Data Centers and Seneca Lake

Seneca Lake Pure Waters Association

Deep Dive Webinar Transcript

November 18, 2026 · Bill Roege, Pure Waters President

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The transcript begins with the formal welcome. Timestamps are from the original Zoom transcript.

Welcome Presentation Questions and answers Closing remarks

Welcome

17:02:19 **Seneca Lake Pure Waters Association**

Okay, I think now is a good time to get moving again on behalf of everyone at Seneca Lake Pure Waters Association. I want to thank everyone for being here. We are here for a chat with Bill Roege on data center. He is our president of the organization. And, um, this is his fourth year with the association. Bill and his wife, Peggy, moved to Seneca Lake in 2017 after a career as an Air Force officer and a federal civilian with the Department of Defense and Energy. Uh, they joined Pure Waters the year they came through, um, first volunteering for harmful algal blooms.

17:02:59 **Seneca Lake Pure Waters Association**

to monitor, and they've then started volunteering with the stream monitoring programs and then took over the leadership of the harmful algal bloom program in 2018, joining the board in 2019. Today he's here to discuss data centers. Vulcan's proposal for Greenwich, the Greenwich site in Dresden, and what it could mean for Seneca Lake. There will be time for questions. If you have a question, please submit it in the chat, and we will get to as many of them as we possibly can. I want to thank you all again for being here, and I'm going to let Bill take it away.

Presentation

17:03:38 **William Roege**

OK, thank you, Ben, and welcome, everyone, this evening.

Data center basics

17:03:43 **William Roege**

We're having this because it's pretty clear that people are very interested in the topic of AI data centers. We have a group at Pure Waters that's been researching data centers, Vulcan and many things. around the topic, um, digging very deep, and so tonight we want to, uh, provide some of the insights that we've found, and, uh, hopefully this will be, uh. uh, informative and helpful, uh, for you as you, uh, think about the, uh, issues. Uh, so we're gonna talk about, uh, AIHPC data centers in general, so that's artificial intelligence, high-performance computing.

17:04:26 **William Roege**
And we're going to apply what we know to what we know about the new Vulcan Infrastructure and Power Company, which I'll explain a little bit later, and their plans here in Dresden, New York. Okay, so I thought I'd start off with a very generic term because we hear people talk about data centers, this and that. And the problem is, is that the term data center is actually very general. It's just taking power, powering IT equipment of some sort with it, putting it out to a network, and then dealing with the heat and other byproducts of it through cooling and then other controls.

17:05:14 **William Roege**
Uh, so it's just any facility that does this type of activity. What makes a difference is the function and size of what the activity is. So, uh, data centers can vary from just a simple server room. So as it says, a small business or hospital room that may house a email server or some sort of enterprise storage system, hard disks, that sort of thing that is very small, very modest. Ranging up to, say, a campus or a university or other systems that have many servers in there, maybe a separate building, again, still kind of air cooled.

17:06:06 **William Roege**
Still requiring quite a bit of power and no centralization. Uh, moving even further and further afield, hyperscale, typical, uh, internet, uh, running, cloud storage, those sorts of things. And now, what we're seeing with AI, HPC. campuses, huge clusters, and you can see the power differentials. They're going up to a gigawatt now in some of these places, so very, very large. So the term data center is not really adequate. We need to be more specific. about exactly what type of data center we're talking about.

The existing Dresden site

17:06:47 **William Roege**
So before we go further, I thought it would be good to try to go over what the current situation is at the Greenwich site. And I say Greenwich because while the parent company, Vulcan. Uh, infrastructure and power is, um... a new company, the subsidiary, which is Greenwich Generation LLC, is still the one operating the power plant and the crypto mining data center. So, the power plant is, uh, rated at 104 megawatts, or at least that's what, uh, the Vulcan, uh. literature says. Um, hopefully many know that it used to be a coal plant, and then in 2017, uh, it was purchased and converted, uh, into a natural gas peaker plant.

17:07:43 **William Roege**
So the plant still uses a boiling system, so it's not actually a modern very efficient power plant, but it was intended for, they bought it. anticipating a nuclear plant closing down in Oswego, uh, and then that didn't happen. So, uh, what they've done is they, in order to generate electricity and make money, they looked for something else to generate electricity for, and that's when they settled on the cryptocurrency mining, uh, data center. But just on the plant, things to know about are the permits.

17:08:28 **William Roege**
So there's some water permits, water withdrawal. So the system uses a one-pass cooling system. That means that's an older type of system, not used as much anymore, but they can drop to 139 million gallons per day. Um, it actually shouldn't be the thousands in there, I just noticed that. Um. So it's 135 million, 139 million gallons a day. Um, that they can withdraw. They're actually using more, like, 90 to 100 million, uh, gallons a day. Uh, the discharge permit, uh, it's a little bit less. Uh, they use some water for some other things, and there's actually a small discharge in another area.

17:09:14 **William Roege**
But, um, the main issue with the discharge is the thermal impacts, because that water is heated up, and, um, it's discharged into the Keuka outlet, and, uh, so that... that causes some issues that we care about. Um, the air permit, uh, you may have seen that, uh, DEC actually denied their renewal of the air permit, uh, due to the... the new laws in New York State, uh, but the governor has made an agreement. uh, with the company, and so, um, that's, uh, currently being worked. And actually, all three of these areas, uh, do not have an approved permit, a current approved permit. Um, they're all under review by DEC.

