

# MIDD-WEST SCHOOL DISTRICT

Work Session

Middleburg Elementary School

Large Group Conference Room

Monday, October 7, 2019

## ***A QUALITY EDUCATION FOR ALL, FOR LIFE***

I. **OPENING CEREMONY**

II. **CALL TO ORDER: 7:03 p.m.**

Mr. Victor L. Abate

III. **ROLL CALL:**

Mr. Victor L. Abate

<b><u>BOARD OF SCHOOL DIRECTORS</u></b>	<b><u>PRESENT</u></b>	<b><u>ABSENT</u></b>	<b><u>LATE ARRIVAL</u></b>
Mr. Victor L. Abate, President	X		
Mr. Donald D. Pinci, Vice President	X		
Mr. Shawn A. Sassaman, Treasurer		X	
Mrs. Stephanie M. Bowersox	X		
Mrs. Wyona P. Lauver	X		
Mr. Tony G. McKnight		X	
Mr. Christopher T. Nesbit	X		
Mr. Thomas J. Rubillo	X		
Mr. Ronald E. Wilson		X	
Mr. Richard J. Musselman, Superintendent (Non-Voting Member)	X		
Ms. Allyson L. Folk, Secretary (Non-Member)	X		

**OTHERS**

Mrs. Amy B. Simmons, Business Manager  
Attorney Orris C. Knepp, III, Solicitor

IV. **SCHEDULED SPEAKERS**

Mr. Victor L. Abate

Mr. Doug Neidich, CEO, GreenWorks Development, LLC – Solar Farm Options at Middleburg and West Snyder Campuses

Mr. Neidich stated I appreciate everyone being here tonight. I am Doug Neidich. I'm with Greenworks Development, and I want to talk to you about my partnership with Solar Renewable Energy who's the solar developer. I'm a partner of theirs. I want to talk to you about solar basics; just kind of one-on-one stuff, and then talk about how we do what we do and then go over the preliminaries of our analysis that we've done based on the information that was given to our team and what was supplied.

So, if we flip to the next slide, first thing that I like to talk about with anyone when I'm talking about solar is the following: that every hour the amount of energy that hits the earth is about the same as the whole planet uses in a year. So, every light that's on, every truck on the road, every car on the road, every building that's heated and cooled, every cell phone call, every battery that's charged, the whole nine yards, every hour the

amount of energy that hits the planet from the sun is about the same as we use in a year which is remarkable to me. If we could just harness a small tiny fraction of the energy that hits the planet, we'd be in great shape. So, we live in interesting times right now where we've got the technology and the ability to turn all this around while there's some interesting things happening globally for lack of doing that.

So, the next slide is a little bit about solar basics. So, the upper right graphic is a quick description of how a solar cell works. I'm actually. I'm an engineer. I sold an electronics business about 12 years ago or so, and since then one of the things I've been doing is commercial solar development, but another thing I've been doing is working with Steve Fonash. He's a professor of material science in nanotechnology up at Penn State, University Park, and Steve and I have been involved in trying to develop a nanotech base cell. So, I wanted to talk to you about a little bit about the physics involved and what's involved in a solar cell from being in the inside of it for the last 12 years. So, the same material that's on the inside of these things, the semiconductor material that makes this piece of magic work, is the same semiconductor material that's in a solar cell that turns photons of energy that turns sunlight into electricity. So, when sunlight hits a semiconductor material, it basically energizes the atoms in the semiconductor in that solar cell, creates a negative charge and a positive charge from those atoms in that semiconductor material. You collect those negative and positive charges to an upper and lower electrode, and that's what creates electricity. It's really simple stuff. It is pretty inexpensive stuff, and there are no moving parts to a solar cell which means that the cell, the panel itself, no moving parts at all is a very reliable entity. So, that's one of the things that we'll talk about in a little while is that out of the million plus panels that we've deployed over the last 14 years, we've had to replace six panels out of a million, and those six were all because a commercial mower threw a rock at the panel, and there's not much you can do to avoid that. So, that's what a cell does, and that's how a solar panel works. When you look at the entire array that sits on a roof of a building or on the ground, it really works the same way. If you got a situation like this, you take those panels. You put them on the roof or on the ground. You run electricity from those guys down into what's called an inverter, and then the inverter turns dc electricity that the solar panels produce into ac electricity to use. The inverter turns dc into ac, and when we look at the preliminary cost analysis that I gave you, the only piece of this whole system that will need to be replaced in 20 or so years after we put it up, is going to be those inverters because they do have moving pieces, and they go bad. Once you go through the inverter, and you run through a bi-directional meter, that bi-directional meter can run both ways. So, Pennsylvania is what's called a "net-metering state," and net-metering says that when you got a solar array or when you're generating your own electricity, you can sell electricity to the grid at the same amount of money that you buy electricity from the grid at. So, if in the middle of the summer, school is shut down. You're not using electricity, but it's the middle of July, you're producing a ton of solar electricity from the ground behind the building. You're producing a lot. You're not using a lot. You'll be able to run that excess electricity into the meter, through the meter into the grid. You'll get credit for that. When you're buying electricity in the middle of the winter, there's a blizzard. You're not producing much electricity, but you've got the need for it to run all your energy systems. You'll buy the electricity from the grid at the same cost that you were selling it to the grid for when you were producing in the middle of July. When you net-meter, the net effect of that is that the grid is your battery. Right? If I can buy and sell at the same cost to and from the grid, that telephone pole sitting in the sketch is my battery. Basically, any electricity that's excess that I generate at any given point, I'm storing in my battery, my grid battery, and any electricity that I need then when I'm not producing solar generated electricity, like right now, I'm buying from the grid because I stored in the grid earlier. That's the way that works. If you produce 110% maximum of

your use before you went solar, which is what we proposed, about 100-105% offset for Mid-West, you'll get full credit. You can't do two or three or four times the amount of electricity that you are using, or you'll sell the excess at wholesale instead of retail. So, we toll schools or other entities when we go solar between 100 and 110% of your current electricity use, and we normally give it a little bit of a cushion so that if you get more energy efficient with lighting or whatever you don't go over, but you'll get full retail as long as we toll you at 110% of your current use when we toll you up. If you did do a major energy upgrade and saved all kinds of electricity, you'd still get full retail value for that.

