

Mark ([00:00:03](#)):

Hey everybody, welcome to our webinar, how to Transform Compliance into New Revenue. We'll get started in about a minute. Let everybody get a chance to come on in, see people coming on in as we speak. I recognize some names here. Welcome Cortland. Welcome Christian. Welcome Daniel. Welcome, Dr. Clara George. James. That's great.

([00:00:50](#)):

All right, so you're coming on in and I want to open with this one thing because giving us the most precious thing you can give us, which is your time. And I want to let you know, in fact, we were talking about this in the Green room earlier and on practice sessions where we said, this is probably one of the most powerful important webinars we've ever done. And I know Justin, you were saying the same thing. We're all looking forward to doing this. So you're in the right place. We are going to be talking about three steps to generating investment grade data about how to future proof upstream sites talking about this. We're talking about this three step model that you're getting a preview of here, how to add direct measurement in your designs and minimize future EPA method taxes or as we all know, the waste emission charge, WEC fees.

([00:01:45](#)):

So I want to introduce my fellow webinar hosts here. So we've got Kelly Bott, senior Vice President, corporate Affairs for Pure West Energy, Jason Oates, VP Environmental and Regulatory at Pure West. Justin Slagel, the senior consulting engineer at BR and D, or as many of you know, Promax, David Conley, my co-founder and CEO of Clean connect.ai, and myself, Mark Houston Smith. Actually, that is my real name. Houston Co-founder and moderator of today's panel. So I want to kick this off with Pier West. They're just full disclosure, they are a Clean Connects client, but I want them to kick this off today and talk about their company and their vision and mission, whatnot. So Kelly, take it away.

Kelly ([00:02:41](#)):

Great, thanks, mark. Good afternoon everybody, and thanks for being here in 2021. Prior to being Pure West, we were ultra petroleum. In 2021, we rebranded as Pure West and really decided to lean into this concept of responsibility. So our vision is to be the most responsible and profitable Rocky's focused natural gas company. And then our mission is to advance modern life by producing natural gas in a safe, environmentally responsible and cost conscious manner. And so we've really worked to develop a culture throughout the company that's really focused on safety, environmental performance, community impact, all of those type of things that really lean into that kind of responsibility piece of our vision. Next slide. So a little bit about Pure West. We operate in the upper Green River basin in southwest Wyoming. We've got about 3,500 well bores and have really been working to consolidate the field since 2014.

([00:03:35](#)):

So all of our operated assets are currently in the Pinedale Anaplan field. When it comes to the field itself, we had a lot going for us in terms of our environmental performance. And I guess years ago we would've said we had a lot going against us because we operated in an ozone non-attainment area. We've got class one protected view sheds that required us to mitigate our NOx emissions. The ozone with the VOC requirements really got after a lot of the greenhouse gases. Of course we've got sage grouse and pronghorn and big game and all the other wildlife resources that we like to read about in the news every single day. But what's really come of that and the partnerships with the agencies, the Wyoming DEQ Bureau of Land Management is we're really proud of where we're currently sitting. And when it comes to our environmental statistics in 2022, our Subpart W methane intensity rate was 0.06%.

With some of the changes that are coming, we know that's going to go up, but we're working really, really hard in the MMRV space, the monitoring, measurement, reporting and verification so that we can prove what our emissions actually are. Go on to the next slide and with that, I'll pass it over to Jason to talk a little bit more about those stats.

Jason ([00:04:49](#)):

So from a company perspective, pure West definitely is leaning in and trying to prove what our performance is and looking at different ways of measuring that and metrics at which we can use both benchmarking ourselves against other companies and also pushing to get better regardless of where those benchmarks are at, and trying to find that new space that may or may not be charted yet. So being on the forefront of a lot of these different things, it required us to test a lot of different technologies and try a lot of different approaches to different parts of this process. We have our member of the OG MP 2.0 pledge and are working towards that level four, level five. We're in our second year reporting on that. You see there on the monetizing that aspect as well. How do we take these environmental attributes that we are very proud of and spend a lot of effort and resources into achieving and turn that into a revenue stream versus a cost center. And so working with earned DLT and some of their blockchain technology as well as the differentiated Gas Coordinating Council on how we can get the legislation and the frameworks within our government to support that as well. So a lot of different work, a lot of different areas and definitely stuff we're proud of and partnering with Clean Connect is part of that as well.

Mark ([00:06:24](#)):

Yeah, so I try to sum this up. So in short, the one two punch is be the most responsible, cleanest Rockies space producer and empirically prove it to regulators, investors, customers, and buyers. Now, Justin or Jason, you've actually mentioned trying a bunch of things. What all did you try in terms of technology and certification options, things like that?

Jason ([00:06:50](#)):

Yeah, one of the beauties of being a fairly small operator in a contiguous play like the upper Green River basin, we have somewhat of a laboratory approach to where we're at. We don't have a large expansive asset. It's fairly condensed. And so being able to try different things in a very quick repetitive pattern, we looked at fence line monitoring. We've done aerial surveys with multiple providers. Basically all the different technologies that you see kind of being proposed, we've either evaluated or have piloted in our field and in a quick succession to try to get is it effective and can we use it at scale? And that's where we start to see where there's differentiation and issues. And some of 'em definitely solve problems, but they sometimes create others as well. And so there's a lot of different pieces to that technology puzzle.