17:10:05 **William Roege**
So the cryptocurrency, uh, mining. So that was, uh, input, I think, around 2021. Uh, most of it is housed, actually, inside the building. Uh, and then there's a couple of, uh, other, um. uh... less... You know, they're not concrete structures. They're more temporary like structures that house that. That center, but it's all air cooled there. The main building was modified to allow cooling air to go through it, and the outer buildings have fans and things on it. So, um, in looking... when we look at how much... uh, gas is used by the plant and kind of calculations. It appears the plant is... typically runs at around 75% of its, uh, total capacity.

17:11:03 **William Roege**
The other thing I wanted to do is make sure that people understand there's other things going on at that site that at least we care about at Pure Waters. There's two legacy coal ash cleanup sites. One of them is called the Sea Pond, and that's between the facility itself and the lake. Uh, and that's where the coal ash would be settled out after it came out of the plant, uh, historically, before, uh, it would be cleaned out, and then put into the... ash dump, the Lockwood Ash Disposal Site, which is across 14 up on the hill.

17:11:39 **William Roege**
Um... So the sea pond was cut off from any other inputs in 2023, and actually next year is a scheduled start for remediation and cleanup of that site. And that's the responsibility of, uh, Greenwich, and the EPA and DEC both have, um. uh, responsibilities for enforcement and regulation, uh, of that, uh, cleanup. And you can see about $17 million liability expected for that. The, uh, disposal site across the way, uh, is considered active, uh, still, and there's, um, monitoring and... and different things going on there to make sure that it's stable. Um... And then but there is no closure date set.

17:12:37 **William Roege**
Um, uh, and there's a separate, um, subsidiary that's responsible for that landfill. And the DEC oversees that, of course, and, uh, there are, uh, EPA rules that. that, uh, um, are enforced there. Now, on this one, there is a, uh, $13 million estimated, almost $14 million estimated liability. But, um, that's not fully funded yet, but there are some funds, uh, held in a trust and then a letter of credit. uh, payable to DEC that in case something happens and that cleanup doesn't happen, um, at least there's some money there to... to get that remediated.

17:13:23 **William Roege**
So that's something to keep in the back of people's mind.

AI data centers and potential impacts

17:13:27 **William Roege**
All right, so I want to jump now into the difference between the crypto mining, the current crypto mining operation and a transition to an AI data center. So crypto mining. is a very specific type of computing. There's very straightforward algorithms and these ASIC circuits are very specific. So they're hardwired. Um, and they don't... as such, they don't generate a whole lot of, um, heat, necessarily. So they're, uh, able to put on cards, and they're put on boxes, and they... there's enough space in between them.

17:14:14 **William Roege**
That you can see in the picture a little bit. There's fans on the boxes, and then there's air moving through the building, and they're spaced enough apart that the air can get between them, and it can cool everything. Uh, they aren't as dense as what you'll see later. So, uh, some people even will do crypto mining in their garages. It's not recommended, uh, because of the heat built up. But temporary structures, there's no particular, uh, structure that they need. Uh, there's no particular configuration, because they're independent, uh, circuits. They don't have to talk to each other or anything. They're just... they're going out, they're guessing a number, seeing if it's correct, and then... Uh, if it's not, they toss it away, and then go on to the next one.

17:15:03 **William Roege**
And that's a reason too, if there's a power interruption, there's no big penalty for lost information. So it can go down and then it comes back up and it's ready to go again at the same point. So this is a picture in the temporary sheds. And then here's a couple pictures that are inside the building. Uh, so you can see there's different modules. The building is... is not one big, uh, computing hall. Uh, there's multiple levels up and down, so there's cubbies and spaces that they can put these... a set of racks and modules, and they can all operate and do just fine there.

17:15:50 **William Roege**
So AI, on the other hand, is a different animal. So the AI chips have to talk to each other. So it's a very integrated network. The algorithms are very complex. Um, they go through a lot of different steps, so if you have a power interruption, you lose a lot of data that you already spent time generating. So, and because they talk to each other, the closer together you get, the more dense you can put the chips, uh, the faster all the calculations are gonna go, and that's just very desirable. So when you stack these chips on top of each other.

17:16:30 **William Roege**
It generates a lot more heat density in amongst the chips, and there's no room for airflow. So generally, as you see on the right, is that they're jammed in and housed in these big cabinets and sealed. And they typically now are using liquid cooling, liquid being a lot more efficient as far as taking that heat away. So the other thing is, is those racks can be three to 4,000 pounds. So that means you're gonna require heavily reinforced floors. You've got issues with redundant high tent racks.

17:17:11 **William Roege**
or high-voltage, uh, power cables coming in. You've got the liquid-cooled stuff. So the infrastructure in the building tends to be a very specific design, uh, open hall, uh, flexible configurations, and sort of, like, more like a. You know, a hospital, a very substantial structure, as opposed to something that's a temporary building or something. So we talked about backup power. So that's something that is very, very important for the AI, not so much for the crypto. And on the top left, you can see basically the typical power setup is you have a power supply.