So, the question that I typically get right off the bat, is why would I want to go solar right now, and the answer to that is really three-fold. The first answer to that question is, this is the chart that's in your packet that shows the cost of solar from 1975 to the present, and in 1975 solar was being sold or you could buy a panel for \$101.00 per watt. Solar is now down. This chart shows \$0.47 a watt. It's now down to actually \$0.43 a watt. So, the cost of solar has come down like crazy, and when you look at that graph, the cost of solar is way out in the flat zone right here. It's a typical hockey stick looking curve, and the costs have come down to the point which there's just really small cost decreases that are still coming through. Most of the cost was taken out back in the 80s and 90s and 2000s. So, the first reason to go solar now is the cost has come down about as low as it's possibly going to come down. The second reason is that if you did solar now, if you guys start your project and get 5% or more for project costs expended in calendar year 2019, you'll get a full 30% federal tax credit. So, there's a 30% federal tax credit for solar that if the legislation stays where it is now, that 30% next year is going to step down to 26%, and you're following steps down to 22%, and the year following that steps down to 10%. There's a chance that DC legislature is going to extend that 30% ITC for another five years. They did that exact thing back in 2014. It was supposed to start sun setting like that in 2014, and at the last minute out of the blue, they extended it another five years, and they're talking about it now, and that may well happen, but you don't know that it's going to. So, before you get that news, the thing to do is get the project started this year and spend 5% or more of the project this year to get the full 30%. It won't get any better than that. It could get worse than that so there's impetus to do that now. The third reason to go solar now is in Pennsylvania about two years ago it finally got its act together around what's called solar renewable energy certificates. So, these are green certificates that you get when you produce a megawatt hour of solar, you get a certificate that's a green certificate, and Pennsylvania has a, what's called an Alternative Energy Portfolio Standard, and that's a mandate by the Commonwealth on each of its utilities that they produce a specific amount of their electricity via solar. Those utilities can either produce it themselves which they typically don't at this point, or they can buy your solar production. Not your actual electricity but the value of those certificates, your greenness, if you will, from you. So, there's a market for those certificates. Pennsylvania, up until about two years ago, had an open market where you could supply solar generated electricity, those credits, into Pennsylvania from out of state, and actually up until about two years ago, 70% of Pennsylvania's solar generation came in from outside of PA. Actually, from North Carolina, Duke Energy. Basically, Pennsylvania had an open border system because the utility lobby pushed that open border system. They wanted to keep the value of those certificates down. Didn't make sense to do that. We were putting money in brief cases and shipping it down to Duke Energy was the bottom line. We got the borders closed about two years ago to out-of-state generation. The value of those certificates from two years ago has gone from \$5.00 per certificate which is about the same as a half a cent of kilowatt hours' worth of electricity value. So, they went from \$5.00 a certificate up to about \$45.00 per certificate now; four and a half cents per kilowatt hours' worth of value. At the same time, Pennsylvania just took 70% of its supply out

of the market, controlled market, supply and demand. They took 70% of the supply out. Pennsylvania legislators also talking about increasing its standard; it's requirement on utilities for solar production increasing that by 10x. If they increase that by 10x, which is looking really favorable at this point, and we took 70% of the supply out, the estimates are that those certificates are going to go to \$100.00, maybe \$120.00, \$150.00 per certificate. I don't have a crystal ball on that, but if those things go from \$45.00 a certificate, four and a half cents of kilowatt hours' worth of electricity, to \$100.00, that's \$0.10 per kilowatt hours' worth of electricity. So, if you're offsetting six cents or so on that spreadsheet that I handed you, if you're offsetting six cents currently, you're going to get an additional ten cents a kilowatt hour on top of that six cents of value. Now, it's a debate in terms of how long that certificate program will last. My sense is that if they were to do anything, it's going to go up at this point because of more and more public push for renewables. With all the climate talk you hear all over the news, I think those values are going to go significantly up and stay up for quite a while, and then we'll wait and see where it goes from there. Rick, you have a question.

Mr. Musselman inquired so, that would be something that we would just get that benefit basically on our? It's not something we trade or anything else? We don't have to apply for it?

Mr. Neidich responded well, you do trade it. So, we'll take care of all that for you if you'd like us to do that under a contract where we just charge you a little bit in order to manage all of those things, apply for them, aggregate them, bundle them together with other. We do a lot of those sorts of certificates every year. We sell them, broker them and sell them for people. We would sell them for you, counsel you on when the right time to sell and, you know, when to hold and when to sell would be. You'll just get a check in the mail.

Mr. Musselman inquired that's basically what we're doing, is we're making these credits, and then we're basically, these are being sold on the market or selling them on the market?

Mr. Neidich responded exactly. You know when you have a big old solar generating plan, which is what we're proposing here at 2.5 mega, 7-acre plan, basically is what we're proposing; 7 acres of a solar farm, you'll generate a significant amount of certificates every year while you're saving on your electricity. So, you're saving on your electricity, and then on top of that, you're generating these green certificates every month when you're producing solar, and those things are saleable on a market where I don't think there's a lot of downside to the market at this point, but there could be two or three x upside. That's pretty cool. Right? So, you're generating your own solar stock every month.

