Commands through SCADA – 00:00

Okay, So we went over the data on SCADA and general overview of the controls say, I guess we'll kind of run through a couple of scenarios here. Probably be the best. So say a crew called Control Operations Center and, you know, requested that you shut down valfilm V1 for anchor bolt maintenance. So verify, three way communication that that was the project and that's the turbine. So there's one of two ways you can log into the turbine individually, itself like I'm doing right now. I'll show you this way, then I'll show you the other way.

So we're in the turbine, V1. As you can see Valfilm. Go down to this control command here. when you're doing this, the kind of procedure is I don't know if it is written down anywhere. If not we should probably kind of get a standard operating procedure for this. So it's kind of you would update the system operator chat, you know, shutting down Valfilm V1.

So you send that chat out and basically all you'll do is just hit stop over here.

I'm not going to actually stop it right now. Does it ask for verification? That's what you want to do or does it just stop it? I believe here. We'll just do it here. Okay. Yeah. This is good. I'm glad we did this.

So when you hit Stop, it'll pull up this menu here. So shut down reason, basically, these are just allocations for the reason of shutdown. It would be really nice if we started utilizing these. Goldwin really doesn't. They kind of just do this energy management platform. Stop, I think because it's just the first thing that pulls up.

But it would make it, you know, if you guys end up doing the stops and starts for, you know, as we take projects over from Goldwin and you guys are the sole people doing this, it would be nice to, you know, use these as far as, you know, we'll have to go through the details at that point, but so you can select why you're shutting it down, which would end up being listed in a stop mode query.

So it would just show you that. So yeah, so if it was an ice shut down, say somebody hit you up and said, Hey, we need to shut Valfilm down for ice, we should use this blade ice stop, You know, So I just yeah for maintenance like this scenario we were using before, maybe we just say when we're doing maintenance, maybe we use this owner visit inspection.

So then it lists that in the stop mode for that stop? Because a part of this report that I was showing you before, we list out basically every, you know, bit of downtime down to the tenth of a second, like right now I'm the one going through and there is a it's kind of hard. I got to use, you know, a ton of resources, you know, chat emails from goldwind to figure out why the turbine was down, you know, because there's not always the best communication between us and goldwind

So so that's where this will list it and make it easy. So yeah. So you would just send the order it would stop the turbine. You would see it go up in the status right here from power production to stop when we have crews on site is what they'll do is they'll turn a, they'll physically turn a key at the bottom of the turbine and that will lock you or anybody out from being able to hit start having the turbine restart on them.

So there is an interlock just so you know, like it's going to be on them at that point to lock out the turbine and you can lock controls for whatever reason somebody might ask you to lock the controls. You can lock

the controls right here, but I believe anybody can get back in to SCADA and hit unlock. So it's not like the you know, golden key you hit lock and nobody else can do it.

Right. So that would be a scenario for maintenance. You would you can utilize the control command here within this section or you can use this batch control up here on the top right. I don't know why this …emergency cut outs and. Okay. So it makes it really doesn't make it tough and it makes it a lot easier to do the reporting when in the wintertime when we're starting and stopping turbines for ice consist constantly to be able to add up all the down times when you're doing both turbines on the same exact time stamp.

So when we're shutting down for ice or weather or whatever, we'll use this batch control here. So basically the same controls are listed in the individual turbines. But yeah, like I said, you go through the motions of updating system operator chat, you know, I don't know, depending on who's on call, they'll ask or it could be, you know, maybe Kurt or Jessi or Bobbi asking to shut down for ice sheet, update the system operator chat hit stop really no reason to lock the controls and then just same motions going back through when they ask you to restore batch control pull up all three turbines.

So we may ask you just to start one, you can obviously just select one, but generally doing them all, whether it's one two whatever the project is doing them all at the same time. Best practice for sure. So that is starting and stopping through SCADA When we have faults and we're trying to clear alarms, SCADA isn't always the best to use. So what we can do is pull up the turbine through the server itself. Okay.

Commands through PLC – 08:48

So the other way to control the turbine is by accessing directly to the PLC. So what I've been showing you, we've been going through the SCADA server controlling through those commands you can skip past that and go straight to the turbine PLC.

So that's basically what you do. Remote desktop and the server the SCADA one server without using SCADA. So basically what you do is you put in your IP, which is found in Keepass, SCADA one server or so majority of the time you will just be using SCADA. But I just wanted to show you this here.

So here is the I'm logged into the SCADA computer right now at Valfilm so like I was saying you can hit the turbine PLC.

So what you do is you type so this is basically the same for every project 192168151 dot whatever turbine you're trying to access. So this will just pull turbine two so screen looks a little different. We kind of call this the Web viewer. That's what Goldwind calls it PLC Web viewer. There are procedures and manuals for all the passwords to all these procedures and manuals on how to start and stop through this, which I can send to you all but basically the same functions as through SCADA.

The only time we would really send commands through here is if there was an issue with SCADA or if we couldn't, you know, if we potentially couldn't get an alarm to clear. This kind of seems to go straight to the source. We have a lot more luck resetting faults through the HMI. So if you wanted to start, stop, restart out through here, you would basically change this this disable remote control from fault to true.

So you just type in, put a one in there and hit enter and it would allow you to use these controls. I will say when like Jared's on site doing drone inspections if he asks you to yaw or do any of those kind of controls, you'll find that this is a lot more reliable as far as starting and stopping than SCADA is.

For whatever reason we've hit yaw right or yaw left on SCADA and we've had to have somebody go in the turbine and hit the emergency stop, because we couldn't get it to stop. So, yeah, this is a little more, I need to throw the be careful flag up. There's a lot of things you can do in here.

And, you know, if we have crews doing blade inspections or whatever, or blade repairs rather, you know, hanging out on blades or, you know, say they had called you earlier in the day and asked you to yaw a turbine right or left when you're in this system right here, regardless of what that interlock key I was talking about before or regardless of what state that is, the turbine will do these commands no matter what.

So when it comes to that point, when we don't have any blade repairs going on now and that's not something you'll have to deal with, you know, next week. But just be very cognizant of this menu and the commands because like I said, that the key that the crews have for tower lock out won't stop these commands. So so in general you'll be using SCADA but this is I just wanted to bring this up is in the event somebody needed something stopped and SCADA wouldn't work you know you you all are the people that are going to be dealing with this And this is all the same information here and as seen in SCADA.

Like I said, when we're stopping with those commands in SCADA it allows you to list what you're stopping it for or whether it's ice maintenance, just a storm coming in or whatever, I think those are stored like service time. Yeah. See, So nobody's ever really utilized any of these.