

STONY BROOK UNIVERSITY SENATE University Environment Committee
Meeting of September 13, 2023, 1:00 PM EST Online meeting (Zoom)

In attendance: Thomas Wilson, chair, Tom Lanzilotta, Clifford Knee, Christopher Percival, Frederick Walter, Christopher Sellers, Terence Harrigan, Ralph Tortora, Sian Piret, Tiffany Friedman, Michelino Puopolo, Joanna Kaczorowska, Edward McErlean, Mona Ramonetti

Meeting called to order by Chair at 1:00pm.

Quick Notes:

- Committee Vacancy in Natural Science: Daniel Amarante is moving to a different institution. New recommendations are needed.
- New Union Contract: Thomas Wilson is appointed to the committee for one more academic year.

Adoption of draft Meeting Minutes of August 9, 2023, with the fixture of misspelled names—moved by Christopher Percival, second by Christopher Sellers. Without objection minutes are adopted.

Energy Working Group:

Thomas Wilson: Alright, now I've been pushing through. I wanted to get to the energy group's energy working group report and discussion. As you know, we've been sort of working on this topic. Christopher Sellers has been heading up the working group. We did produce a draft, which we sent to the administration. We're not asking for you (the administration) to agree with us because we probably don't agree on everything. We sent it to you mainly to ask about whether we've made any factual errors, but we are certainly interested in what the administration's response to the draft report is. So, we've got four people from the administration ready to talk to us: Tom Lanzilotta, Terence Harrigan, Ralph Tortora, and Edward McErlean. Is there anything you (Christopher Sellers) want to add or discuss before we hand it over to the administration?

Christopher Sellers: Not really. This has been long in preparation, and we have done a lot of discussing beforehand. I know we sort of pushed things forward a little bit with writing out what we were discussing, so we're looking forward to your input. We tried to synthesize a lot of the information you've been telling us in the past 18 months and then get our own perspective on things, standing back a little bit through our own discussions. So, I look forward to hearing what you guys have to say.

Terence Harrigan: So, Tom, I would just start off. Our purpose today, just like you asked us to, is to read and go through the report and make any comments on any factual clarifications. It's not meant to critique, as it's not our role to, and we'd be interested in understanding what the next steps are after the final draft, what that process looks like, and who it gets presented to. If you can give us a little background on that, that would just help clarify for us.

Thomas Wilson: As this is a small piece of a planetary challenge, I believe what we've attempted to do is lay out for someone what the requirements are, what the legislative, executive order, and imperatives are, and the goal posts, which are subject to change. And where is Stony Brook in it? I hope that what we've left with you from the 30-second elevator pitch is that this is a big challenge. It's going to take a lot of resources. It's going to take a lot of commitment from the university and a lot of commitment from high administration. We're trying to say "yes and" to your overall approach and what you've already been doing, which is working well with the resources you have, so that when you're asking for resources or asking for prioritization, people realize the huge lift from the 2030 deadlines.

As for our plans, the draft report is pretty much from our perspective and pretty much complete. There are always a few typos, and we're going to go through them. If there is anything we said or more information that needs to be added, we would include it if it fell into our lap. Otherwise, we'll cut it off gracefully. The plan is to then have the committee vote to send it to the Senate Executive, and if the Senate Executive reviews it, they do have authority. If the Senate Executive reviews the draft and approves it, we would put it on the Senate website so that it would be there, and it would be ours again. And then, sometime in the fall, probably November or December, we would give a presentation at a Senate meeting that would simply go through the high points and give our perspective, just like you gave a presentation.

Terence Harrigan: Okay. Thank you. And that timeline for your presentation?

Thomas Wilson: We hope to have it done by the November meeting, but if we miss it, it would be done by the December meeting.

Terence Harrigan: Thank you. So, Tom, Ralph, Ed, and I went through the draft and made some minor commentary. Tom's the holder of a lot of that information. So, Tom, if you wouldn't mind just jumping in on the minor things that you've identified.

