attendees where do you sit on this issue? And that's going to be interesting for everybody to see. And then, we have some fantastic partner presentations.

We've got a team from Saint Gobain. We've got Cummins, and we've got Chemours all here to tell us where they are in this issue, and what they've done about it thus far. And it's really going to be interesting to see a variety of different perspectives on that. And then we'll wrap up after that with a couple more polls around this topic, and then finally open it up to Q&A. And then after that, we'll just conclude the webinar.

So just a quick background on this topic, and a lot of what we've gathered on this topic has been based on early discussions with our partners on where they are, when they're looking towards setting these long-term, very significant GHD reduction goals. Most of our Better Climate Challenge partners have goals around 50% reductions by 2030, and that's a huge commitment.

And even our Better Plants and Better Buildings partners, while they may not have a commitment quite that high yet, you know. A lot of them are working towards that, and also have very aggressive goals in that area. So it's a big challenge, particularly when you look at the fact that 2030 is only seven years away.

So what we've heard is that through the emissions reductions planning that our partners are doing, one of the obvious concerns is, are we going to be able to get enough reductions when we look at our projects? And particularly, one of the things that we're running up against is, if we're looking at just doing it on the basis of energy cost savings alone, that could be very challenging.

So one of the things that's been, come up in discussions is you know, whether the conventional kind of capital budgeting process that organizations use for energy projects, whether that's going to stand up or what really is probably going to happen, it's going to likely require some revisions, particularly if those, if there's not a lot of low-hanging fruit to reach those goals.

Let's see, so there were a number of options that came up in our discussions. Some of these are really you know, just kind of offshoots of what our partners were looking at to you know, attain their energy goals. And these are steps, like looking at a longer return on investment rate. So maybe instead of a three year payback, they're looking at a five year payback. And that certainly allows them, would allow them to capture more projects. But does

it really go as far as hitting those levels of decarbonization?

And similarly, along the same lines, we've seen our partners look to set aside capital funds and focus those on higher decarbonization projects. And that certainly would be effective, but is it again going to be enough? And that's the issue with those two measures. And we do see a lot of our partners, particularly those that have more scope two exposure and less, or actually both scope one and scope two.

But the focus on electrification and taking the uses that are scope one, if those can be electrified, and then combining them with renewable electricity, is certainly a way of encouraging funding. Because those projects may be more achievable when we're looking at combining with renewables.

But the final step, what we see a lot of partners looking at, is really just integrating an internal cost of carbon, and what we've seen is the kind of interest and progress towards this seems to be more tied around a few factors. One is, whether they are in some of the regulated markets, like either Europe or California. Secondly, whether they have a significant footprint in Europe. And then finally, related to that, is whether their parent organization is also in that European footprint. And so it seems to be tied more to that. But that's just anecdotal information. Next slide please.

Most of our partners submit through the Carbon Disclosure Project, and this is a great platform to gather data. And there's some thousands of, I think it's 8000 or more, corporate entities reporting through this platform. And they did an analysis of their reporting information, and at this point it was looking at 2020 data. But it was still updated from, they did a first look at it back in 2018.

And what they showed is that when you look at the increase in organizations that are either using internal price on carbon or planning to do so within the next two years, versus those that have no such plans, there's a 50% increase just in those two years over organizations looking to head in that direction versus still a high growth, but a much lower rate with those with no plans to adopt carbon pricing.

So the difference there is about 50% higher growth in the ones looking at internal price of carbon. And at the time they found that the median price was about \$25 a metric ton CO2 equivalent. And that really at the time harmonized with the 2020 E.U. pricing on

that. So, it's, you know, you can see that that's a pretty strong benchmark for companies looking to do that type of, the internal carbon pricing. Or at least it was at the time. Next slide please.

And on the topic of pricing benchmarks, we mentioned the E.U. pricing for allowances there. And that's, up until 2020 it was hovering around \$25 a ton. But then we saw it accelerate and grow much higher and get into the range of \$60 and as high as \$100 with a median of around \$85 a metric ton of CO2 equivalent. And the California market is similar growth, but a lower level of cost running from about \$18 to \$31 with a median around \$24.

And then finally, another metric that's worth looking at is whether you take the cost of RECs, you know, unbundled or compliance RECs, you know, which gives you a pretty broad range. Maybe \$7 to \$30 per megawatt hour. And then apply that to the U.S. grid emissions factor, then you can see that that equates to a range of about \$3 to \$11. So that's a low end benchmark for what might constitute an internal price for carbon. Next slide please.