17:17:56 **William Roege**
You typically will plug it in through a UPS on an electrical power supply, and that gets you over the hump as far as if you have a momentary blip in power. So nothing will crash. If you have that. Those, of course, bring their own safety issues. Batteries. uh, can have hazmat and some... and blow up and... and other things, depending on their heat situation. So, uh, but that's... that's everywhere. You're gonna... you're gonna find that. Now, uh, particularly for, uh, grid risks, uh, you're gonna need, uh, a longer duration, uh, backup.

17:18:40 **William Roege**
And so those are listed here in the five options in the gray. Typically in the standard setup with the grid, you're gonna have generators, either diesel or natural gas. And, uh, diesel and generators, one thing is that backup systems are just that, they're backups. So they're only in use for testing, and if there's some sort of problem, uh, with the electrical supply. So they're not on full-time, like, uh, some other aspects that we'll talk about later. But they do bring with them, uh, some issues, uh, not the least of which is the exhaust emissions. Uh, diesels have more, but natural gas still has NOx and other emissions, and so, um.

17:19:31 **William Roege**
they're definitely something that you have to consider. And the other one is noise. Um, when they're running, uh, typically very, very noisy out. Um... and, annoying, if you will. Um, fuel storage, particularly for the diesel, you'd have to have a, um. Large fuel storage facility on the site, readily available, and of course, that requires permits and actions to mitigate any potential problems if something wrong goes there. But if you have onsite power, an existing power plant, you don't necessarily need additional backup power. You're already right on the plant. And as long as the plant is a reliable plant.

17:20:22 **William Roege**
You can, um... you can consider doing that. In fact, uh, a lot of the industry is trying to go that direction, uh, and that's why Greenwich was, um. uh, advantageous. One of the reasons they looked at Greenwich and, um, data centers is that you've got existing power, at least a certain amount of it. So, the only issues there is the right electrical connections have to be there in order to be able to isolate the plant when the rest of the grid is down. And of course, you still have to get your natural gas there.

17:20:58 **William Roege**
So there are a couple other, say, emerging backup systems. So there's the large battery storage systems, which may augment some of these other systems. in that it has duration limits, uh, but it doesn't have the noise and other problems. But of course, the fire safety and other battery, uh, hazards are there, uh, kind of in spades. And then fuel cells is definitely an emerging, um. technology that people are really looking toward in the future is much less impact on the environment and such, but it has its own technological issues there.

17:21:40 **William Roege**
And just on the bottom for generators, um, typically, you know, 20 or so, the 4 megawatt generators, which is a pretty typical one, uh, if you had a 200 and... 40, uh, megawatt plant, you know, that would be up to 80, so, uh, that scales pretty directly, uh, on that. Okay, so the other area, main area of. problems with the AI is the cooling, because you're into the liquid cooling. There's a lot of talk, oh, the liquid cooling is closed loop.

17:22:17 **William Roege**
And therefore, just not a problem. Everything goes away. But if you think about your car. An internal combustion engine has a closed loop cooling system. But if you didn't have a radiator, you wouldn't last very long. So this works the same way. You've got liquid cooling going through the chips and the circuits. And then you've got the regular building air conditioning that has to be done. So the facility itself has to have a heat rejection system that takes all of that heat and ejects it out into the environment.

17:22:59 **William Roege**
So there's a number of different options, none of which are perfect. You can have more impacts in one area or another. Water and noise tend to be the big ones. Implications, uh, for cost, the amount of land that you use, uh, and the efficiency, uh. that vary with each one of these options. But one of the things is, is people talk about all the water that you use, and that may or may not be true depending on what options you choose. So I mentioned before, just like the power plant, they could use.

17:23:38 **William Roege**
or a facility could use a once-through water cooling. Uh, so this causes a lot of problems, like we talked about, and one of the reasons that Greenwich is... the power plant is, uh, not particularly well received by environmental groups is that you have large withdrawals of water. And almost all of it's returned and returned much hotter. And that has impacts, of course, on the local environment. And if you did that, if you use this, then it almost certainly would require permits.

17:24:14 **William Roege**
withdrawal and speedies permits and things. What you would gain is a lot less noise. You're just talking some pumps, probably housed inside a building, some mechanical equipment, but no outdoor fans and things. Evaporative cooling is very popular and typical. The water withdrawal is much, much less. So whereas for a 60 megawatt plant, you might use 40 million gallons per day. Uh... Here you might use a million, but it's all evaporated or almost all of it evaporated into the atmosphere. But the issue this brings up is that scale builds up on the radiator, if you will, or the cooling tower.

17:25:01 **William Roege**
And that requires some pretty harsh chemicals in order to keep that scale from building up. And so you've got to do something with that, what's called blow-down wastewater. So you've got to treat that, or figure out how you're going to. dispose of it without harming the environment. The other thing it does is it increases the noise, so you're gonna have fans and pumps and falling water, etc, uh, that now are... that you're dealing with at the local level there. But again, you don't need water. There are dry coolers.

17:25:36 **William Roege**
you're not gonna, uh... basically, what you're gonna have is you increase the noise, if you will. So you squeeze the balloon in one place, and you're gonna make it bigger in another. So a lot larger area of land to put in heat exchangers because the air is not as efficient as water. So you need a lot more of it. So bigger fans and certainly probably the most noise of any of these. Another option is air-crude chillers, sort of air conditioners, again, very low water consumption, but you've got compressors now along with fans and other things, so you might have a wider spectrum of noise that you're dealing with.