Let's go to the next slide. Please ask questions while I'm going through this. I don't want to take a lot of time here, but the bottom line here is that as a solar development company/solar renewable energy, we've done over \$170 million dollars' worth of solar projects over 40 megawatt hours of annual production. We are the second largest solar developer in Pennsylvania at this point. We have, actually, I've been asked the question, when I've given references, could I give a reference not just at places where everything went great but of a place where we had a little bit of a problem to be able to talk about what we did about it? We've never had one go south. In all the projects we've done, we used the right software. We put things up cost efficiently. We do all the tax and finance structural work, and we've never had an issue with a solar project. They perform to preliminary analysis every time.

Mrs. Lauver inquired PPL does not charge a fee? A generation fee? Or like a generation fee or whatever to take it back?

Mr. Neidich responded no, they don't.

Mrs. Lauver inquired defer it, I mean?

Mr. Neidich responded they don't. Correct. Now, there's some pieces of your electric bill that you won't be able to get out of, and it's fair to them because they have to maintain the grid. So, what we've done on the spreadsheet, the 11½ x 17, that I handed out that I'll talk to you about in a little while, we've taken your recent electric bills that you provided, and we pulled out of there the pieces in those bills that we can offset and left the other pieces that the utility honestly is owed to maintain the grid. Left those in there. So, they charge you in effect by leaving those other fees in there even though you're producing your own electricity once you put the array up, and to me, that's fair. Right?

Mrs. Lauver inquired you don't foresee them charging like a conversion fee or anything for this?

Mr. Neidich responded I don't foresee that.

Mrs. Lauver stated okay.

Mr. Neidich stated I don't have a crystal ball on that, but I don't foresee that, but the bottom line is if they do start charging some sort of a fee, we'll talk about the numbers on your solar array a little bit. It's still overwhelmingly. It's going to make sense to do it. I have an electric car that I just parked in your high efficiency vehicle spot out front.

Mr. Abate inquired is that the vehicle I hit?

*Laughter occurred at this time.*

Mr. Neidich responded I thought it was pretty cool that you had a space reserved for me when I got here.

Mr. Musselman stated yeah, I never get to park there in my truck.

Mr. Neidich stated no, probably not, but I parked in that space out there, and basically that's what I'm starting to read about are the fees they want to put on electric cars, and that's the tug of war right now. I don't know where that's all going to go, but it makes sense, overwhelming sense, to do a renewable project at this point even with those kind of fees. It may or may not kick in in the future.

So, next slide. This is a partial list of recent customers. We are more than happy to give you references of people that have done projects with us in the recent past or the distant past whatever you want to do. There are a lot of them in Pennsylvania, a bunch of them in New Jersey, other areas of the northeast. We're a world regional solar developer. So, we get up to Vermont, down to DC, into Virginia, over to New Jersey, Pennsylvania, Maryland. You know, this region of the country. The reason why we do a fair amount of work in New Jersey is that that SREC (Solar Renewable Energy Credit) market, the energy certificate market that's at \$45.00 maybe on its way to \$100.00 or \$150.00 in Pennsylvania, is and has been for a while at \$200.00 a certificate in New

Jersey. So, if I were doing this project in New Jersey, you'd have \$0.20 of kilowatt hours' worth of value off of those certificates.

Mrs. Lauver inquired who buys them or why would they want to?

Mr. Neidich responded utilities have to buy them because if they don't, the penalty is twice the value of the certificates. So, Pennsylvania mandates that the utilities have to produce a certain percentage of their electricity renewably or by solar specifically, and they can either generate themselves which they don't typically do, or they can buy these certificates from you and other people, and if they don't buy them and produce them by the end of each year, the penalty is 2x. So, it just makes sense for them to buy them.

Mr. Abate inquired like carbon credits?

Mr. Neidich responded it's not a carbon credit. So, a carbon credit is capping and trading underneath that. This is a certificate program that basically puts a value on every megawatt hour of solar that's generated. A little bit different than a cap and trade sort of thing.

Mr. Pinci inquired what is the percentage that they're required to produce?

Mr. Neidich responded right now Pennsylvania is at .3%, and they're looking to increase 10x. Yeah, Pennsylvania is really lagging behind New Jersey, New York and Maryland. They've all established that they want to get to 50% renewable generation by 2030. Pennsylvania's goal right now is at 8%, and 50% and 8% are two different numbers, and when you renewably power a state, I'll show you the net effect it costs to solar when we get to the spreadsheet. You're more economically competitive. So, Pennsylvania can't fall out of that race because it's got some long-term hazards to it. Next slide.

So, just a couple of projects that we've done in the last couple of years. I wanted to show you just to give you a feel for what we do. So, this is about a 3-megawatt project that we did at Masonic Village. It was near Harrisburg. So, this section of the array is about a 1-megawatt array that we did about five years ago for Masonic Village. So, we put up a megawatt. That worked out so well that three years later they called us and said, "Can you come in and do another two megawatts because we're saving a bunch of money on this? We want to put up more." So, we went in and did the other two megawatts, and what you see overall is a 3-megawatt array. The array that we're proposing for Mid-West, I believe, is a 2.2-megawatt array. So, it's close to that size. Next slide.

This is one we just did in State College, the University Area Joint Authority array. This one's about 2.5 megawatts. Competitively bid. We get a lot of the competitive bids that we do because we're really efficient about how we put this stuff up.

Attorney Knepp stated I actually have a question about the bidding process because the proposed contract that was sent mentioned that the District is responsible for the procurement, but are you going to take care of putting out the bids for who's going to do the work?

Mr. Neidich responded we've got our own subs. We're the general contractor, and we got our own sub-contractors who actually do it, and the way that we do that is we have our mechanical contractor who's the less expensive of the two. We got a mechanical and an electrical sub. Our mechanical contractor is the less expensive per hour of the two because they're mechanical not an electrical. We have them do everything

including putting the panels physically on the racking systems, on the ground, where they drive the posts into the ground for a ground-mount array like this one (University Area Joint Authority). They do all the rest of the mechanical assembly. They put the panels on, the posts that they put into the ground to get everything else ready to go, and our electrical contractor comes in and just wires everything up. So, we keep things as cost efficient as possible doing it that way. When we deal with school districts because of the structure of what we've done, you don't necessarily have to bid the project if you don't chose to. We're doing one right now where it wasn't bid. The solicitor looked at it and said, "Nope, we don't have to bid in a case like this." You can choose to bid it if you want to. The only thing we ask if you bid is that you don't release our information to other contractors.