Mark ([00:07:54](#)):

So one of the

Kelly ([00:07:55](#)):

Mark, yeah, go ahead. If I can jump back in on that last slide. When we first started this journey and we were talking about differentiated gas, the market was really all about certification. And so we certified a hundred percent of our production with Project Canary. That was really important to us because it gave us some really valuable insights and feedback for how we can get better. But since that time, the market has really been signaling and voice of the customer, the regulatory actions coming out of the EPA,

everything is moving in the direction of this MMRB concept. And so the market is starting to really reflect that when we start talking about differentiated natural gas. And so it was really, really important for us as that market advances to look at these technologies and find something that works.

Mark ([00:08:37](#)):

So probably one of the questions I'm known for is when we meet with people and say, okay, if you could wave your magic wand, create the perfect world, what would that be? And this is Jason, you want to talk about this?

Jason ([00:08:52](#)):

Yeah, so I mean obviously we're trying to solve problems across our business, both from the HSE side, which is very front and center with our culture and our organization, but also we can't ignore where we also our operations and what our main mission is as providing the natural gas. So although we want to do it safe and responsibly, getting the gas in the pipe is the focus as well. And then the backside of that is where we're coming on with the MMRV process that Kelly mentioned and that you see getting adopted by the DOE and the federal government and basically taking the OGMP framework and putting a different spin on it. And now we've got this, what we were looking for is something that was that repeatable. We could scale it, it was available, it existed today, and we could defend those results. And what came out of that fairly easily just through the data it presented, and that makes it a tradable, I think, commodity that we could then look to for a revenue stream.

Mark ([00:10:04](#)):

So this was a tall order to try to get all this going. So David, you lead the product team and stuff, and so they conceived of this idea, I don't even know where you came up with the name Minerva David, but all of a sudden he says, Hey, I'm creating this persona, this female, this Minerva, the ultimate AI autonomous operator. And the big idea was let's create a DNA automate as much as possible so our customers can get their life back. Focus on remote monitoring and management. I came from the IT field, and that's my background in corporate enterprise it remote monitoring and management was always something we did. But I remember when I first got in here looking at the LDAR report for a single year for Colorado 682,000 regulatory callouts, that's 682,000 times someone's getting in a truck, driving out to a site, doing their LDA with their manual camera, getting back in the truck and driving back.

([00:11:10](#)):

That's a lot of traffic. And that's just Colorado. So what could we do about that site engineering first principles. I know this is huge, David, and I know the amount of time that our team has spent with Justin from PROMAX to really say, okay, forget about the regulations. How would you solve this as chemical engineers, production engineers and AI data scientists? Then we'll back in the regulations afterwards. And then Minerva, I'm going to let you talk about this next slide because it's really what was born of three years experience, trying different systems and putting something together, something that would work in all weather conditions and whatnot. And then I know that we've been working really hard on giving Minerva a super fast brain, in this case, an Nvidia A GX that can run the most number of models, and so they can process hundreds of data points at a time.

([00:12:11](#)):

So I'm going to talk about this slide, then we'll get right into the different parts of it, but so autonomous 365 is our platform. Okay? That's our energy AI suite. It has a repeatable, which is one of Jason's key criteria, repeatable process. It's available and scalable. So we have this M four monitor, measure,

monetize, and manage. I'm going to go through each of these sections as well as each of these boxes. The big it is to, and so we'll start with monitor here. So step one is, I don't know, David, how did you come up with this idea and when did you decide to do the digital twin?

David ([00:12:55](#)):

Yes. Yeah. So this is just an evolution, right? Natural evolution of doing this in real life. We skipped a lot of laboratory work as a company. The way that we structured just our way we went to market was hey, production first, operations first. How do we make this thing work in real life versus a laboratory or things like that. So this was just born of, Hey, I need to know my pixels on tar. I need to know from a computer vision standpoint, from a sensitivity standpoint, how far away am I from leak points? And so adding the spatial data, being able to model what the cameras are going to be looking at before we install anything, because infrastructure cost gets expensive. It's not something we want to do over and over again. We want to come in planned full bill of material, full site layout, know exactly where towers are going, exactly what angles that are being installed at, exactly what the tour is going to look like before it exists.

([00:14:04](#)):

And so this was the foundation for the install. And as we developed this out, we obviously have a forward thinking thought process around, okay, what else can we do with this? And that's where we sort, okay, these are now geometric objects. They're now assets inside of a facility that have other sensors tied to them, right? There's PIs, there's pressures, temperatures, meters that are all happening at this facility. Well, let's bring those too. And so that's where we started this concept of this digital mirror where this product's called luminary, but this digital mirror where we're creating a mixed reality environment where we have both what's happening in the physical world and what's happening in the digital world, all kind of displayed in one environment, which allows us to really engineer first and then pay for what you need to accomplish the goal to accomplish the success criteria. So for us it was we take Jason's wishlist and we say, okay, how do we accomplish this? And this is kind the foundation. This is kind of the spinal cord of autonomous 365 is this platform here.