17:26:21 **William Roege**
And certainly it's going to be there. Dry coolers, particularly in the hot summertime, may not work quite as well. So there are hybrid options out there. It could be dry coolers and air-cooled chillers, for instance, or it could be. Uh, typically a dry cooler and maybe an evaporative cooler. So, uh, in the times that you use evaporative, uh, cooling towers, um, you know, you're gonna use some water, uh, and those pumps and, and dealing with the wastewater, uh, but... In a place like ours, the dry coolers may work reasonably well.

17:27:02 **William Roege**
So noise is. Uh, one of the biggest, uh... things that people complain about, uh, with the data centers. And I will say that the current, uh, data center, um, I know that people around it are complaining about the noise, so there's still more work to be done by the local... by the town of Torrey. You know, to try to keep tracking that down, and they're working on their zoning, uh, with respect to the, uh, to the noise, you know, and try to get their arms around that.

17:27:36 **William Roege**
But noise comes, as hopefully everybody knows, in a lot of different frequencies, all the way from infrasound, which is below our hearing, but you can kind of sense it. or feel it through the low kind of rumbling bass sounds to medium to high pitch whines. And that all just depends on the frequency of what other machines are causing the sound. So, uh, I just wanted to give you some idea where the sources are. There's fans, transformers, the electrical, uh, system has a hum, uh, to it. Um... And various motors and pumps and things, depending on, again, their frequency out there.

17:28:21 **William Roege**
And as a reminder, of course, the backup systems are intermittent, so you're not getting that 24-7 like you are with a number of these other areas. So there are, um... ways to mitigate noise of the various frequencies. The lower frequencies are actually much harder to mitigate. They can go through buildings, windows and that sort of thing. So. Those are becoming more and more problematic where a facility actually puts those out. Um, but it's not just, uh, people, of course, that get affected. This can affect wildlife and domestic animals, um, given the current situation next to the.

17:29:13 **William Roege**
uh, Kiuka Outlet. Um, there hasn't been any studies that we know of that have been done there, but it can interfere with, uh, birds and their songs, and... and maybe, um, other animals that aren't comfortable with, uh, the vibrations and the noise that are around there. Um, I thought I'd just go over again, we talked, uh, briefly about it, but, uh, the types of permits, uh, that you need, uh, for a data center, not for the power system, but for a data center. So, again, if you, uh, use water for your cooling systems, then you're gonna need a withdrawal permit.

17:29:54 **William Roege**
of some sort. Uh, if you're doing the blowdown or the stormwater, uh, discharge, then you're gonna need the, uh, discharge permits. Um, the air permit, uh. If it's just a backup generator, there's certain rules that apply. But we'll talk a little bit later about on site generation, then it definitely applies there that you're going to need to get. Title V permits. And then, of course, there's environmental impact. surveys and a thing called SECRA, which is a process to make sure that a wide range of environmental impacts are studied before you put in a facility like this, particularly a very large one.

17:30:49 **William Roege**
So, uh, they're gonna look at everything from the noise, uh, water things, traffic, uh, much broader than just what's needed for... for the permits. Uh, and that involves, uh, multiple entities, um, state and local. Uh, maybe even more regional, and does require, uh, public input. And I will mention that, um, there is, uh, in conjunction with the governor's moratorium, uh, which... basically is to not grant new permits for the data centers. So the ones we just discussed there, but there's a generic environmental impact study.

17:31:36 **William Roege**
That is being kicked off, uh, by the state to look at, uh, issues related to data centers, uh, statewide. And so we've, uh, a number of organizations, including ours, have put in comments, uh, hoping to, uh, have that impact study have some teeth. Uh, and that it would, uh, really look into it and get useful information for particularly local entities to... to understand what's going on.

Vulcan's plans for Dresden

17:32:09 **William Roege**
Okay, now I'm gonna turn to what we know about Vulcan. So the Vulcan Infrastructure and Power developed a investor briefing that they filed with the Security and Exchange Commission in August of this year. And so we have gone through and mined that and augmented with other information. And this is what it says. Uh, this is for Dresden. So, one thing is, is that Vulcan actually has two other locations, one in Mississippi and one in North Dakota, uh, that they also, um, have control of.

17:32:50 **William Roege**
Uh, but this is the only one with a power plant. The other ones have, uh, grid power, or trying to get grid power, uh, to their property. So the current situations we talked about, 104 megawatts, uh, they actually, they reserve 40 megawatts for the grid, so they have some agreement with NYSEG, uh, to make sure that that's always available. And then the other 60, uh. Uh, some is, uh, right now in crypto, and their plan is to transition to the AI HPC, um, computing, and they don't mention backup, uh, or other things, but it's likely that they intend to use.

17:33:35 **William Roege**
on-site power as, quote, the backup, uh, and not needing, uh, extra generators or things like that. So, in their briefing, they talk about a kind of a step B, 1B, uh, and they have applied for and have been approved, uh, 60 megawatts of non-curtailable. Power from the grid. Uh, the kicker here is that, uh. Uh, that hasn't been... accepted by Vulcan yet, or they haven't made a decision, because it requires, uh. upgrades to the current transmission system. And we'll talk about that in a second. So that's that's on the hook there. That's contingent. But their strategy is basically.