Attorney Knepp stated correct. Proprietary information wouldn't be.

Mr. Neidich stated yep, but we feel really confident in our competitiveness when it comes to those kinds of bids.

Attorney Knepp stated and that completes the other question. You indicated that at least 5%. In order to get that credit, at least 5% has to be done this year. What counts towards that 5%?

Mr. Neidich responded if we go out and order panels for you for your project, we're good. Really, as soon as you make the decision to go. The bottom line is you have to make the decision to go in the next month. If you make the decision to go in the next month, we have to get some approvals through the utility and such. Once we get those approvals which take a couple of weeks or a month, then we can order them. So, we're getting close to the red line here, but we're not there yet.

Attorney Knepp stated right, and that was my concern is if they decide that they want to do their bidding as opposed to.

Mr. Neidich stated it will take time.

Attorney Knepp stated the time.

Mr. Neidich stated it will take time. Exactly.

Attorney Knepp stated but if you order the panels, then that would cover that.

Mr. Neidich stated you're good. You're locked in. So, cost wise if you look at 30% federal tax credit versus 26%, that's a 4% difference. You're at 2.2 megawatts, and we're probably at \$1.40 or \$1.50 a watt so you're up a \$4,000,000.00 job somewhere around there. 4% of that is \$160,000.00 just doing rough numbers. So, there's \$160,000.00 difference by waiting until next year instead of cutting it loose this year.

Attorney Knepp stated right. That's why. I know with public bidding I mean it takes time. It just burns up days.

Mr. Neidich stated it takes time. Exactly.

Attorney Knepp inquired and then the service that you talked about monitoring and so forth, is that then a professional service which would be exempt then from the procurement because you're providing a professional service?

Mr. Neidich responded yes, a professional service. Exactly, and really the way we structured the contract itself it's a Power Service Agreement not a lease on the equipment which would be considered kind of a capital lease. So, the way that it's structured means you don't have to bid it if you don't want to.

Attorney Knepp stated thank you.

Mr. Neidich stated sure. This is Commonwealth Charter Academy. They're down in the Harrisburg area. They're the second largest cyber-charter in Pennsylvania. They just did a rehab of a facility as their new headquarter statewide, and they put a 400-KW array on the roof. This is a healthcare facility in New Jersey that we finished up a number of years ago. In this case we were able to pick up a 15-year contract on those renewable energy certificates, and we can pick up about a five-year contract on SRECs at this point. So, the way that works is you can either hold your SRECs and sell them at whatever the market is at, or if you decide you want five years' worth of guaranteed cash flow which kind of sort of pays most of the system back under a five-year contract, we could lock you in for SRECs, sell that five-year contract off to someone who's betting on the fact that they're going to go up while you're betting on the fixed cash flow. Right? We can basically just sell that annuity over the next five years for you if you chose to do that.

Next slide is a project we did a while ago. I included this slide because if you look at these panels, these things are at about a 40-degree angle which is what we used. We used to put panels up at a 40-degree angle because 40 degrees is about our latitude. That means the sun in the summer is kind of normal to the surface of the panels. What the industry realized is that when you do that, you got to take the next row and move it way back away from the previous row like it's shown there so that the first row doesn't shade the second row because it's sitting at a high angle. If you lay those guys down at 15 degrees instead of at 40 degrees, you lose a little bit of production from each panel, but you're able to slide them a lot closer together. You use a lot less land or a lot less roof top. So, if you back up right to the previous slide. Two slides back. Sorry. Yeah, you can see how close together those panels are at 15 degrees. This is one we just did about six months ago. You can see how close those panels are at a 15-degree tilt and slid about two feet from each other versus the one that I just showed you.

This is a distributed generation array that we did up in Vermont a little while ago. Again, we got a fairly wide footprint in terms of where we do our work. The one that I didn't include here because there's, and this is the SRE. This is Solar Renewable Energy's headquarters. If they didn't have solar on their roof, then I shouldn't be here. So, I included that, too. One I didn't include because there's a Senator that wants to make the announcement before we can advertise it is a 17-acre floating solar array that we just did in Sayreville, New Jersey. So, in Jersey, the SRECs are \$200.00 per certificate, \$.20 a kilowatt hours' worth of electricity which means you can do more expensive systems in New Jersey than you can afford to do in Pennsylvania. So, we dealt with the water authority there that was bringing water in off of a river, letting it settle in a 17-acre lake or a pond that they had built, and they realized that they wanted to make some use out of that pond rather than just having it sit there. The pond is there just so they can bring water in from the river, let the solids settle out of the water, and then they pull off the top and treat that water. They went out for bid for a floating solar array. We picked up. We won that bid, and we did a 7-megawatt floating solar array that this big old array that floats in the middle of this pond which is pretty cool stuff.

Mrs. Lauver inquired you didn't run the heat or anything with a pond?



Mr. Neidich responded nope, just loading the array on top of the pond, and the system is engineered so that when it freezes in the winter, the array just floats. It goes up and down with the ice and with everything else. It sits there and produces electricity. Pretty good stuff.

So, this is a slide that talks a little bit more about the SRECs that we do. Again, we'll take care of all of that for you if you chose to do that. You can go out to someone else, too, and let them manage your SRECs, but we try to do it at a really low fee, and we manage a ton of them, and we'll tell you when to hold and when to sell and all that stuff. You can hold these things for three years. A certificate you don't have to sell immediately. If you think the market is going to go up, you could hold and wait for that market to go up, and we'll kind of give you the best we've got in terms of predicting the future on that stuff.