Mark ([00:15:22](#)):

Step two, we then take the physical camera and we place on a site and we can upload all that configuration that was done on the digital twin. But tell us about this baby. You've been working on this a while, David, tell us.

David ([00:15:38](#)):

Yeah, so throughout the engineering process, we're obviously using leveraging off the shelf things. We were not in this to reinvent the wheel, just automate it and just make it better. And so what we've done here is taken all the sensors we need to run everything we do from an autonomous inspection standpoint. So gas detection, leak detection, fire smoke, autonomous gate guard, tank level. And we wanted to be able to basically create a hub and spoke model of infrastructure. So you have a mega brainin that's inside of this Minerva unit that you're looking at, and then you have spokes that can be taken and place around the facility for pointed inspections. Hey, I want to look at this flare 24 7 all the time to run method 22 inspections. Great. So that bottom sensor is going to move, it's going to look at the flare all the time, and we're going to communicate all that data back to there's actually up to four Nvidia a X units in this one unit. So it's effectively a supercomputer inside of here that's all industrial rated, but we wanted the end user to be able to plug it in, turn it on and be done, because where we found, especially for cost sensitive end users is infrastructure and install costs got really expensive

comparatively to software costs. And so the total cost of implementation was much higher than we needed it to be and it wasn't scalable. And this is what we've enabled to make it scalable from a full field perspective. So that's the story behind Minerva.

Mark ([00:17:27](#)):

And so then we physically install it at site. And this again, one of the reasons why before you get out there and you have to move cameras around physically, very time consuming, but now we know where to place it because of the digital twin, so it could be placed correctly. We can make finer fine tuned tweaks. And then we now see examples of some detections. So here's tank over pressuring 200 feet away, here's coal venting at 4:00 AM. So it answers the question, this does work day or night. And then you'll see another example here of a load out. And the reason I show those three, because those are three of very common things we see on gas leaks, there are other things we could show you on liquid leaks or tank level and whatnot. So anyway, that's step two is physically installing the camera. Step three is the system architecture.

([00:18:24](#)):

So we connect it to your SCADA system. So we have these cameras that go through that edge device. It's now included inside the camera, but logically it's an edge device. We connect it up through MQTT or Modbus. Most of our clients want the MQTT. That way you can get alerts through your SCADA system. We then have promax sitting on the backend so we can get data telemetry data right out of there, run it through there, run it through our platform. So it sees exception data. So you can manage by priority or exception, you get that dashboard, which is where you configure and get your alerts, and you can get alerts numerous different ways. Now, someone did ask a question in the q and a about government approval. So that whole monitoring stack, we then took it to Colorado and they have a process called ALT aim, the alternative approve instrument monitoring method.

([00:19:19](#)):

What we had to do to get that was source level detection, prove it with blind testing. So we got rated at two kilogram per hour, a hundred meters. We had to prove LDAR R equivalency that our autonomous LDAR was equivalent to a human being doing monthly OGI inspections and alternative work practice. We had to have operator endorsements. So PDC and CITAs actually put letters in with the government saying, Hey, we will use this in the work practice. And then we got EPA region eight approval. The letter looks like this, but what's important, it says if you use Clean Connect and their work practice, you can use it to replace regulatory monthly L-D-A-R-A-V-O inspections and tank ion monitoring. And that eliminates 92% of the regulatory scheduled callouts. So as I talked about before, 682,000 callouts, we're trying to get trucks off the road, right? Because you can do all this remote monitoring and management.

([00:20:17](#)):

The workflow is an AI detection system. It allows you to diagnose the problem, allows you to have a repair and then to verify the repair was done to do that bottoms up, measured inventory reporting, and then use that data to retrain the model. And our goal is to get the cycle speed as quick as possible. This is a snapshot of the dashboard and in the dashboard that workflow it works, whether it's gas leaks, liquid leaks, fire and smoke, gate guard, it's the same ui, and you can filter through those things and get all the metadata, all the video snapshots or images plot out where the alert came from on a map and so on and so forth. So that is the monitor section and there's a ton of value if that's all you did, but that's not where our story ends. So we go now to the measure section, and this is where we actually met yesterday and Pure West, you want to chime in here about why? How does that mean to you? What does that mean?

Jason ([00:21:26](#)):

Yeah, for us, I mean it was basically wanting to make sure that we were using something that had credibility. And you see that the third bullet down instant credibility, but it has been accepted by regulators as an industry standard. If you look across different ways of permitting or reporting and then being that defensible piece, we had the ability to trust and also back up what we were claiming as our performance and that helped and verify in those matter.