17:34:29 **William Roege**
to, uh... operate really the same way. They're not going to draw on the 60 megawatts from the grid unless they can do something called arbitrage, and that's, um... that the power... they can buy power cheaper than they can sell it. So if that happens, then they'll buy from the grid for computing, and then sell to the grid, uh, from the power station. But otherwise, uh, from what they're saying. It would be kind of the same as the current status quo transition to AI.

17:35:05 **William Roege**
Um, however, uh, they've also requested another 200 megawatts. Um, and that's, um, being studied, uh, as part of a statewide and a western New York, uh, block of power to figure out, you know, who's gonna get what. Um, but we'll point out that, um. That's 364 total power envelope here at Dresden, if they get that. And of that, 260 would be grid power available for AI data center computing. Um, and obviously, that needs some significant upgrade. We'll talk about that in a second, too. Uh, but anything that... requires a grid power, requires a backup system, which wasn't required for the first 60 megawatts.

17:36:02 **William Roege**
And a facility that size, Pure facilities are about 60 to 80 acres. Excuse me. of land in order to site one of those. The other thing to note is that in their discussions, their business model is actually not to operate the facility itself, the computing. Their business is to build the shell. and provide the power to the shell, and then they would lease the space to these AI companies. So, CoreWeave, Meta, um, Google, somebody like that, uh, they would lease that space, and then they would bring in.

17:36:46 **William Roege**
the computers and the other stuff and outfit it. Okay, so how much power is 260 megawatts? Well, one, it would power a city the size of Syracuse, the residential requirements for that. Number two is, if you look in the top right. The flagship Alcoa Massena smelter, aluminum smelter, in northern New York is rated at 240 megawatts. So, this is a lot of power. Uh, 260 is over twice as much, two and a half times as much as the current Greenwich plant.

17:37:30 **William Roege**
So this is a lot of power. So the map on the left shows you, uh, from the ISO map. is that we have 415 kilovolt lines. converging at Greenwich and moving out northwest and two to the south. Uh, these are the lowest. version of high tension. You can see the towers, uh, for that. They're not the big, um, um, steel towers that you see, uh, along the thruway and, and, uh. uh, some of the other, uh, major roads and stuff that take the backbone. So the... the blue and the... and the red in this map are... that's the backbone of real power that goes on. So Yates County.

17:38:21 **William Roege**
is not in a very power-dense area, it's very power-sparse, uh, and, uh, the question is, is to bring in that kind of power is who pays, uh, and then what sort of impact it would have on our local service. Which could be positive, uh, given upgrades, but, uh, we have heard. informally that at least for the 60 megawatts that perhaps the user Vulcan might be on the hook for that, but we don't know that for sure. This is a schematic of the lines going out of Greenwich.

17:39:03 **William Roege**
The western line through Flat Street is the one identified for the 60 megawatt. Um, but... action. There are quite a few upgrades required to that line, as well as to the substation in Greenwich. Uh, the cost when it's laid out, uh. Um, so... kind of roughly, but in trying to do an estimate, the AI, uh, estimated between $35 and $70 million, uh, to upgrade that. So if that's a cost that Greenwich, uh, would, um. have to bear before they even broke ground on a facility, that's something that they'll have to think about. And then, of course, if there's a much larger grid upgrade required, then.

17:39:57 **William Roege**
Obviously, there's more costs on that that they would have to consider. The other thing I'll mention is that, uh, if you think about the slide before, is these lines go through multiple jurisdictions. So, it's not just the town of Torrey, uh, that's affected on any of these. Uh, the rights-of-way. Um, uh, some of them are single tower, the ones to the south are two tower, but if they, uh, had to be widened, uh, to the west or north, you know, that requires... that's certainly got impacts. If they had to go to the larger towers, uh, larger voltages, that could have impacts, too.

17:40:34 **William Roege**
So it's a bit of a regional question, and that's certainly a major thing in order to bring that amount of power into our area. All right, so let's look at their property. So this is a Google Earth view. In the center, you can see the Greenwich plant and the substation that's there. I put in the boundaries, the north boundary and the southern boundaries. Uh, the northern boundary is mainly the Keuka outlet, southern boundary is mainly the railroad, uh, and then, of course, the, uh, lake is on the eastern, uh, boundary.

17:41:18 **William Roege**
You can see the, uh, sea pond there. Uh, that's gonna be the remediation site, and nothing can be built there. Uh, vibrance technology, uh, to the south, and then the navy barge is just offshore to the north. Um... So, uh, not a whole lot of buildable land. So when I just looked at it, this is just my, um... That looks about right sort of thing. That enclosed area is about seven and a half acres or 324,000 square feet. And, uh, we'll look at that in a second. There is some other, uh, place to the west of that that you might fit some other things in, but, um... You know, just as a, I guess, looking ahead is that a 60 megawatt new build would be about 300 to 340,000 square feet just for the building itself.

17:42:18 **William Roege**
That's a typical size. So if we're talking about something larger than that. When even that is a really tight fit and not clear that that's possible. You're going to have to go somewhere else. 260 megawatt just won't fit there. And even Vulcan states in their materials that they need to acquire sufficient acreage to build a full-scale campus somewhere else. So that's TBD. Whether that's possible or not or where they would try to do that is very much unknown. So this is the comparable footprints. I thought it would be interesting for people to see. So these are our peer facilities. The first three are 60 megawatt. You can see 300 to even above.