Mr. Nesbit inquired when you handle the SRECs, is that a contractual term? A five-year contract?

Mr. Neidich responded a one year. A one-year contract. We do it on a term-on-term basis, and we do the same thing on operations and maintenance. So, we'll contract with you to maintain your system after you buy it out, and I have to talk to you about the details of how the whole structure works for non-for-profit, but investors would set up the array for you. It means you don't have to put money into the system up front at all. You'll start saving money on the array when we turn the system on. Those investors have to hold the system for five years to qualify for the 30% federal tax credit. We encourage you to buy the system out from that investor group as quickly as you can after they've held it for five years because your cash flow doubles plus a little bit. So, I'll talk you through all that, but once you buy the system out, you can either contract with us for routine yearly operations and maintenance, or you can go to other firms to do it as well. When we set up each system, we put an automated monitoring system on each system so that we'll know before you know whether you have a problem with your system. If anything goes wrong with one of the inverters, typically is what would happen, if anything goes wrong with an inverter, and it drops out a number of your panels, we'll see that in a comparison between what we thought we'd be producing and what we are producing, and we'll let you know, but that same set of data will also come to you directly. We're going to be watching it more closely than you probably will. So, we'll call you before you call us, but you'll have that same output from your system as well, and I am working at this point with the National Energy Education Development Project, the need project down in Manassas, Virginia. They've been around since 1980. They do curriculum around energy systems, and they specialize in renewables, but they do all energy systems, and part of what I've started to do for schools when they put their own solar in, we'll pay for the curriculum. Their packages are a couple thousand dollars to do a Pre-K or primary through 12 curriculum program if you want to do that, and they've got curriculum that's specifically intended for schools that have put up their solar array. It's called the Solar Schools Curriculum. So, you can teach your kids from primary grades on up through. Teach your kids about energy and make them sensitive to the kind of stuff that you've been doing, and make your energy system part of your science curriculum, and it's compliant to state standards. So, this is an example, kind of a summary of a project, and I'll talk just a second about this since yours is very, very similar. This is another school in Pennsylvania that we are installing right now. It's a 2.5-megawatt array. It's actually split just like yours between two different arrays. You got two different arrays in your system; a primary and a secondary. This is the same way. This offsets 100% of their electricity use. It's about an 1,800 student school we're doing. This offsets 100% of electricity use. They didn't put any money in up front. The investor group is going to set up, purchase, install,

operate and maintain the array for the first five years so they qualify for that 30% federal tax credit. They're going to save about \$100,000.00 a year from years one through five, and that's at \$45.00 per certificate SREC values. In their case, if those SRECs double in value, go from \$50.00 up to \$100.00, it adds about another \$170,000.00 a year to cash flow for them which is huge. So, they're going to save \$100,000.00 a year. If SRECs doubled to \$100.00 per certificate, they're going to be up to \$270,000.00 a year's worth of savings. When they buy the system out at the beginning of year six, their \$100,000.00 of savings is going to go to \$200,000.00. If SREC values are at \$100.00 per certificate at that point, that \$200 goes to \$370. That's serious cash.

Mr. Nesbit inquired so what would the buy-out be after your five then?

Mr. Neidich responded I'll show you your buy-out specifically. I'd rather. Can I also go over this, and then show you very specifically what we've done for your preliminary analysis, if that works for you?

Mrs. Lauver inquired how much is involved like? Okay. So, you do on the ground. Permits?

Mr. Neidich responded we take care of all of it.

Mrs. Lauver stated okay. It can't be put on wetlands, or it can be?

Mr. Neidich responded it can be. You can put in on a retention pond or wetland. We got to go through all of the approvals.

Mrs. Lauver inquired but we could possibly put in on land that's questionably that we couldn't build something on, but it could have the solar panels on?

Mr. Neidich responded it could, yes.

Mrs. Lauver stated okay. That's interesting.

Mr. Neidich stated we do a lot of landfill sites where you couldn't build anything else on landfills, but you could put solar array up. We'll do retention ponds. If you got a big old retention pond somewhere that you're required to have in order to hold water when it rains, you can put a solar array up. Things like that are opportunities. So, what we try to do is find land that you're not going to use for future development that we can turn into a solar farm and not hurt you in the future in terms of strategic planning.

So, if you go to the next one, Rick. So, we looked at two arrays for you. So, the first array we looked at is an array on land that is behind the school and behind the ballfield, and you're more familiar with the campus than I am, but there's a barn and a meter here, and, Rick, you can take it from there. There's a meter there that you own.

Mr. Musselman stated right. This is where FFA's barn is, the old farm is. So, right where my pointer is located. So, we actually own that. We have a meter. The whole thing is it's not a three-phase.

Mr. Neidich stated we'd have to upgrade it.

Mr. Musselman stated that would be something that would have to be upgraded before you could hook up to it. So, we don't have to go underground all the way up here to our main building. We can go right to that location there as long as it's a three-phase.

Mr. Neidich stated so what you look at when you do these things is you look for land that you don't want to develop into anything else over the next 40 years which is, you know, what's available here, that is close to a meter that the District already owns. The way PPL works or any utility works, if there were no meter there, and we'd have to install a meter there, they'd tell you you got a wait a year and see what your electricity use looks like before they'll approve it. Basically, these are the energy wars, right? When you toll up a 2.5 or 3-megawatt array, that that's much electricity that they're not going to sell you any longer. So, they try to put up every roadblock that they can is the way you have to work this. In this case, you've got a meter there, so we've had preliminary talks with PPL about specifically this situation, and they've given the tentative approval which we've never had turned over when it gets down to the short strokes up the project, and we've had them estimate, estimate for us what it would cost to upgrade that meter to a three-phase meter that would be a meter big enough to handle the energy coming off of an array like this. So, we've already done all the preliminary conversation work, the ground work with the utility to know that this situation works, and this is actually a great situation where you've got land. You're not going to develop it because it's a little bit distant from the school, and it's got a meter there that we can upgrade. That's a great situation. So, that was good planning on your Superintendent's part. This is a smaller array that we're looking to put up at West Snyder Elementary. It's about half a megawatt, 465 KW. So, between those two arrays, we're actually at 3 megawatts of output here. It's actually a little bit bigger system than I showed you.