So just to kind of recap. And then we obviously want to hear from our presenters, because they're going to have a lot more information on this, you know. What we're seeing is that organizations that we're working with through the BCC as well as our other partners in Better Plants and Better Buildings, are looking to reach significant levels of decarbonization. And the tool of establishing an internal price of carbon appears to be one of the leading ways to build this into the capital improvement approval process.

And I think what we'll hear from our panel is that it's not just for energy projects, but also corporate acquisitions or maybe evaluating their current footprint and things like that. So there's a wide range of uses of that. But really, what we're focusing on is how to reach those levels of decarbonization with this approach.

And we do see that when there's such a wide range, so it's really hard to pinpoint where someone might set a price. It could be anywhere from \$3 to \$100. But if you look at median prices, it narrows it a little bit. But it's still a really broad range of \$80 to maybe \$85 per metric ton of CO2 equivalent. And that's based on anywhere from the price of RECs all the way up to the regulated markets of California or Europe.

And then finally, the timing when we look at what you need to do to reach your 2030 goals points to if you're really going to try to

avoid an implementation bottleneck and supply chain issues on implementing projects that this price, if it were in place within the next three to four years, that's going to be really, really helpful. Next slide please.

And again, we'll hear more from our panelists on this. But what we see are the internal, the uses of this practice are, obviously in the direct capital budgeting process where a value can be placed on it, which ties to the quantity or the reduction in carbon emissions associated with the project. So that builds into the rate of return of that capital investment, and so therefore it places on equal footing with other projects that have some decarbonization benefit.

But there are other ways to do it. One we see, partners that weren't quite ready to take that step. And they were using it to bring attention to investments, almost like a tiebreaker, you know. To look at investments with their standard practice, but then have a second lens looking at well, also what's the decarbonization impact financially of this project. And that appears to be a good kind of stepping stone into the first bullet.

And then finally, the other uses you know, and these can be pretty broad. And the CDP survey went into a lot of different ways to use it. But looking at influencing internal behaviors, pointing out where a high carbon impact or high decarbonization impact actions might be taken within operations, for example. Managing stakeholder expectations by pointing out where higher carbon impact or decarbonization impact measures are. And then obviously navigating the GHG regulations allowing you to place more emphasis on achieving the levels of the regulations by looking at the costs that are implicit in those markets.

So that's kind of our summary there. We want to turn it over to the presenters, but we first want to go over a little bit of housekeeping. We're going to be asking you to go over to the slide platform, and that's our interactive platform for both the Q&A and the polling. So please load that up, either on, open a new browser or window. Or on your mobile phone, enter [www.slido.com](http://www.slido.com). And then when you get to that point, the event code is, as we show in here, is #DOE. And so if you'd like to ask our panelists any questions, feel free to submit those questions in the Q&A feature. And then we're also going to have the polls teed up in that platform.

And so, what we have, a poll coming up now under the Slido platform. And we wanted to learn more about some key topics from you. And this first one is, what's the status of internal carbon

pricing within your organization. And so obviously, we would need you to go over to Slido to respond to that. And you can see the results coming up on the screen, which right now appears that it's pretty much in favor of not using an internal price of carbon yet. But we see more coming out on plans to adopt an internal price either soon or during some timeframe. But that's not known.

So that's interesting, that it's that much in favor, no plans to do it yet. But the fact that we have a pretty good attendance for this webinar seems to indicate that maybe that will change in the future. And so, that's where we are now. And we'll give it another moment or two to see where it ends up. But it looks like it's still very much in favor of no plans on using it, about two thirds have no plans to use an internal price of carbon.

But still, significant, 26% plan on adopting with the timeframe or currently use it. And then an additional 9% plan to use it in the next two years. So, that's the other third, is somewhere in those measures. We should be just about ready to move on to the next poll.

Okay, so for those of you, for the two thirds that were not using carbon price, probably going to be very simple to answer this one. But for others, what we're looking to find out is how to use it. Would you use it directly in capital budgeting, to determine return on investment? Or to bring focus on projects, so in other words to bring visibility to projects with a high decarbonization impact.

And then finally, other uses not described above. Which are some things we've mentioned, whether it's to manage stakeholder expectations, to help with the GHU regulated markets, or to help emphasize internal behaviors that might emphasize or might impact your carbon impact.