17:43:12 **William Roege**
almost to 500,000 square feet. You can see acreage for a full campus in the 20-acre range, 18 to 20. Unless we'll look at the Mumbai one that you go vertical. But these are ones that are out there. Um, 20 acres. A little bit smaller in Chicago, 220,000 square feet for a smaller facility. But note the cooling on top, and some of them will have generators somewhere else. Uh, this is the Mumbai, uh, facility. They go multi-story. So, in a city or where land is sparse, you could go multi-story in order to do that. It's not, uh... It's typical because normally they like to do it all on one floor and spread out horizontally, but it can be done. But notice the generator's up high, so the noise propagation out from a facility like this would be pretty high.

17:44:24 **William Roege**
So this is what something more like 260 to 300 would look like. Multiple large, large buildings, 90 acres out there, very, very major facilities. facility if they get this extra power and go to the large facility somewhere. All right, so grid power requires backup, uh, and lots of noise. Uh, a lot of, uh. people in the business are trying to go to on-site generation. We talked, for us here specifically. The expense of grid upgrades, that may make it more desirable to do something that's on site for that extra 200 or so megawatts. There's a few options.

17:45:21 **William Roege**
Uh, being considered, uh, one is that some are using the regular backup generators and just running them full-time. Obviously, that's not very efficient, uh, but some of them are doing it. Um, another area that, um, seems to be more promising is they're buying up old jet engines, and they're converting them to natural gas. And they're just running those, um, as a full-time power generation, as kind of a portable, uh. power plant. You know, they're 30 megawatts each, so you get 10 or 11 of those running, you know, get 3.

17:45:56 **William Roege**
We're five aircraft running full time. And then you've got your onsite generation. Uh, we did get a question, uh, ahead of time, uh, that I thought I'd just, uh, toss in and discuss briefly as small modular reactors. Uh, the typical ones that they're looking at for this. are around 300 megawatts, so that would fit nicely. But this technology is not deployed yet. So this is not a near-term thing. I just read an article today in Ontario, where one of the first one, the first one.

17:46:37 **William Roege**
Uh, that they're looking at putting in, and they're having problems already, and over... cost overruns and delays. So, this is not likely a technology that would be, um... uh, uh, put in anytime soon. And, of course, this technology. is still using the uranium-plutonium cycle, which would require on-site spent fuel storage, which I think would probably run into a lot of problems here in our area.

Regional planning considerations

17:47:12 **William Roege**
All right. So that is sort of what they're about. So what happens? What should the local entities and others look at as far as considerations? when they try to decide what they need to do in their planning issues. So there's a number of different categories. I've got about, um, 7 or 8 backup slides that are much more detailed, but this is kind of the top level and the things that I think. May slip our minds, but need to be considered. And one, the first category is the public safety, public services and safety. So these large facilities, batteries, other things, a lot more hazmat than what we're.

17:48:00 **William Roege**
Used to in a rural area, fire protection, emergency response, waste treatment, all these kinds of things, much larger facility than what we're used to dealing with. Who does that? Who pays? Um, the fact that this is a regional economy, uh, and what I call sense of place, uh, we have... we depend on tourism, wineries, hospitality, etc. The... the lake, the scenic character, uh, it affects not only the local town that's. Dealing with this, it's a region-wide type of thing. You might get a few or even 100 jobs here, but if it adversely affects a lot more jobs somewhere else, that's something that needs to be considered.

17:48:48 **William Roege**
Again, as we talked about, there's regional power and support infrastructure issues. So the transmission line substations, even roads and other things, who pays, what's the reliability impacts, the right of ways. All of those sorts of things. And then finally, long-term development. So what goes on as far as their expansion, where they're going, are they growing even more, but eventual decommissioning. uh, is one that we're seeing, uh, across the country, that, uh, what happens when the AI bubble bursts, or, uh, quantum computing comes into being, and the property, uh, AI computing and, and whatever they're doing, or that company doesn't do well.

17:49:38 **William Roege**
Uh, and they decide to leave. You know, what happens to the building and the facilities? So this is an area where, um, the, uh, towns and counties need to ensure that there are insurance and bonds in order to cover that decommissioning and any loss of benefits that might. might happen there. Okay, so just to wrap up, AIHPC is a different animal, very large, substantial buildings with major power requirements. Very heavy industry on a much larger campus, particularly as we go to the larger systems. For AI, as compared to the crypto, cooling and backup power are the particular ones of interest that cause off-site impacts.

17:50:32 **William Roege**
Um, so, uh, it depends on the design, uh, so you gotta keep track of that, but, uh. But there are things that can be done to mitigate the various impacts. Um, and again, 260 megawatts is a whole bunch of power, and how to get it here is a real challenge. Um, the current site is not suitable for the full plan. So they have to figure out what goes on, where they're going to go. And if it's going to go. And then, of course, I want to emphasize the regional.

17:51:09 **William Roege**
impacts of this and the long term planning impacts that those are absolutely critical to. Okay. to consider for all of us out there. So with that, uh, I'll wrap up, and then I'll open it up, uh, back to you, I guess, Ben, to, um, to talk about questions, and I'll stop sharing. How about that?