Mark ([00:22:01](#)):

So David, I know you used Promax when you were an oil and gas engineer, so you are already familiar with it, but talk about why you chose to use it with Clean Connect. David, you want to, oh, it looks like you're on mute or something. Anyway. Well, while he's figuring out his sound, I do know that when we had our chemical engineer working and she was going through a lot of these things we were doing, are you back? I can hear me okay. Yeah, one second. She was mentioning as she was going through these and looking at all the formulas and everything built into the Promax model that she said, Hey, by the way, do you know they have this brand new feature called promax 6.0 data exchange? And if we can connect the live telemetry data coming out of the devices back to the model, you can make it live. Therefore we could get our mass balance out of it, we could get other non fusion emission data out of it. All this data is sitting in there, why we create the wheel. And so the more we got into it and the more we're starting to connect with it, it's really become a key part of what we do.

Kelly ([00:23:27](#)):

And Mark, can I jump in? I just want to add one more thing that's really important to understand that when we're talking about measurement of our onsite emissions, there's a couple of ways that we can do that. What Promax gives us is we're measuring flows, throughputs temperatures, pressures, all of that is measurement data. We're leveraging the Promax model to build really a measurement informed bottom up inventory. And then having that Minerva system there is that top down piece. And so having this measurement informed promax tool is so incredibly powerful. I just want to make sure that the audience understands that.

David ([00:24:01](#)):

Yes, I'm back. Sorry

Mark ([00:24:03](#)):

About that. You're back. Okay.

David ([00:24:05](#)):

I dunno what happened to my headphones. They just went out. But yes, I echo all the things above, but that was the key driving factor behind mine. It was typically because one, I trusted it, and I think in a very noisy world, I tend to lean towards AKA's razor, right? The path of least resistance is the most obvious or the most simplest thing is probably the right thing to do. So for us, the decision was really just around what are we using today? What's the industry standard, and can we just automate that? And that's where we found a lot of success with prox.

Mark ([00:24:51](#)):

And I think iterating too, just that last bullet point there, our chief data scientist director of ai, he said, I can use this to continuous feedback loop to improve our AI machine models by being able to do, as you said, the bottoms up, tops down the reconciliation in real time. I can use that in the feedback loop. Alright, so enough about that. Justin, why don't you explain what the heck is PROMAX 6.0 data exchange?

Justin ([00:25:22](#)):

Yeah, yeah, absolutely. Well, thank you for all the great things you said about promax. I could not have said it better myself. We work with a lot of companies both in the upstream space, midstream space downstream as well. And what we have found is over the years, typically what you have is you have your database where you get your data from and that's going to be connected with your plant. And what we find are the engineers, what they need to do is they need to take screenshots of it or get Excel printouts of it, and then they go and manually type all that stuff into a promax model. And then you run the model and you get your results. You can run your admissions calculations based on that, which are all based on thermodynamics. They're all physics-based calculations. It's generally accepted by pretty much every regulatory agency out there as well.

([00:26:31](#)):

But what we found, the major part that was holding up our customers was just the data gathering, gathering that data up was taking a lot of time. So we created this tool called the data exchange. And so what it does is it connects promax with your actual database. In this case it could be a SQL database or a PI database or whatever sort of database you work with. But then what we do is we automate it. So now there's no longer going to be the gathering the data step manually entering the data in anymore. What we're doing is we're automating that. So you go straight from your ops historian to your model, and then you automatically run your model as well. You could tell promax to run every 15 minutes, every 10 minutes, every hour, whatever you need to do. And then it automatically takes that data and puts it in another database, which would be your emissions historian down there as well.

([00:27:36](#)):

And then you can take that information and send that over to your emissions inventory. You can inform your 10 K that you're going to need to do for all the scope one and two regulations. Then you could also even use that for operational decisions. Everyone's going to be benefiting from IT, operations and emissions, anyone that's calculating emissions. And then also even the regulators. Everyone gets to have the same information based on the same data, and you can go back, repeat the calculations over and over again in order to prove it to any audit that you have as well. And it's all sitting there nice and neatly in the database for you to use whenever you need to. So that's where we fit into all this. These guys have created such an amazing tool and Pure West has been implementing it, and it is such, it's like the way of the future is what we see right now. And Pure West is definitely on the forefront of it, which is pretty exciting to see.

Kelly ([00:28:44](#)):

And it's not just greenhouse gases, right? I mean we're talking criteria pollutants, anything that's really of interest to us as we're working on mitigation strategies or regulatory compliance, you name it.

Justin ([00:28:56](#)):

Exactly. And what Kelly also brought up earlier was that Promax will do these calculations and what you have from the field, you have flow rates, temperatures, pressures typically. But what you have with the

model at this point is you have all the other information as well. You could calculate anything you want. You can get your mass balance out of it. You can calculate your heating values of your natural gas, you could calculate your RVP, all the different pieces at every step of the way is available for you. So you can report any of it that you want.