Mr. Nesbit stated so, looking at these two, you've got 6.1 acres, 2.43 megawatt; 1.2 acre, 465. Unfortunately, why is this producing so much less?

Mr. Neidich responded 1.2 doesn't make sense. So, it's 2.5 acres per megawatt is what the rule is. That might be a bad number; the 1.2 acres. That actually should be about half an acre. My apologies. Half an acre or 6/10ths of an acre.

Mr. Nesbit stated okay.

Mr. Neidich stated one of our guys made a mistake on that one. Sorry about that. So, it's 2.5 acres per megawatt right now is what you do. Those two. Well, so, let's go to the next piece then. This is where the road kind of meets the road. So, I tried to blow this up to an 11 x 17 so you can actually see it, and I'm going to have to stand close to the screen so I can see it. So, what we did here, this is based on the electricity bills that you provided. This is based on the electricity supply contract from your current broker that you provided, and this is based on the map that Rick provided to us that showed us where the solar sites would be. What we did was we looked, we talked to your broker for electricity, PPL, whether there would be any kind of a termination cost for you getting out of your current contract for electricity supply. We built that in here. We've talked to the utility about the interconnection fees and upgrading your meter. We put in a conservative number in there for that. So, we put all the cost pieces of doing the project in here to do the preliminary study. If you decide you want to move forward with this. If you vote that this all makes sense, you would get. The Power Service Agreement I think you have already. You've looked at it. If you want to approve the whole package, the last thing we need to do then is get the engineers up here, do the final site survey, get PPL on the line and say, "This is it," and we don't think at that point they'll be any changes, but there could be adjustments here or adjustments there,

and then we lock it down, and we go. So, this analysis is an analysis that after we've looked at your electricity supply contract, and we built in termination costs which weren't much, after we talked to PPL about the cost of their connection, and after we've done all the numbers around your electricity bills, your offset costs was, what your array is going to produce and how the numbers all work. So, we do these analyses on a 40-year analysis. Solar arrays are typically good for 40 or 50 years. Actually, I'm showing in the financing in the middle of the sheet, I'm showing a 34-year fixed interest loan, and that's a USDA loan. The USDA will loan not-for-profits like schools 100% of the cost of buying an array like this, and they'll do it for 34 years because they know that systems last 40 years, and they understand the pressure that has five years tied up with the investor. That's why they do it. They take a year off the top and do a 34-year loan. So, here's Years 1 through 40. The Solar Electricity Generated, so, what we did was we took your electricity bills. We looked at your bills. We took all of the generation costs off of your bills. We can offset 100% of that. We can offset about 30 or 35% of your distribution costs on your bills. So, we took that out, combined those two numbers, and that's what you see here in the Avoided Cost of Electricity, \$0.069 a kilowatt hour. So, that came directly from your electric bill. That's not the full cost of electricity for your bill because you got to keep some of those fees in like we were talking about a little bit ago. That's the cost that we can offset. We call that the offset avoid of electricity cost. So, that \$0.069 is shown there. We built in a 2% escalation rate every year here, and you could. You could do it anyway you want to what that's going to do. Historically, over the last five years, it stayed pretty flat because of natural gas in Pennsylvania honestly, but if you look back over the last 20 or 25 years, electricity costs have gone up about 4% a year on the average over time. So, we put in 2%. You can throw 1%. We've given Rick a copy of this in Excel so you could throw a 1% in there if you wanted to. We did an analysis that showed flat for five or ten years and then 2% after that. You can do any kind of analysis you want to do. So, we showed at the 2% here. We showed Renewable Energy Credits, those SRECs, at \$42.00, and they're bouncing around at \$42.00 to \$45.00 up to \$50.00 right now. If we think that market is going to go up into the \$80.00 or \$100.00 range, so, the Avoided Cost of Electricity times the Amount of Electricity that we generate from the solar array gives us the Electricity Savings. The SREC value times the Amount of Electricity we're going to generate gives us the SREC Income. So, what we're showing here is 4 million 131 thousand watts or kilowatt hours of electricity a year that your system is going to generate. It's a megawatt-hour per renewable energy certificate. So, you take three decimal places off of that, you're going to have 4,130 SRECs. Those certificates every year, and the value that we're showing here is \$42.00 times \$4,100.00 which is where we get that \$173,000.00 SREC Income. So, that's at \$42.00. If that goes up to \$100.00, that's another \$190,000.00 worth of income a year.

Attorney Knepp inquired do you all help to coordinate the USDA financing, or is that something?

Mr. Neidich responded we'll do all that for you, absolutely.

Attorney Knepp inquired does the District need to get their Bond Counsel involved in any way for that to get an Opinion Letter?

Mr. Neidich responded not now. No, not now because all you're doing is entering into a 25-year Power Service Agreement, basically, that we've given you a copy of.

Attorney Knepp stated once again, I'm thinking the time crunch for the credits for this year.

Mr. Neidich stated sure. If you approve the document that we've sent you, we'll finalize it with all the final numbers here, and we'll be ready to go.

Mrs. Lauver inquired so, we have a Power Service Agreement with you, but then the company that we buy the solar panels is a different?

Mr. Neidich responded no, so, actually, technically.

Mrs. Lauver inquired it's all the same thing?