Questions and answers

17:51:35 **Seneca Lake Pure Waters Association**
Okay, that was great, thank you so much. Uh, so we got a bunch of really great questions, uh, to kick things off with. So I'm gonna start off with one... Um, that I know you didn't address, because, um, and it's an interesting question at this, um. Will this, uh, potentially impact the military sonar testing facility on the lake?

17:51:58 **William Roege**
Okay. So I have tried to contact the Navy, but I have not received a response yet. So I defer to them. I wanted to make sure that they're aware of it. I could see some issues, but, um... But I don't know enough about exactly what they do in the engineering to. to opine one way or the other.

17:52:28 **Seneca Lake Pure Waters Association**
Gotcha. Another question. Was noise present prior to Bitcoin mining when the plant was just a power plant? How does it compare with today?

17:52:38 **William Roege**
I don't know. I... I don't know if there were studies before with just the power plant. The power plant is actually fairly recent, 2017. Uh, so I don't know... Um, what noise studies were done then, and then I know there have been, um. efforts to characterize it recently. Um, but I think that's still ongoing. They, uh, that's the town of Torrey would have to. Weigh in on that.

17:53:10 **Seneca Lake Pure Waters Association**
Here's another one. Are there any concerns that the surrounding areas don't have the necessary infrastructure in terms of like fire apparatus, fire departments to respond if something truly went wrong at one of these large scale facilities? And what would that mean potentially for the surrounding areas?

17:53:31 **William Roege**
All right. So I'm going to take off my Pure Waters hat, and I'm going to talk about what Bill Roege thinks. I think it would be currently woefully inadequate. So I think that's why I highlighted it. Is that, uh, I think a large facility like that, particularly, again, into the 20... Uh, a 200 megawatt, um... realm, uh, the Dresden Fire Department and others are not. are not suitable.

17:54:05 **Seneca Lake Pure Waters Association**
Gotcha. Um...

17:54:06 **William Roege**
That's my opinion.

17:54:09 **Seneca Lake Pure Waters Association**
Gotcha. In terms of the actual scale, one person asked, doesn't 200 megawatts seem low for newer hyperscale AI data centers? Doesn't the minimum entry range seem to be more along 500 megawatt range?

17:54:26 **William Roege**
The answer to that is hyperscale starts at 50. So we're already technically at a hyperscale when we have a 60 megawatt crypto. So it's a good question in that perhaps since 500, 300 seems to be very typical actually. Uh, they're pushing to a gigawatt. These are, uh, at least an order of magnitude, if going on two orders of magnitude, more than 50, so it would seem like a different. category, uh, and certainly different impacts. And the impacts, as you go up, obviously, uh, they probably don't even go up linearly. There's probably.

17:55:09 **William Roege**
Um, you know, some sort of, uh, exponential. Um, aspect to it. Um, as far as what the impacts are. They like it because for computing, it actually... you get a better bang for your buck, but for impacts, it might actually go the other way.

17:55:29 **Seneca Lake Pure Waters Association**
Gotcha. Uh, one person asks, uh, isn't there a moratorium on data centers in New York State at the moment? How did the Dresden site get approval?

17:55:38 **William Roege**
Dresden site. The crypto site was done, started in '21. And the moratorium was just this last year. And just to explain that the governor's moratorium, as opposed to the, um... the bill that is out there awaiting the governor's signature, the governor's moratorium is basically telling the DEC not to approve new permits for data centers. So... For instance, even if they were putting in. Um, yeah. crypto right now as a new sort of thing, there is no impact on DEC permits for the data center itself.

17:56:26 **Seneca Lake Pure Waters Association**
Gotcha. Um, looking at the, uh, entirety of the situation, we have another, uh, person here asking, uh, what that would mean for power line upgrades in the area, and would that mean, uh, taller steel towers in the region?

17:56:40 **William Roege**
I tried to cover that, is that I'm not a transmission electrical engineer, and from what I can find is that, um. It depends, and so it's possible. That certainly is a concern of mine. Again, the rights-of-way could be that they string another set of towers that are currently there. So you can see it. The one that goes north, it goes through the Anthony Road parking lot. and then crosses New York 14 into the Kemeter, uh, vineyard, and then goes up into the Weiss vineyard. So you can see the towers there. So you can try to imagine that if it is required, that they, uh, either.

17:57:28 **William Roege**
Uh, put in a new... a second, uh, line, so that has to be expanded in one way or the other, uh, and use, you know, pretty much the same right-of-way, just expanded. or, uh, stringing the extra wires so they could replace the towers. Uh, again, any of those are very expensive, uh, whether we... You know, the whole rate base... rate payer base pays for it, or whether it's, you know, specific to a particular customer is unknown. Uh, but there are lots of options from what I gather, uh, in doing the research, so it's not necessarily true that that would happen, but it could.

17:58:09 **Seneca Lake Pure Waters Association**
Got you. Um, so one of the repeating questions that we've been getting before and now during the actual webinar itself is. Not only, um, how do people stay informed about this particularly, but how do they ensure that they have a voice to weigh in on this as it, uh, potentially goes forward?