Mark ([00:29:35](#)):

So that becomes part of that next step is okay, now we take this promax model that a lot of upstream operators use to get their permits, which is now sitting probably on a hard drive somewhere collecting dust proverbially. And now we bring that up and we have our engineer modify to make it asbuilt the site. And now we start connecting the individual iot devices, mapping those in. And I don't know, David, you have this concept of a fidelity score, but as more devices and more accurate data that we plug in the model, the higher our Fidelity score, things like that,

David ([00:30:18](#)):

It is an important caveat where you have to know the basis of truth, I guess meters need calibrated, right? Sensors could be reporting correctly. And so there is a concept of some measurements are better than others. And so we are classifying those as, okay, if we're pulling from the meter, the meter has a proving schedule, we know it's going to be calibrated, we know it's going to be proved, then okay, that's our point of truth. We're going to use that as a point of truth. And now we're building all the model based on that basis of truth. And then being able to validate that visually with visual evidence that, hey, what the promax model is telling us is the truth or not is kind of the cherry on top. And that's what brings that defensibility factor really, really high. And the data integrity factor really, really high because it's been a black box and it's been very challenging for. And so yeah, us being able to stick to the basics and provide video evidence on if something's right or wrong is kind of the basis. So fidelity score, it uses different measurement types and rates them. So we have a difference between a meter, a direct meter, and a simulation. Well, those are going to have two different levels of data integrity to them, if that makes sense.

Mark ([00:32:01](#)):

And just to, I've already shown this chart once, but just to say where this fits in, again, we have our cameras going edge, device SCADA on the backend of scada. We read individual device IDs and telemetry data. Now we have that basis for this information and why this is important because Jason, as you mentioned, MMRV, so for those who aren't familiar with that, this is really the evolution of emissions reporting. So OGMP is this concept of level one through five, and what they said is, okay, level three is where the current emission factor subpart W is today. So voluntarily, 75% of the world's production said, you know what? We're going to voluntarily go to level four and five. Level four is source level empirical measurement. And level five says, now reconcile that with the site level. So for us, looking at level four, we knew, hey, we need to be able to see the source down to the component level and know everything about those sources, whether the fugitive emissions or non fugitive emissions.

([00:33:10](#)):

Now MMRV takes it, the next step says, okay, to your entrance ticket into MMRV is getting level five in OGMP. So then they take it and they turn it into a tradable platform. So you can see this is actually right out of the MMRV framework and they now say, Hey, this is a framework between buyers and sellers and where we come in 18 different countries, their government units have come together to say, Hey, if you're trading things like LNG, this is the common measurement framework when you're trading between countries or between buyers and sellers. And they've introduced this concept of accreditation

and what data needs to be there and how it's validated and so on and so forth. So that's why we and Pure West have chosen to really focus on helping to automate and in the MMRV standard, so as we've shown you before, we have this computer vision, but now we tie into the IOT devices and we then connect those all to promax and then our AI can then now sort through those, reconcile those and start to produce in what step six is, which is that real, real-time source and site level reconciled emissions inventory.

[\(00:34:34\)](#):

And these are just little sampling of things, but down to the equipment groups, the meters, the fugitive sources through our OGI cameras, the providence, like the site when it was produced, the time, the well, the throughput, weather conditions, all kinds of things are entered into this detailed emissions inventory. Now, what we wanted to also do is not, there's a lot of things that a company like Pure West has to satisfy a lot of stakeholders, right? State, federal, OGMP, MMRV, buyers, SEC. It's like how do you do, is there a way to have the, can I produce one inventory that satisfies all? And so that, by the way, that is where the industry's going and that's what we've built a system that can satisfy all these different stakeholders. So with that, now that you've got your inventory, you go to the next phase, the monetized phase, and so there we have step seven and eight that we want to show you.

[\(00:35:39\)](#):

So in step seven, there's a number of ways to show this, but I wanted to show you the levels of data because people say, well, am I sharing this data with regulators? What data am I sharing? So we decided to break this down into these six layers. So we have raw camera data or raw IOT data. That's the stuff coming out of your SCADA whatever. We have that raw visual data. We have run it through those AI algorithms and we have that reconciled detailed emissions inventory. All this is private to the operator, this stays with the operator all with Pure West. In this instance, we have something that we're working on right now that we'll publicly release next month, but it's our Energy PT reporting system. It really is a natural language query system that will grind through that data and put it in the right format for the different stakeholders.

[\(00:36:30\)](#):

So regulatory reporting would be Subpart W and whatnot, as well as climate risk reporting like the ESG reporting. But then we summarize that data like a daily amount of throughput, the emissions whatnot, into a validated energy passport in the form of an NFT. So those are the data layers, and that's how we produce the NFT, which is based on this. Now, the good news there is if and when the audit system comes into place with MMRV, this little passport contains a unique id. That doesn't mean anything, but if they were to provide that key to an auditor, they could go back and look at all that reconcile emissions inventory to validate yes, this NFT is correct, and we can prove it with visual data. Okay, so what goes into an NFT? The actual data written in there, all kinds of stuff about the daily production, the reconcile emissions data.

[\(00:37:34\)](#):

It is written on the Ethereum blockchain as stored in the operator's digital wallet in step eight. We do allow buyers and sellers to transact. So sellers can list their NFTs in a marketplace. Buyers can then group those together into a collection and buy them, and the buyers can keep 'em, resell 'em, retire them, all that kind of stuff that's in the marketplace. Now, this is a little bit, step nine is a little bit of future pacing here. So how will MMRV impact the entire LNG supply chain? Well, as we read about EU and the carbon border adjustment mechanism and their implementation of MMRV, the big ideas are saying, Hey, what's that? You get upstream gas, it goes to midstream, it goes to an LNG plant, gets loaded on a ship, gets sent over to Germany, let's say. Now they're going to unload and they say, Hey,

can you prove from every molecule going through the supply chain that it had this methane intensity? You can great come on in, no tax for you, but if you can't, the whole shipment gets taxed. So you can see why the whole supply chain will eventually be motivated to get all this empirical measurement together.