Mr. Neidich responded well, it kind of is with the exception that we set up what's called a special purpose entity. It's a partnership specifically for each project that we do. So, if we do another district, we'd set up a project for that district. Yours would be Middle West School District LP, Limited Partnership. So, it's a project. It's a partnership specifically to do this job, and that partnership will be comprised of the investors that have that 30% federal tax liability or that did have federal tax liability in general to continue having the 30% federal tax credit. That limited partnership, the managing partner of that limited partnership is always Doug Berry, who's my partner who runs Solar Renewable Energy, the development company. He's the managing partner in that partnership, but Solar Renewable Energy is the general contractor that will put it up. So, all we do. So, they're the solar developer, but we set up a specific limited partnership for every job that we do. Kind of like being a real estate company. You've got a real estate general partner, and each building project you do is a limited partnership.

Mrs. Lauver inquired so in six years if we choose to purchase it?

Mr. Neidich responded yes.

Mrs. Lauver inquired we're purchasing it from the limited partnership?

Mr. Neidich responded the partnership. That's correct. The limited partnership.

Mrs. Lauver inquired and your power source service agreement continues as was?

Mr. Neidich responded no.

Mrs. Lauver stated no.

Mr. Neidich stated at that point you're done. At that point you own the array and would sign up with us or with someone else for the operations and maintenance contract just to come out and maintain the system every year, and you would sign up with us or someone else to manage your renewable energy certificates, but you bought out that contract.

Mrs. Lauver stated okay.

Mr. Neidich stated so, really, that contract in almost every case of these that we've done, and 80% of the work that we do is for not-for-profits like school districts. Every single one of them that we've done gets bought out after year five because the numbers jump. Your income numbers jump, and we encourage you to buy it out as quickly as you can. Honestly, the investors that we would bring into that, we take onto another project. Right? They're always going to buy.

Mr. Nesbit stated they maximize their returns at that point because of the federal savings.

Mr. Neidich stated yeah, that's what we structure the deal around.

Attorney Knepp inquired so, if the District defers and allows you as the GC to use your subs and everything, is that language then removed from the Agreement that says the District is responsible for that procurement if they're actually going to hand that over to you as the general contractor?

Mr. Neidich responded well, if you're going to bid it.

Attorney Knepp stated no, I'm saying you offer it, and you said the one offer there's a solicitor that has looked at that and said that they don't need to bid.

Mr. Neidich stated don't need to bid.

Attorney Knepp inquired if they go that particular route, then you would take that language out of the contract that says the District is responsible for procurement because they're delegating that responsibility to you?

Mr. Neidich responded right, yep.

Attorney Knepp stated okay.

Mr. Nesbit inquired so, the SRECs, you're saying I think it was \$45.00?

Mr. Neidich responded it's about \$45 right now.

Mr. Nesbit stated okay, and you talk about it potentially going up to \$100.00. What's the likelihood that they're going to go down?

Mr. Neidich responded we don't think they'll go down. So, the market has floated around. It was. Honestly, in Pennsylvania seven or eight years ago, we were at \$325.00 per certificate. It was stupid high. \$0.30 per kilowatt hours' worth of electricity. A lot of people did solar projects just because they thought that value was going to stay there forever. Pennsylvania opened its borders to out-of-state generation. They went down to \$5.00 a certificate which is kind of the rock-bottom minimum because there's a. It's a long story, but PJM is the regional energy management group in the mid-Atlantic, and they've got a \$7.00 floor. So, Pennsylvania's market bottomed out to right around that floor, and it can't go any lower than that, but at this point in the game, unless Pennsylvania goes to some other incentive system, which I don't think they will, those SREC values, I think, are going to stay there because Pennsylvania at this point is trying to keep up with New Jersey and with Maryland and with Massachusetts and with California and with other states who have been pushing this stuff hard, and it really is an economic competitiveness issue while public opinion is pushing hard in the direction of we gotta start doing more renewals. Right? I mean that's what I'm seeing every night when I turn on news, and I try to stay out of the environmental conversation in these talks, but there's a lot of public push toward we gotta get off this treadmill, and that's going to help to reinforce those incentives. Now, you know, the bottom line is that for the kind of cash you're going to be generating here from the SRECs and from the savings in electricity, if you pay that system off in a couple of years, which you can, at that point SRECs might go up or down, and energy costs, conventional energy costs might go way up. They could double or triple over the

next ten years or so. You don't care because you've got your own generating system. It's already paid for in your backyard, and that's really your goal. Right? Is to have your own generating plant which really it is. It's your own power-generating plant sitting behind the barn back there.

Mr. Nesbit stated so, in the first column, Column A, you talk about the Solar Electricity Generated in kilowatt hours starting out at 4.1 million.

Mr. Neidich stated yep.

Mr. Nesbit stated and it tapers down every year.

Mr. Neidich stated yeah, there's about. We built in a half a percent degradation of the system every year. Our numbers actually show a quarter of a percent. We stay conservative there, and build a half a percent degeneration in every year. So, you know, that's a tough environment sitting out in the sun 12 months a year. It basically takes a half percent off the output of the panels or a quarter of a percent off the output of the panels, but the panels themselves we only purchase from Tier 1 suppliers. Those suppliers are in Malaysia and Turkey and China, but there's tariffs so now they ship them all to the United States through some other country to get away from the tariffs. It's the whole game, but we only buy from Tier 1 suppliers who offer a 30-year power production warranty on the panels. So, every panel that we install has a 30-year power production warranty on it so that if in 30 years you don't get 80% of the output that it was originally rated at, the manufacturer will replace the panel at their cost, and we've never had to exercise that because there's nothing that goes wrong with these panels.

Mr. Rubillo inquired you monitor each and every panel, too, don't you?