And so we're seeing a broad mix there of those three options. It looks like, there seems to be more focus on actually using it directly in the capital budgeting process. But still, significant, about the same level, maybe a little bit lower, looking at using it actually, sorry. I have those reversed. More using it to bring focus. Less using it directly in the process. But right now those are pretty close to tied. We'll give that another moment, and then we're going to turn it over to our panelists. And while that's going through, our three panelists, we're going to be, let's see, going through our, so here we are.

We have from Saint Gobain, we have Andy Mullen and Blair

Sturm. And then we'll switch over to Laura Jones of Cummins, and then finally Sean Uhl of Chemours.

So I'm going to go ahead and introduce the Saint Gobain team. Andy Mullen is, he's a results-driven professional with 15 years of proven experience working in all facets of financial planning and analysis. He's an intuitive leader with a successful record of managing global projects with cross-functional teams.

And Blair Sturm has been with Saint Gobain for three and a half years, and is currently the Senior Manager of Process Sustainability and Energy. And in his role, Blair leads the initiative across Saint Gobain's North American operation, ensuring they have the necessary plans and support to achieve their 2030 interim sustainability goals as well as the long term goal to achieve net zero carbon by 2050. So I'm going to go ahead and hand it off to Blair and Andy, and they'll step us through what they're doing in this area.

*Blair Sturm:*

Thank you, Paul. I'll go ahead and start off, and then I'll hand it to Andy to go into more detail on the financial side of things. If you could go to the next slide. So to start, who is Saint Gobain? For those who don't know, we're one of the largest building products and materials companies. We're headquartered in France, do about \$50 billion in sales.

But here in North America, our main brand is CertainTeed. So if you've done any building or home renovations in the last few years during COVID times, you may be familiar with a certain key brand, where we make wall board, shingling, roofing, siding, fiberglass insulation, you name it. That's what we operate in North America.

But being French-led, and being in the buildings products company as many are aware, sustainability is a huge part of our strategy. Roughly 40% of emissions are tied to the building sector, either in the materials that we manufacture and go into buildings, or in the operations of those buildings themselves. So the products that we sell can make our, have embodied carbon embedded into them. But also you know, lead to the efficiency of those buildings themselves.

So this is just to show that this is a part of our strategy. Grow and impact, which is meant to point out that while our business seeks to grow, we need to reduce the impacts while doing so. We seek to be a world leader in sustainable products that go into these

buildings, all with the long-term goal of making the world a better home through our products and the services that we bring to the world. If you could go to the next slide please?

So as a part of that strategy as Paul mentioned. Like many organizations we have the goal of being net zero carbon by 2050. We have interim goals along the way towards that, so what I show here is that we're reducing our operational emissions by 33% per scope one and two. But we also have a scope three goal as well, to reduce that by 16% by 2030 as well.

But then we also have goals for our products as I mentioned, that we want to make sure that we're bringing the most energy and CO2 efficient products to the market while helping our customers decarbonize their buildings or whatever sectors we're selling into. Go to the next slide for me, please.

In addition to that obviously, we have goals across these four pillars of sustainability. So we're not just being good stewards of our carbon emissions, but also being good stewards of water, helping to drive towards a circular economy. We have an exciting new business devoted specifically to that, to making sure that we're being good stewards of the materials we utilize and helping to create a more circular economy.

And then on the products side of things, we're driving towards having full LCAs for all of our products. Again, understanding the embodied carbon there, driving that down. Making sure that the products we bring to market are as sustainable as possible. If you can go to the next slide please.

But coming back to the subject at hand here, carbon pricing. So, this is a map from the World Bank that I think is important in highlighting that most of the U.S. does not have carbon pricing, what you see here is that a lot of the world does. Especially as a French run company, you can see that the European market where we have a sizable footprint, most of it has carbon markets in play or carbon markets in development.

There's even, for those who may be aware, new regulations around import taxes. So that even if you don't have a carbon tax where you are, if you import into Europe, some of those materials will be taxed for their carbon intensity. So all of this points to the fact that while it's not regulated everywhere, it impacts a lot of organizations and it's a sizable part of the strategy. So that's what really has led us to having a carbon tax and internal price on



carbon. So if you could go to the next slide.

To make sure that we're being smart and strategic across all of the networks that we play, in 2016 Saint Gobain made the decision to set an internal price on carbon, to make sure that we're being good stewards of the environment, of the emissions that we create, as well as to make sure that we're being smart and strategic across all of our geographies in the projects that we're funding and the way we evaluate projects for their impact.