(00:38:55):

The last part, I'm just going to talk real briefly here. I won't go into a lot of detail, but that's our managed section and that's the part where after millions of OGI leak videos, we kind of categorize them and I go back to David every so often and say, Hey, what are we seeing? If you were to sum up all these things, you say, well, the occasional cold venting, a pilot light goes out and then something, it starts emitting, right? And so we want to catch those and the operators want to get those fixed as quickly as possible, which is generally speaking, they remotely reboot and get that pilot light back on tanks over pressuring. That's another big one. And so the third one of course is load outs. And I show those three examples. So all that time we're saying, man, we're seeing these things over and over and over again.

(00:39:45):

Is there any way we could fix these without the operator having to get in a truck and go out to his site? So we partner up with Cimarron and they have these three components that we're now tying in our system with. So an RMMA remote monitoring management smart controller, it's called sitelink, and then a smart combustion controller so that we could literally reboot it remotely or constantly monitor it for combustion efficiency, which is part of the new rules, right? You want to hit 98% combustion efficiency and continually monitor it. And number the last part here, step 12 is a SMART VRU where we can start going using our AI data, what we see with tanks over pressuring, use that to literally predict when something might over pressure, send a signal to the SMART VRU to release some pressure and eliminate the over pressuring. So that sums up our M four framework and what I hope we've shown you, and we're going to open it up for questions now, is how on a single platform autonomous 365 can benefit HSE ops and help the sustainability group hit their MMRV goals? So with that questions, I do know that there was one from before. Yeah,

David (00:41:10):

Question popped up and we kind of just went through the deck, but I think a detailed answer is interesting here. One of 'em is ZPA, technically consider continuous OGI as high frequency scanning under EPA Alltech approval, not continuous, moderate. And I think the answer is yes. I mean, we don't really know yet because the portal's not open, but I would agree, I think we would both agree that we're effectively scanning a facility, inspecting a facility, 72 80 times a day basically is what's happening. The continuous monitoring. And the reason we went that route is because continuous monitoring had a workflow built in that we didn't necessarily, we wanted to basically create our own workflow to allow for remote identification or source level. With the continuous monitoring, it was okay, continuous monitoring alarm goes off, then you got to send in a ground crew to go validate where your lead's coming from, which we did not want to do that. We wanted to leverage the visual evidence that we already have,

Mark (00:42:28):

And we kind of went this, we got a little preview of this by doing the al aim with Colorado where they had seen OGI footage. It was the standard. They all had used handhelds before, so they wanted to see, well, what can you see with this autonomous? So we showed 'em video after video after video and they could see, oh, okay, well if an alert goes off, can you determine the component that was leaking? Yes, you can. Okay, fine. And if you can fix it remotely fine. Again, they liked the idea of reducing the call

outs, why send somebody out if you don't need to? You can clearly see the issue. So in a way, we kind of qualify as both a component level scanning and a component or screening tool and a component level inspection tool all remotely. Any other questions for those that are on right now? This is a very unique opportunity. You can ask pure West what they're doing, what they're planning, how it works. Yeah,

David ([00:43:30](#)):

And I mean a theme, I have a question. A theme that we've seen is the MM RV stuff, whether it be a premium or a discount or whatever happens with the tokenization of empirical data, wherever direction that goes. I think we've all discussed that. That's really the icing anyway. So I mean my question to Kelly and Jason is what's the cake, right? Where do you guys see the most benefit almost? Did you guys see immediate benefit is one question and two is where do you see this plugging in as the cake, not just a sprinkle of icing that's on top of the cake. I guess it's my question.

Kelly ([00:44:21](#)):

So I'll start by talking about the icing. So we've all been talking about the differentiated gas market and getting premiums for these environmental attributes that is taking off. I mean, we're still at the very early stages, but one of the, I guess surprises for me getting this tech installed and probably preaching to the choir here, but being in the environmental side of the business, we're typically a cost center. We don't bring a lot of really great solutions to the table that operations likes to embrace. And so we had some quick wins and I'll let Jason talk about that with this. That really has secured support from our entire company, really excited to see this tech advancing.

Jason ([00:45:03](#)):

Yeah, I think for me, the cake, a lot of it is trying to get a really solid understanding of what our performance actually is without knowing where we're starting from. All these technologies are trying to, they can give you a number, but nothing is calculated. Using the language of the process being each of the meters and all the things that we're collecting data on, they should inform an overall decision on our overall method of calculating what our best guess of the emission rate is. And that's what I think really was the aha moment for me was this now gives us a really confident starting point of saying, okay, here's where we're at and what can we do about it? How do we influence that number? Because I have a lot of confidence in where that number's at from a promax model, and then the camera is there to confirm that, but I have this number to start off with.