Tom Lanzilotta: Yeah, sure. First, thank you for putting this together. I know you put in a ton of work. It took a ton of work to get this put together, so great job on that, and we appreciate it. You know, all the feedback we get from the campuses is helpful to us. So, I'm just going to go through a couple of things. For the solar in general, we did an analysis a while back, and I think Mike Martino was here, and we looked at covering the entire campus with solar. And if we did that, it would only be about a quarter of our consumption because we use about 222 gigawatt hours a year, which is enormous. So, you know, we all want to throw as much solar as we can on the campus. But just to put things in perspective, we use a lot of electricity here. And as we go and electrify more of our buildings to try to meet some of these carbon goals, our electricity's going to go up quite a bit.

Fleet electrification, which I don't know if I shared with you. But we are in the process of coming up with a master plan for fleet electrification. I don't think I saw much in the report about that, but working with NYPA about it. I think we have around 8 or so companies that we must look through, which I'm working on now. So that's going to move forward. They will come up with a game plan on what we need to electrify our fleet and our buses. We need an engineer to look at this since a lot of our transformers are old. We don't know if we have the capacity to put a

lot of the chargers in. There is also a question of where we put it. With buses, you must also consider factors such as terrain. To maximize our dollars, we must determine the smallest size of batteries we can obtain based on the miles traveled by bus or train. And the students. So, we are looking into that, and I'm excited about that.

Terence Harrigan: We've also brought in our maps (parking service) counterparts as well, and they're part of that discussion. The study is for the mandate, which is for state light-duty vehicles.

Tom Lanzilotta: Yeah. So, we're working on them to meet those deadlines. That's 100% by 2035 for passenger vehicles. And then the heavy duty, besides ambulances and stuff, is set for 2040.

Staffing levels. From what the construction fund put together, we are the largest SUNY by building square feet. However, we're a little bit short compared to Buffalo. They have a huge team, and we are larger than them by square footage.

One of the things that was mentioned on page 3, 2nd paragraph, was something about the COVID pandemic, and it was energy reduction. So, the COVID pandemic was kind of a temporary energy reduction.

Another thing to mention, correlating to page 6, paragraph 4, is that we have been installing a lot of water bottle filling stations. They are now all over campus. We try to walk around and take some counts to see how much plastic we're diverting from the waste stream. The result has been good; the students love it.

Some positive news: we have expanded about 1.5 million square feet, and our energy consumption has remained steady.

Thomas Wilson: That's a good point in terms of meeting legislative and executive goals. Does that help in fulfilling the requirement?

Tom Lanzilotta: Yeah, one of the aspects that did help was EO 88 because it was based on energy use per square foot. Now, with the new Bill Smart mandates or goals, it's aimed at reducing TBtu. So, our share is 0.88 TBtu, and it is project-based. Overall, the state is at 11 trillion TBtu. So, does it help? Not really, as long as we keep on executing projects that will assist us more.

Next point: page 10, footnote number 2. I think it's just a minor error. I believe it should refer to pages 12, 9, and 11. But it's something to investigate, and I'll make a note of that in the comment, just so you have it.

Oh, we do have a clean energy master plan for the East Campus. I'm not sure if I shared that with you, but I will make sure to do so, as the report indicates you weren't clear about that.

And there was another comparison of our Cogen plant to some other universities that managed to decarbonize them. Our plan is huge in comparison. So, some of the other campuses, I think, have perhaps a 2 Meg to 5 Meg system. We just peaked a few days ago at 43 Megs.

Thomas Wilson: That's nearly the entire campus's capacity, isn't it? Or is it? What percentage of the campus are you running when you peak at that level?

Tom Lanzilotta: Yeah, 43 is the maximum in that system during the summertime.

Terence Harrigan: So, it encompasses the East and West campuses. It does not include South P, the childcare center, the R&D campus, or South Hampton.

Thomas Wilson: So, if LIPA disappeared, could the Cogen plant run the East and West campuses by itself or close to them?