But as Paul mentioned in his intro, and as you can see from the graph here, when we look at the European market and other markets, pricing has changed since 2016. And so what we're seeing here is that the prices have gone up since then. And so we need to make sure that we're keeping up with those times. And so earlier this year, you can flip to the next slide. We had an adjustment to that pricing, to make sure again that we're following in the trends.

We're keeping up with the European ETS as well as other markets that impact California and Canada, where we also have responsibility. And so what we're showing here is a range of different prices. But all of those staying in line with the carbon price in Europe and in other geographies. But these are prices that impact our evaluations of acquisitions, our evaluations of capital projects, our evaluations of R&D, products and projects in development.

And the prices can vary across those, depending on the impact of the project and the sort of phase that it is in. But in addition to the updates in pricing, to make sure we're following the European ETS, there's also been adjustments to strategy. That previously, it was projects above a certain dollar threshold or that had emissions above a certain threshold, or related to fuel switching. But at this point, we're looking at projects across all of these sectors, ensuring that the way we invest, the way we evaluate investments, are keeping with the carbon emissions associated with those.

So across all scopes, across all sectors, and making sure that we're being responsible and good stewards of the emissions associated with the way we run our business and the projects that we bring to market. So with that, I'll hand it over to Andy to go into a little more detail about the financial side of how we impact, or how we implement this.

*Andy Mullen:*

Sounds good. Thank you Blair. You know, one thing I'll kind of state that's kind of written down here at the bottom, is across these three categories for when we're assessing acquisitions, when we're assessing Capex decisions or R&D investments. You know, two of our models today that we use around these decisions, if carbon pricing and the internal carbon price is not factored into the cost of that investment, the model will be returned, right?

And so it's becoming a much more kind of strict rule for our company. Certainly in Europe, but even more so as we adopt it here in North America, that if we don't factor internal carbon pricing into our financial models as it goes through approvals, if it's caught that it's not factored in it will be returned. And you'll have to make sure it's factored in. So that's how strict we are getting here within Saint Gobain, within North America, which is a good thing. You can go to the next slide.

So here's a little bit of the application that we use for embedding internal carbon price into our decisions. So bucketed into three groups here. The first one being our R&D, or new product development. You know, Gate process. So we have a model, it's called our Gate Model. It goes through five stages, from kind of you know, just idea development all the way through hey, we're modeling in all the raw materials that are going to be included in this new product, and then testing it on a production line, which would be in stage five.

Within this model, we do have two internal carbon prices, depending on the stage that that new product development is in. And so in the first stages, stages one through three, there's this hurdle rate. It's a much higher carbon price. And basically, we're penalizing new product development that would have higher carbon emissions, and applying a higher internal carbon price.

We didn't list that here, but you can kind of imagine that it's almost double of what the European cap and trade price is. And that's to make sure that we're making better decisions, and the products that truly are reducing carbon are going to the top, and coming to the front of the line to reach stages four and five.

And then at stages four and five, we lower that internal carbon price for the financial modeling. And there's a little bit of a snapshot of it down below. This is owned by product development and R&D with support from finance. It's more at the local level that we own this model here in North America.

And then when it comes to acquisitions, the internal carbon price has been embedded in our Madison model, when we're assessing new companies either to acquire, that are adjacent to our industry or just aligned with our strategy. This was something that was really launched in January of 2023, and now factors in our revised new carbon price.

And this is a model that's owned globally, so it's kind of mastered out of our headquarters in France by our finance and strategy team there. And then any time we have an acquisition here in North America, we are required to use this model. And any time we do not factor in the carbon emissions, it's going to be automatically rejected and kind of resent back to the team that's working on that M&A.

And then last but not least, which is arguably where most of the action happens, right? As far as just a quantity of flow around making decisions on what to invest in. We have our internal rate of return model for all of our Capex decisions. This tends to be more at the business unit level. Oftentimes owned by a plant operations manager as well as the plant controller.

We use this today, but we're currently working on revamping it for a new launch late this summer, just to make it easier for our plant controllers, our operation managers, to update it. Make it faster. But also make sure that they're factoring in their emissions that are associated with that Capex investment.

And hopefully those investments that are lowering emissions, using less energy, whatever that Capex is, it will get kind of a credit, right? Because we'll be factoring in some carbon emissions savings that will apply that internal carbon price to it. And it will make that investment look a little bit more attractive, versus something that may be increasing carbon emissions. They will have a cost added to it. And that's what the internal carbon price does.

So these are three channels that we use. And three different models that embed internal carbon prices. Next slide please.