([00:46:00](#)):

And we've already seen that. It's like, okay, let's look at how many dehydrating we have running. Can we reduce that number? You already start to see the continuous improvement loop really starting, and those ideas and those things are coming from the operators and from the people in the field that are around us now, they have something they can see and see the signal, the noise, the signal process really working where they see the actual, how do I influence those or have an impact on the emissions. And those ideas just start to flow and you see the improvements just naturally start to happen.

David ([00:46:35](#)):

Sure. You got another question. How is Pure West ranking facilities to determine an implementation schedule? Does this technology fit for low production assets?

Jason ([00:46:48](#)):

Definitely from the aspect of doing the model and then we're using, we're working through different methods of what do we actually monitor from a scan, from a camera perspective, we're not committing to putting a camera on every location. We're going to leverage hopefully a lot of the AI technology that Clean Connect's bringing forward and saying, now that we know we have all this IoT data and all these monitors, all these meters and all the background information that's going into it, if we see a fugitive, we see an action that starts to happen more and more. We could start to be predictive because we could start looking for that same anomaly to start happening in the data on other locations that maybe aren't being monitored. And so I think we're going to develop this AI or machine learning, however you want to describe it, this process of being able to understand when these multilayer events happen in the data, that's something out of the ordinary or an anomalies about to happen on the site. So I think we're going to leverage that. We definitely want to put as many cameras out there as we can, but from a cost and a economics perspective, it is not realistic today. So I think we're going to leverage a lot of the other things we know, but maximize where we can.

Justin ([00:48:08](#)):

Hey, Jason, how about when you're making a new facility? Is that kind of like a no brainer just to put it out there for a new facility build?

Jason ([00:48:19](#)):

We haven't really gone down that Justin, but you do bring up an interesting point how we could easily get that up to speed and line out a process I think a lot quicker with a camera and start to use that system. And it doesn't have to be necessarily stationary as well. There's the concept of being able to move the camera, put it out on a site for several months and get an understanding and then be able to move that somewhere else as well. So you could do a startup process, I think, and make sure everything's working. You want it to and then move it somewhere else.

Mark ([00:48:54](#)):

Well, just to mention this, one thing we are working with Pure West and others is this, we've introduced actually a lower end camera, and the way this seems to be working out is that let's say you have a brand new facility, it's high producing, high value could be or high sensitivity like in Colorado where they require a full VOC if it's close to community in New Mexico. So we produce this high-end maneuver pro, it sees things, it's a full VOCO GI camera sees really far, and it can act as a hub. And then we have a lower end unit that we're doing, which we say, if you can avoid one call out a month, you can afford this system. That's the price. So we made dramatic breakthroughs with the Halo system. Again, this is for legacy sites, older type thing, which is what the question was going. Now we have this middle one which saying, Hey, I need all that. I need that packaging that has the wind protection with the gimbal. It's running more models, it only needs a methane only camera. So that's that middle thing. So we have everything else, the three-tiered system that we see, and it's generally how people are categorizing a lot of their sites as well. So we think this fits a lot of the sites as they're being done.

Jason ([00:50:23](#)):

And it seems very simple, mark, but you bring something, it's almost another aha moment was the visual confirmation piece. When you get an alert, being able to go and actually do the remote triage of that alert, that's one huge aspect. But then also you captured that historically and that goes on the NFT. And so a buyer can also go back and look at the same thing and say, I'm sure that this was produced this way because I have visual proof of that being when it was produced.

David ([00:50:57](#)):

Right.

Kelly ([00:50:58](#)):

Well, and Mark, to your point about paying for itself, I mean in the interest of full transparency, I'll tattle on ourselves. So we identified, we have this camera system installed on one of our liquid gathering systems. We identified a tank overflow situation, got out there. We were able to keep it within secondary containment, keep it below reportable thresholds, huge win. Because if we hadn't had that, it could have been a very costly cleanup, it could have been damaging to the environment. And so it's kind of a no brainer when you see real world examples like that happening with this program.

David ([00:51:32](#)):

Awesome. A couple more questions coming through. What are you doing with all the data once it's in your system for Pure Wests?

Jason ([00:51:42](#)):

Yeah, right now we're in the process of really figuring that out, understanding where we need it, how we can use it. We're still pretty early in our development or in our adoption maturity, so that is great question. We'll continue to be down that and hopefully in several months or so we can maybe hop on another webinar and show some success stories around that.

David ([00:52:07](#)):

Well, we have one that Kelly just said, we

Kelly ([00:52:11](#)):

Have lots, but that was a cool one. That was just a really fast response and just everybody was like, oh my gosh, this was a huge win.

David ([00:52:20](#)):

Awesome. Has Pure West attempted to place this technology on a well pad that is not a tank battery?

Jason ([00:52:28](#)):

Yeah. None of our locations have, we have liquid gatherings, facilities within our field, so we don't have tanks on the sites that we've deployed this to. We have two well sites currently that have had the longest deployment of this technology and two different vintages. So learning a lot about different types of production engineering that went into the overall design of these facilities. And that's been a big learning as well as how they behave differently under different conditions and with different sources of issues and things that we need to learn from. So we don't have tanks that we've deployed this on to, I think the normal definition of a tain.