Tom Lanzilotta: Close to it. Most of the time, it does. If we have a hot and humid day, it will struggle. The greater the humidity, the less capacity it has.

Terence Harrigan: Could I also clarify in the fourth point where you mentioned the TBtu and the assumption regarding steam?

Tom Lanzilotta: That's right. On campus, we use Cogen steam in our power or energy plants, and we convert that steam to hot water. It's about 350 degrees, and we distribute it throughout all the buildings.

Terence Harrigan: We're not distributing steam. We're distributing high-temp water to heat exchangers and buildings, or to steam turbines that then create air conditioning, or, again, to heat exchangers and buildings that convert it to heat.

Tom Lanzilotta: It's a somewhat efficient way to distribute the energy going forward. If we want to decarbonize that, we'll have to distribute it at a lower temperature, requiring bigger pipes and a huge investment.

Terence Harrigan: To finish my thought, we use the gas-fired turbines in Cogen to produce our electricity. And you know, from that process of a gas-fired turbine, it produces electricity, but a byproduct of that is steam. That steam is then fed to our central plant, where it's converted through a cascade to high-temp water, which is then circulated through the campus. As discussed, it goes to heat exchangers, providing heat to the building or domestic hot water.

Thomas Wilson: What happens during the summer when you don't need the heat? Do you run compressors and use them to generate air conditioning? Or how does it work?

Terence Harrigan: The same steam process is directed to steam-fired chillers, so the steam is used in turbines to create air conditioning. We've also converted a bunch of chillers to electric ones. This way, we could be more efficient during colder seasons and lower load times, avoiding the need to run these large steam turbines. We can create chilled water throughout the water loop via electric chillers as well.

Thomas Wilson: So, it's hot water in the winter, and it sends chilled water in the summer?

Terence Harrigan: Yes, it's steam both times of the year, directed either to a steam turbine for air conditioning or through a cascade system to buildings as high-temp water for heat and domestic hot water in the summertime, and domestic hot water for the rest of the year. It's a different system with two different pipes.

Christopher Sellers: Yeah, you're raising questions for me, and perhaps this is the place to answer them. We looked at the environmental sciences and forestry schools and their plans. A lot of it was centered around this sort of steam. But I had no idea if that was really something we could even envision with our technology.

Terence Harrigan: Many schools rely on steam, with it going through their underground infrastructure and directly into the buildings. For instance, Manhattan uses steam from Edison's network to create heat. Some schools, like Dartmouth, have similar networks but are transitioning to a more efficient high-temp or medium-temperature hot water system with ground-source heat pumps. We've reached out to an engineering firm to explore lowering temperatures on our high-temp hot water as we consider potential decentralization for parts of our campus.

Frederick Walter: I don't understand how lowering the temperature of the hot water improves efficiency because it's the difference in temperature between what you start with and what you end with.

Tom Lanzilotta: Water carries energy a lot better than cooler water. So, if we do go to a lower temperature system, we would have to change all the pipes to bigger pipes to carry the same amount of energy. What a lot of campuses look at is decentralizing. So, essentially, putting smaller heat pump plants in and distributing them that way. We will continue to gather data going forward to come up with smarter analytics.

Christopher Sellers: Yeah, I mean, it was also just what I'm thinking about. And we talked about having people in individual buildings or departments register on what their usage is and making it an all-campus kind of project. It can also become a competition about reducing energy usage. So, people would have more of an incentive to push this forward. I don't know what that would look like, but it seemed like it might be possible.

Thomas Wilson: I remember several years ago we did have that competition where the different dormitories were competing against each other for who could lower their energy use over a one-month period. So, we could do that again, and it would be easy given that there is a dashboard. If you're interested, we could maybe think about that as a project for the Environment Committee to kind of take the lead on next. Pick a month, and let's see what we can do.

Tom Lanzilotta: Yeah, I was going to say that, too. I mean, that'd be an awesome help. You guys can come up with a way that we could push it out using that dashboard.