So, a little bit of the tactical whoop whoop, we're requesting in these models. And just taking a look at R&D and the Gate process model that we have. One of the key requests from our product management team was we need to keep it simple. We can't have these product managers entering all these inputs and factoring changes over a ten year timeframe.

And so we took that to heart. Really, there's only four new inputs for these product managers to estimate. And the first one is going to be what the product emissions are for the new product that they're developing. And that's on a per unit basis. And then there's three additional inputs for the reference product, or the old product that is being replaced or cannibalized by this new, better, shiny product that we're looking to launch. And again, we request that they estimate and input that reference product's emissions.

Relatively easy for us. Blair mentioned that we're heavily working on having 100% of our products have a lifecycle assessment. In that process, you know what it's embodied carbon is, from a cradle to Gate, you know, timeline perspective. So for our reference products, we can come up with that embodied carbon per unit pretty quickly. It's not a huge ask for our product managers.

And then the two other inputs is what was that reference product sales units last year? And then what do we anticipate that reference product's growth rate to be. It's often a conservative one. It's not going to grow at any high rate, because it's going to be replaced and cannibalized by the newer product. There are other inputs obviously within the model. But as it relates to CO2 emissions and the calculations that run through and apply the internal carbon price, this is it. Those four new ones, for our product managers to touch. Next slide.

So this is a little bit of an illustrated example. I know it's a bit of an eye chart to look at. But conceptually I'll talk us through it. you know, those four inputs, there's three of them highlighted on this spreadsheet. And essentially, what it's calculated is what the unit sales would be for the new product as well as the existing product. And those are both multiplied per year by their carbon emissions per unit. So you can quickly come up with an estimate of what your total carbon emissions are at a gross level, while both products are being produced. And obviously emitting carbon as they're produced.

But for the decision process, what we do factor in is what the net incremental CO2 expense of savings is. We're not factoring in the gross, because we want to be able to assess from a decision perspective what this new product will bring, either as a benefit, reduced carbon, or as a detriment, increased carbon. And if it's increasing carbon versus the baseline, right? It will be penalized. But if it's reducing carbon emissions versus the baseline, it will be credited with potential carbon savings, right? And this is real for

many of our manufacturing plants, specifically the ones that are in Canada and as well as the ones that we have in California. So, next slide please.

And then for Capex. So similar, you know, kind of concept here. But just a little bit of a different look. And we are requesting that when we are analyzing a project or a Capex investment to make, the inputs are spread out over 10 years. And we ask for hey, what is the additional CO2 emissions that this investment's going to bring? If we are adding a new line to a plant, and increasing our production, you're going to definitely have additional CO2 emissions. We will penalize that investment, and there will be added costs.

But most cases, what we hope is that s our Capex investments will have some level of decrease in carbon emissions. But there's going to be scenarios where there's an increase and a decrease. And depending on the location of the plant, there could be free credits. It would allow us to produce without being taxed. And you could enter those as well.

But in the end, we take the net. What is the net change in our carbon emissions? And we multiply that by our internal carbon price. And there's no user input there. The model already has it factored in. Whatever our internal carbon price is. And then in the end, it ends up getting baked into the P&L model at the variable cost level.

And so these are the ways that we model in internal carbon price into our, a couple of our financial models. And I think that might be it from me, Paul. I think we put in one last slide here, that's more along the lines of a public announcement. Feel free to visit the website, and you can see the internal carbon prices that we were using. I will mention, this is a little bit dated. I think this may have been around the 2019 year, timeframe, and our carbon prices have changed in alignment with the European cap and trade program.

*Paul Lemar:*

Thank you Andy, and thank you Blair. That's really terrific. You guys have obviously given a lot of thought to this, so that's fantastic.

I want to introduce our next speaker, Laura Jones of Cummins. Laura has been with Cummins for 19 years in a variety of roles, from a site level facility engineer to business segment and regional facilities. And prior to her current role, Laura's part of the Global

Facilities Functional Excellence Team. But she currently serves as the Director of Ecoefficiency where she leads a team driving efforts to reduce the environmental impacts of energy, water and waste of Cummins operations worldwide. So please, let's turn it over to Laura, and she can tell us what they're doing in this area. Thank you, Laura.

*Laura Jones:*

Yeah, thanks, Paul. You can go to the next slide. At Cummins, we are committed to making people's lives better by powering a more prosperous world. And we're continuing to advance that technology and power solutions that are essential to our future. We understand that strong communities and businesses depend on a healthier planet, and we also understand that we can't do it alone.