David ([00:53:20](#)):

Sure. There's actually a clarification. So Marilyn asked the question on the what are you doing with the data now she's following up and says, asking about the mechanics of alerts slash triaging, but also

interesting applications that surface now that you have all this information. So I think she's just clarifying.

Jason ([00:53:40](#)):

Okay. So yeah, you're talking through the resource constraint aspect of it. I mean, the biggest piece that we've seen and one of the biggest improvements is the visual aspect. I know it's a cliché to say pictures worth of a thousand words, but truly trying to look at whether it's concentration data or things from other types of systems that show you elevated amounts of methane, let's say, and then trying to figure out what's going on behind what caused that takes far more time than when you get an alert with a camera picture saying, saying, here's what's happening. And you can see a person in the frame opening a valve, you automatically know what's going on and it doesn't take any phone calls or anything like that. So we've seen a huge decrease in the time required. We get them through email and it's on the dashboard, these alerts, and those can be customized to whoever, whether you have a operation center or whoever the users are. And we're starting to figure out ways of getting those into the right hands and getting those people to react because it's really not worth it if you don't do something about it, if it's worth taking action on. And getting that response time down is definitely part of the learning curve and one that we're quickly, I think moving up that curve as we speak.

Mark ([00:55:07](#)):

Well, one thing I noticed, Jason, and we were talking about this before we started, was essentially prove zero. It's like a daily emissions inventory. So think about the feedback loop. The old way is I do an annual emissions inventory, it's manual in a spreadsheet, and with emission factors, nobody really buys it. Okay, now you get this empirical one on a daily basis, which gives you a feedback loop. Say, well wait a second, if we tweak this or we tweak that, we can actually run it. And you were seeing improvement. Well, we saw the data, you were getting improvement within days knocking down your methane intensity.

Jason ([00:55:47](#)):

Yeah, well, things that were accepted, because when you look at it, when you don't have the feedback, like I said, you're not getting that signal to response. You are not understanding how the two relate to each other. But when you start to see that cause and effect, if I do this on the equipment or hey, this equipment maybe isn't running at full capacity, if we consolidate it down, we have a big gain there. I mean, those types of conversations are now possible because you've shortened that time period between signal to response.

Mark ([00:56:21](#)):

So one thing before we go, we do have approved zero early adopter program of which Pure West is in as well as two other operators. So collectively, this customer advisory group is helping us really plan out the new features approved zero and this sort of real-time emissions inventory. And if you're interested in that, you could talk to Mark to me or David, right? There is our market Clean connect.ai and David at Clean Connect AI talk to us. We'll send you a brand new Prove zero white paper that details the entire process. So you kind of got a quick overview today, but it goes in a complete detail about how it all works, trying to be as transparent as possible, and then we'll discuss your situation and see if you are a fit for the program. Anyway, I got

David ([00:57:14](#)):

One more question before we go, unless I'm cutting you off.

Mark ([00:57:17](#)):

No, no, go for it.

David ([00:57:20](#)):

I understand. A question for Justin. So Justin, can you attest a little bit around the combination of the two? I mean, we've been in meetings obviously before where you talked about the bleeding and you've said the stuff that you guys are doing is the bleeding, bleeding edge. Can you talk a little bit about that? I just want to take my off

Justin ([00:57:48](#)):

Bit. No, no, no, I know what you mean. Yeah, no, I do think that you can kind of see where the industry is headed a lot of times. And I definitely think, and I've told this to many people before, I think that Pure West is right at the forefront of all of this. And I think that Clean Connect is as well with having a good understanding of what is needed and how to provide it is such a big, big piece because so many people know just one little piece really, really, really well. But what we're doing here is we're bringing it all together into one package and wow, that it is, I really do think it is the way the future, and I think that it is the leading edge technology right now. I haven't really seen this done anywhere else, and so this is pretty much the only place to go get it, and I love being part of it.

David ([00:58:52](#)):

Awesome.

Mark ([00:58:53](#)):

That's awesome. That's great. Well, and for those of you behind the scenes, lots and lots of meetings with the Promax team and Justin in particular, and they have been so incredibly helpful to build this technology and fitting it together with their software. So we're super excited to work with you guys and obviously we bragged on you quite a bit.

Justin ([00:59:21](#)):

Yeah, yeah. No, we're all happy to be here.

Mark ([00:59:24](#)):

Great. Okay. It is now the top of the hour. I appreciate everybody being here. If you're interested in going to the next step, at the very least, talking with David or I getting that prove zero white paper, you got our emails right there on the screen and we look forward to talking with you and having you part of our zero family. All right. Thanks everybody. Appreciate it. Thank you Pure West, and thank you Justin for being here and really I think contributing to the overall furthering the overall industry and moving the ball forward here. So thanks so much.

Justin ([01:00:06](#)):

Thanks. Absolutely. See you all later. Bye. Bye.