17:58:30 **William Roege**
Well, one of the one of the issues is that. With these type of situations, there's a lot of moving parts. Uh, which makes it hard for the public. Um, it makes it hard for the... for the government, too, because there's state... multiple state entities involved, so the power companies, DEC. Uh, and others. There's, uh, counties, there's towns. Um, and then, of course, businesses and others. So, it's very complex, and there's a lot of moving parts. Um, our organization, we have a committee.

17:59:08 **William Roege**
uh, at Pure Waters that has kind of split up, and people are looking, uh, specifically at Vulcan, at DEC, uh, at the power. companies to try to, uh, monitor and track when information becomes public. Um, we, um, you know, we monitor the town. Uh, activities and the boards and their decisions. Um, okay. But I don't know yet how much... we will invest in, say, a website or something to keep people informed. I suppose some of that would depend on. you know, the demand for it and whether we're really the right ones to do that.

17:59:54 **William Roege**
Um, so I guess a little bit TBD, but, um... There's certainly a lot of chatter out there that you can find out. You know, when things are happening. I don't... I don't think this is... Ah. Actually, a thing tomorrow, you know, particularly given their first step. Uh, the 200 megawatts is... is... I don't even know how long that study will take. Uh, but even a 60, uh, I think the company is, is not racing, uh, you know, to start that in January or anything.

18:00:35 **Seneca Lake Pure Waters Association**
Gotcha. So looping back to actually the question on sound, we have one that kind of gives a little perspective. I have lived about two and a half miles south of Greenwich for 40 years, and the low tonal noise did not exist before crypto came through. Can I expect an increase in this noise if the transition to data center goes through?

18:00:58 **William Roege**
Um... Well, again, that depends on what the zoning. board comes up with as far as standards, and then... so then, what sort of mitigation strategies, uh, for noise that, uh, is required for any new, uh, facility. Again, I... I don't know. You know, there's just so many options in there, you don't know exactly which they're gonna pick, and how easy it is to deal with the noise, and what sort of noise will come out. Oh. Hopefully, again, I... I hope that, uh, if people are hearing this and having problems with it, that this effort by Tori to.

18:01:45 **William Roege**
understand the noise issues better might actually improve the current situation. in some way.

18:01:54 **Seneca Lake Pure Waters Association**
Got you. And, um, so looking at the situation right now, um. What steps are developers taking to address any of these concerns that people are having? Have we heard anything from them in that regard?

18:02:10 **William Roege**
The developers, I'm not sure.

18:02:11 **Seneca Lake Pure Waters Association**
Greenwich, Vulcan.

18:02:16 **William Roege**
Um...

18:02:17 **Seneca Lake Pure Waters Association**
Have we heard anything from Greninger Vulcan about what their plans are? Have they made attempts to reach out to the community to explain what's going on?

18:02:17 **William Roege**
Well, again. Uh, well, they've been at Town of Torrey meetings, but I don't know of any. Uh, outreach efforts that they've been doing, and again, I don't know that they've made. Any real decisions? You know. They're way ahead. They're, um... So, I... I don't. I'm unaware of any of that.

18:02:49 **Seneca Lake Pure Waters Association**
Gotcha. And do we know of any other facilities or facilities. things along this nature that are in the pipeline are interested in coming to Seneca Lake. Is this the only one that we're currently aware of?

18:03:03 **William Roege**
Uh, it's the only one I'm aware of to Seneca Lake. There were, um, discussions on Cayuga Lake, so a similar, uh. power plant that would decommission on the east side of Cayuga. That has been a big issue and efforts there to stop it. But other than that, this is the only one I'm aware of here.

18:03:27 **Seneca Lake Pure Waters Association**
Gotcha. And then, uh, we're gonna wrap this up with one final question. Um... water levels have been a big concern recently, both high and low. Um, and there's a bit of a concern that the new facility, if it goes through. Could that actually impact lake levels on any level?

18:03:46 **William Roege**
No.

18:03:51 **Seneca Lake Pure Waters Association**
Gotcha.

18:03:52 **William Roege**
The amount of water that they would take and the amount that they even take now. Compared to 4 trillion gallons in a lake. And compared to evaporation and other activities, it's... It's many orders of magnitude less. It's just not. It seems big, but it's not.

Closing remarks

18:04:18 **Seneca Lake Pure Waters Association**
All right. Thank you so much, Bill. We really appreciate this. We have a huge turnout today. I just want to say that this is part of our monthly webinar series, the Deep Dive. Next month, we'll be hearing about why clean, good beer needs clean water. From one of the local brewers who, works on the lake. And I also would like to bring up that we are currently in the midst of our annual appeal. It is one of our big fundraisers, and it helps keep the lights on so that we can continue to do the quality work that we do.

18:04:53 **Seneca Lake Pure Waters Association**
Uh, both in terms of testing and monitoring, but also efforts to inform the public. So, if you'd like to help us out with that, please head over to SenecaLake.org, and uh, please donate to us. We would greatly appreciate it. Um, and again, um, I want to say thank you to Bill. This was an amazing, uh, presentation. I personally learned a lot, and I think everyone here as well did. So, uh, thank you so much, and, uh... We appreciate you all being here, and we hope to see you, at future webinars.

18:05:27 **Seneca Lake Pure Waters Association**
If you have any questions, please don't hesitate to reach out to us.

18:05:32 **William Roege**
Thanks everyone for coming.