Our Planet 2050 strategy is a long-range business strategy with an environmental lens. It uses actions, advocacy and partnerships to do our part to drive a healthy planet. Our goals in this area are addressing climate change and air emissions using natural resources sustainably, and partnering so that our communities are better because we're there.

At Cummins, we set our first energy reduction goal in 2006, and we have continued to expand our sustainability strategy and goals since then. Most recently, we have switched from an energy reduction focus to a greenhouse gas reduction focus goals. Next slide.

We have a total of nine goals for 2030. The top three here are science based initiatives goals, and the very top one is for facilities and operations. A 50% reduction by 2030 with a baseline of 2018. And then we do have a couple for our products side, for scope three and our products in use. Next slide.

I just wanted to share where our footprint is from a global perspective. As you can see, worldwide but really primarily, almost half of our emissions from our facilities and operations are in North America. And for us, the North America region is the U.S. and Canada. And then our Latin American region is Mexico and South America. Next slide.

So what we've done over the years is we've obviously studied our data to understand where our most impactful reductions could take place. And we're focused on these initiatives that we call critical X's to drive the strategy and execution of these goals. We have a variety of goals and strategies, including adding renewable capacity in the market through our virtual power purchase

agreement, which you'll see here.

And then also through energy efficiency, whether that's with variables frequencies drives or lighting improvements. Compressed air is another big focus area for us at Cummins. Compressed air, energy to make compressed air is almost 30 percent of our electrical consumption. So changing out to DC controls or DC tools is a big initiative right now.

And then we also have onsite solar, where we're focusing on getting to 10% of our electrical consumption onsite generation. And then advanced manufacturing, research and design, improving and reducing our impact when we are manufacturing and when we're testing. Next slide.

I just shared here a snapshot kind of similar to the previous presentation of our internal rate of return model that we have. We have an environmental tab that I've taken a snapshot here, that helps us calculate the cost of carbon for our financial analysis. So, we require all environmental projects or facilities and operations projects to complete this environmental section.

As you can see here, we've selected a pretty modest \$7 per metric ton of CO2 for those projects, and it could be a positive or a negative, depending on if you're adding capacity or I think as the previous presenter said, hopefully in those cases the net will be zero. So if you're replacing a manufacturing line, you're going to be, we have improved our standards to make those more efficient. So the new line will be an overall reduction to what it's replacing.

And it is really just added there as a benefit to the cost analysis. We are in the process of evaluating this current cost, in light of the regional regulation impacts. And you could see from our footprint, we have a little bit in Europe. But definitely in some of those other markets that are becoming more and more regulated for carbon.

So that's really how we apply it. I also wanted to mention that we also do a project prioritization, looking at the greenhouse gas impacts. So we use a C&E matrix to score and rank projects that are being funded. We have a centralized capital fund for the globe where we are evaluating greenhouse gas, water and waste projects against similar criteria. So we're looking at the energy and greenhouse gas impact.

And you can see there where you can get the score of 931 based on what your impact is. We also look at the dollar invested per

environmental benefit. In this case, for greenhouse gas. And then the simple payback, of course. So based on the C&E ranking that you get, based on your project impacts, you'll get a score and you know, we focus on funding those top projects.

I just showed an example here of an investment of 1.5 million for almost 2000 metric tons. That would get a score of \$700 per metric ton invested. So that would get a score of a nine in our C&E matrix. Prior to 2030 goals, we were really targeting a \$500 or less investment per metric ton saved.

Obviously with a lot of the low hanging fruit being achieved, now at many of our sites over the years we've had to raise that target. But we're still seeing really good paybacks. But that's just a couple of the ways that we use the internal rate of return for our carbon cost, and then also ranking and prioritizing our projects around greenhouse gas emissions. And I think that's my last slide. Thank you.

*Paul Lemar:*

Thank you, Laura. That was terrific. Let's see. I want to introduce Sean next. He's going to be our final speaker, from Chemours. Sean is the Sustainability Director, Technology Director. Sustainability Technology Director at Chemours. He has over two decades of experience in the chemical industry, with deep experience in site operations, process development and continuous improvement activities.

In his role, Sean works collaboratively with Chemours three businesses, their titanium technologies, thermal, and specialized solutions as well as the advanced performance materials. And he does this in a way that helps to ensure that the company continues to lead in sustainability and is well positioned for the future. So let's take it away, Sean. The floor is yours. Thanks.