Terence Harrigan: It would also be helpful with the meter dependency and to break it down floor by floor or area by area.

Tom Lanzilotta: So, I mean, it could go really granular. But it's just a matter of how many meters you have available to be able to do that right. And then I think Ralph could tell you how our electric infrastructure is reaching buildings and how hard that might be.

Ralph Tortora: some on the older. Some of the newest structures separated the floors, like the West Apartments, Tubman, and Chavez. We could take a deeper look into that. Some of the older structures, like H. Quad, Kelly, and Roosevelt, would make it nearly impossible to break out the floors for the building.

Thomas Wilson: You know what? It's probably not a big deal. I think that being able to just have the buildings, particularly the dorms, just have the dorms be able to compete against each other.

Ralph Tortora: Yeah, we have all that.

Christopher Sellers: Two quick questions: It'd be great to have a graph of your staffing level. And the other thing is, did we get the budget discussion right about you guys' budgets and how things are funded within sustainability?

Terence Harrigan: Yeah, there is a small sustainability budget that covers things like LED lighting retrofits. For large-scale conservation projects, historically, we've been doing those projects through financing agreements with the New York Power Authority.

Ending notes: Try to finish the presentation in 2-3 weeks so that it can be forwarded to committee members for remote approval and then to the Senate. Then try presenting in November or December. Frederick Walter noted the mobilizing faculty expertise and how the provost new idea should be mentioned for this collaborative.

Ashley Schiff report

Thomas Wilson: The latest with Ashley Schiff is that Bill Herman is having a survey done. It's out at New York State Contracts, and they're getting an engineering firm to update. There was a 1970 survey, and then it was updated in 1998. Since it's been 24 years, they want to do another survey of the area, and then, supposedly, we're all going to sit down. Tiffany and I were going to sit down with Bill Herman, Richard Larson, and Suzanne Shane, who is doing the legal side. What the exact mechanism for preservation is going to be and what we've been told is that Ashley Shift, which is currently 26.6 acres, might be held back from formal preservation. They may want to hold back a couple of acres next to South Campus. I'm going to advocate for minimizing that.

I'm going to consult with John Turner, who is sort of a real expert on Long Island's natural preservation. He was one of the people who led the charge to preserve the pine barren. So, we've got him in our back pocket. Malcolm Bowman is a good friend of John. So, I've got him as a resource. We must first figure out how much area is going to be preserved. And figure out how secure the preservation is going to be, with the presumption that a less enlightened administration will try to undo it in the future. We want to make it certain that it will be very difficult, if not impossible, to undo the preservation in the future. Although the finest protection is always an engaged campus community, there is clearly a lot of support and a lot of use for

Ashley Schiff. One of the things this committee should do for the years to come is make sure that Schiff doesn't fall out of the public consciousness at Stony Brook.

Frederick Walter: It's important to get this done quickly and preserve as much as possible. There is a rumor that has surfaced in the Senate Exec that the College of Business is looking at moving to South Campus. Now, who knows what that means? Are they going to be displayed? If they build a new building, they are going to need space. We hope it's an unfounded rumor, but it's a rumor when nobody knows where it came from. So, let's get this done.

Thomas Wilson: It was also Richard Larson's last year as Senate President, so I think he's fully on board to get this done. I think that between the two of us and everybody else who's helping, we will have a real good shot at getting this done. I will keep people in the loop.

Election of Chair:

Thomas Wilson: Election of chair for 2024. The Senate rules require that the chair be elected each year. I would really like for someone else to be chair or co-chair. Now I have already asked for interest. Chris Sellers has been good enough to volunteer. But he says he wants to be co-chair. So, if I'll take whatever I can get, if the committee doesn't have a problem with it, I will entertain a motion.

Thomas Wilson and Christopher Sellers as co-chairs for the upcoming year, moved by Christopher Percival, second by Joanna Kaczorowska. Without objection, the motion is passed.

New Business: NA

The meeting adjourned at 2:06 p.m.

Minutes compiled by Maggie Li.