*Sean Uhl:*

Thank you, Paul. I'm from the Chemours Company. You can go ahead and go to the next slide. We're a chemistry company, a medium sized chemistry company. About 7000 employees and \$7 million in revenue. We're driven by our purpose to create a better world through the power of our chemistry.

And Paul mentioned we have three main business segments, titanium technology, thermal and specialized solutions, and advanced performance materials. We're heavily invested in sustainability. You know, many of our products are used to advance sustainability in society. Some of the examples are low GWP refrigerants from the PSS business, and APM, our ISM



product line, enables the production of green hydrogen. You know, also to support the electric vehicle production and others as well.

In 2018, we announced 10 pretty bold goals in this area to bring responsible chemistry to life. But by 2030, if you go to the next slide I'll hone in on a couple of those. For decarbonization, our goal is to reduce absolute greenhouse gas emissions from operations by 60% by 2030, on our way to net zero by 2050.

Like a lot of companies, the three segments that we work in to do that are emissions reduction, renewables, and energy efficiency, to achieve that. And carbon pricing is one important component that we use in these projects. You go to the next slide, I'll start talking through that.

So background on why implement. We've heard a lot of that from Saint Gobain and Cummins as well. Of course we have ambitious sustainability and growth goals. We have a direct decarbonization goal as I mentioned, but also needed a tool to really inform our strategy and investment decisions, and also to drive process and product innovation. And you know, also that's been covered earlier, there's a lot of current and future regulation expectations in this.

Our basis is fairly simple. We do derive a single price, carbon price, that we use in all of our existing financial systems that we had. The way we approach this when we first established this in 2018, and I would say we've improved every year on how we use that, and when we use that. Today we use it in almost all of our financial analysis that we do for any business planning activities.

But we use a weighted average. We select a moderate case, and it's a weighted average of future carbon pricing across the region, where our businesses operate. And I've put a link in here to the basis that we use from the International Energy Agency that they've published on carbon price projections. That's one major input. And then we also drew that up and review actual and historical data from World Bank as well. And I've put a reference in that also.

Our corporate team, we analyze and update that price, or consider updating that price, once annually as needed during our standard strategy processes as a company. And the current price that we have, in the basis that I just shared is \$41 per metric ton of CO<sub>2</sub>e is what's being used today in the financial analysis, as we speak. Go to the next slide.

I'll get into a little bit more on how we use it. As I mentioned, we use it in new product development and innovation. We also follow a stage gate process that we use it in that process, similar to how Saint Gobain had announced it as well, in how they use it. Also in capital investment decisions. When you look at expansion cases of course as part of strategy sessions, we would use carbon pricing in that.

I would also make note that we make use of that carbon footprint number also, to incorporate that into our greenhouse gas goal roadmaps as well. Because our goal's absolute, if we do expansions and changes we have to be able to offset any new footprint in another way in our company. So we always incorporate any expansion and things like that into our roadmap.

It's also used in the improvement categories that I mentioned, that we're going after. Energy efficiency, emissions reductions, and renewables. And we get into you know, simple equipment replacements. And there's decisions on this one's more energy efficient than that one. We'd use it in those calculations in that small case.

We also would use it to assess low carbon technology within existing processes as well. And as I said, we use a lot of our existing financial systems and just plug this in as a new input, as a positive or a negative, and to assessing any investment that we do as a company. So that's simply how we use it. And so I'll wrap up there, and turn it back to Paul.

*Paul Lemar:*

Thanks Sean, that was great. I appreciate your remarks there. And so we've heard from all three presenters now. So we want to get into some of the Q&A, because there's some interesting topics that have come up that we've seen through the Slido.

And let's see, so I think I want to start, there was one of the first questions was what exactly is meant by internal carbon pricing? And I'll take a stab at that and see if the panelists want to add anything. And that's a great question, because I don't think we defined it up front.

Basically, the idea is that if you're not in one of the regulated markets, and you have a facility that's emitting carbon, either CO<sub>2</sub> or one of the other forms of CO<sub>2</sub>e, that there's essentially no cost to that. And you can emit a lot or a little and you would still pay the same price unless you were in one of those regulated markets.

Now, if you do an energy project, there would likely be some cost savings associated with it, or other projects. You know, if you have a refrigerant leak and you can remedy that, you'll reduce the cost of the refrigerant. But those costs can vary with those markets, and not necessarily tie to reaching your GHG goals or the broader goals of you know, with other carbon goals.

So the idea behind an internal carbon price is to have a price that equates that and ties with your efforts of achieving your goals as well as harmonizes across your region, so that certain plants in the regulated footprint don't pay a price, and others, or the regulated ones pay a high price and others don't pay any price. Sp hopefully that, the panelists may want to add anything to that. Okay, let's –

*Blair Sturm:* I think that was well described.

*Paul Lemar:* Awesome, thank you. So let's go on. The next topic, let's see. Can you advise how you get scope 1-3 for acquisitions? We can't seem to get that, to be able to get that during the acquisition process on time, Just estimates? Is the question. And then, if yes, what service are you using?

So I know Blair and Andy, you guys went into that a little bit. Maybe you could take that one on, and then Laura and Sean could jump in.

*Andy Mullen:* Yeah, I can take a first pass at that. But yeah, of course, you know. If anyone else from the panel wants to elaborate, feel free. You know, I'd say the first way is simply asking, right? It depends on the company that it's targeted, right? And how advanced they are in tracking their utility usage. And how well they are at tracking their raw material usage and their inputs.

But the first way is simply to ask, right? As part of that due diligence process. And depending on how transparent they want to be, they could simply provide it, and that can be through a third party investment bank as well. So that's the first way.

The other thing I want to mention is you did ask scopes 1-3. You know, full transparency, in our acquisition model that we use called the Madison model, we only require scopes one through two. There's a scope three line in there that is optional. Because that's the one that's incredibly difficult to one, get our hands on. And difficult to estimate, right? For your suppliers. What is your supplier's impact for carbon emission. So really the focus is on

scopes one and two.

But then, after that right? If you can't get that information directly from the target, or the acquisition target, we could estimate it. And you know, we've got plenty of folks, Blair included, that could probably within a pretty good ballpark estimate what that company's you know, emissions are based on their plant's size. How many plants they have, the size of them, and then the electrical grid at those locations for those plant sites sits on.

And then you know, for Saint Gobain, we're acquiring companies that are similar to us, right? They're manufacturing gypsum wallboard. And so we have a really good understanding of the raw materials and the carbon emission that it takes to produce gypsum wallboard. So you know, we can estimate probably within a 10-15% range of accuracy.

*Paul Lemar:* Thank you Andy, that's perfect. Laura and Sean, do you guys want to add anything to that? Okay.

*Sean Uhl:* I thought that was well covered. The only thing I would add there is that as you're, you know, we approach it similarly. Really focus on scope one and two, and work to estimate three in that case. But there are good external databases that could be used to better estimate some of the raw material inputs and other scope three things as you get interest, that we certainly make use of those when the company's not aware, haven't calculated them.

*Paul Lemar:* Perfect. Thanks, Sean. And I know there was a question below the third one on the screen that Laura addressed through the Slido, so we can skip that one. And I want to go to the second question next. To the panelists, I think I'll start with Laura. When you look at your carbon prices as being subjective to some degree, but you also want to avoid making, probably void making a lot of adjustments due to market conditions. How do you stay the course, and how do you keep that updated but at the same point not as volatile as the markets are?

*Laura Jones:* Yeah, with ours, it is kind of on that low end, that you shared earlier and we established it a few years ago. And just, we haven't, we've just left it at that. And kind of kept putting our toes in the water I guess if you will. Like I said, we need to reevaluate it now with the current markets. And we're in that process. Yeah, I feel like once you set something, though, it needs to be stable and set, and not changed to fluctuate with the markets.

*Paul Lemar:* Thank you, Laura. Anyone? Sean or Blair, do you want to add anything to that? And then I think we're going to need to wrap up.

*Sean Uhl:* Yeah, I was going to say our process as I mentioned it during the call, we look at it annually. Agree it needs to be hopefully a more stable number, not jumping around. It has changed over time, but has stayed relatively stable with that aim.

*Paul Lemar:* Perfect. Awesome. So with that, I'd like to thank our panelists. These are great presentations on the topic, and a range of perspectives, and I think it really gave us some insight into how we can make this internal carbon price work for you. But some of the things you might consider in doing so. So feel free to contact our presenters directly. We have their e-mails in the slide deck.

I wanted to give a quick plug to our next webinar in this summer series, Building Trust with Homeowners and Renters. And looking at the home energy score. So that's going to be coming up on June 27<sup>th</sup> here. And then encourage you to follow the Better Buildings Initiative on LinkedIn and Twitter. And as I mentioned before, you will be receiving an e-mail notice about today's recording, when that's going to be available on the Solutions Center.

So, thank you everyone and let's, I'd like to give a round of virtual applause to our presenters and thank them for their time today.

*[End of Audio]*