Mr. Neidich responded we monitor the string. We monitor each string that's connected to an inverter. So, we'll see output from the inverters not from each individual panel unless we'd use micro-inverters on each panel, but we don't. So, each string of panels, and it depends on the system design and specifications, but each string will run through an inverter, and we'll monitor those inverters to know what the output is, and we'll compare that every 15 minutes to what we think it should be producing right then, and if there's a problem, we'll see it right away.

Mr. Rubillo inquired what do you do?

Mr. Neidich responded we'll come up.

Mr. Rubillo inquired if there is a problem?

Mr. Neidich responded and figure out what's wrong. So, typically, it's damage to a piece of the system. We really had very, very few of those problems, but typically, there's some connector or some damage to part of the system that we repair.

Mr. Nesbit inquired free of charge for the time that you're there?

Mr. Neidich responded well, it's under the operations and maintenance contract, yeah, exactly, exactly. So, the way we get to the Solar Electricity Generated number, by the way, we take 105% of your electricity use from your electricity bills that you provided to us. Once we know how many kilowatt hours a year you use over a 12-month period that we take from your electricity bills, that tells us what size of a system we need to put up, and then we use a program called "HelioScope." So, when you look at the

bottom left of these two graphics of the arrays, it shows the “HelioScope” logo. In HelioScope we tell it what kind of output we’re looking for and basically sketch in into a Google earth looking picture where we want the array to be, and it will throw in automatically an array that looks like that based on what we told it the size needed to look like, and then it will give us everything else that we need to know from that point forward. So, it knows where you are. It knows what your historical weather patterns have looked like, what your degrees of days of sun look like per year and all those sorts of things, and it basically gives us everything we need to know about your system. So, it is a highly predicted application.

Mr. Pinci inquired is it predictable to say that each one of these rows is run by one inverter?

Mr. Neidich responded not necessarily. That’s all subject to specific design. In that smaller of the two arrays, there’s probably three or four rows that are on each inverter. It’s just the way it works out.

Mrs. Lauver stated originally you talked about nanotech. How close are we to? Because that’s where the solar cells.

Mr. Neidich responded my standard answer to people when they ask how long it’s going to take a nanotech based cell delivered is about six months to never, somewhere in between there. We don’t know. Right? I mean it’s a tough application problem. I’ve been working on it for ten years. Spent way too much money on it. We’re getting there. We’re basically looking to do a cell that would be about half this thickness (holding up a piece of paper). That’s about a 4,000 thickness of paper. I’m looking to do a poly and plastic material that I’ve used in electronics for 30 years, about half that thickness, one meter wide, and roll cells out on a continuous printed basis, and we’re getting close, but it’s not there yet, and we may never get there.

Mrs. Lauver inquired but the efficiency of it would be fantastic?

Mr. Neidich responded about the same as we’re using now.

Mrs. Lauver stated oh.

Mr. Neidich stated at a fraction of the cost, but it would take years and years to get it on the street even if we were successful in the lab. So, at this point in the game, it just makes sense to use what’s commercially available. It really does.

Mrs. Lauver inquired how much maintenance is there to them?

Mr. Neidich responded not a lot at all. You really don’t need to clean the system. I’ve got solar on one of my commercial buildings in Newtown, Harrisburg. I’ve got real estate development down there. I’ve got solar on the house. I never have cleaned a solar array in my life, and I’ve had it for ten years, my stuff. So, you do regular checks on things. It’s basically making sure connectors are tight, and all the stuff that you do with any system that we do.

Mrs. Lauver inquired you don’t have to power wash them, or?

Mr. Neidich responded you really don’t. You can if you want to.

Mrs. Lauver inquired what about snow covering them?



Mr. Neidich responded so we put them far enough off the ground that for most reasonable snows they're going to sit higher than the snowfall, and when the snow lands on the panels, they're black panels, and they tend to. Yeah, they're a little bit warm because they're black, and they're absorbing energy. So, the snow melts and slides off of them pretty quickly. If you get the three or four-foot snow, God forbid, every now and then, yeah, they're not going to be exposed for a day or two until it melts down off of there, and they're exposed again.

Mr. Rubillo inquired what's the impact rating on them for hail?

Mr. Neidich responded they'll withstand hail. They'll withstand golf balls. The only thing they won't withstand is the big rock thrown up from a commercial mower, and that's the six panels that we've had to replace over the last 12-13 years. Yeah, that big rock is a tough thing to design against.

Mr. Rubillo inquired so, big fat birds landing on them is okay?

Mr. Neidich responded you're good. Yep, yep, yep, yep.

Mrs. Lauver inquired what about mowing underneath them?

Mr. Neidich responded so, when we do an array, and you put it on the ground like we're going to do here, we'll grade the ground first before we put the array up, and then we'll seed it with a really slow-growing grass that you'll only have to maintain twice a year, maybe three times a year. You'll enclose that in a fence, and really your only cost in your system over the whole life of the system is going to be mowing the grass underneath of the array. Some school districts, some users of these things we put a wire fence around the array, have put lamas or sheep or other livestock in the fence.

Mr. Rubillo stated FFA.

Mr. Neidich stated to take care of the grass. So, I'm talking to Manor College down near Philly right now. They've got a veterinarian program. They really want to do an array, and they're going to hook the whole thing up and let the veterinary program do the sheep in the fence, and let the engineering students take care of the solar which is kind of cool.

Mrs. Lauver inquired so, you don't put the fence up? That's something we would do?

Mr. Neidich responded no, we include the fence cost in the package.

Mrs. Lauver inquired oh, you do? Okay.

Mr. Neidich responded yeah, we try to roll it all up and have everything included.

Mr. Musselman inquired now, you guys maintain like even the mowing and stuff the first five years or not?

Mr. Neidich responded no. You're just responsible for the lot. That's it.

Mr. Musselman stated okay. That's fine.

Mr. Rubillo inquired how high off the ground will they be?

Mr. Neidich inquired the panels themselves?

Mr. Rubillo responded yeah, where you can mow under.

Mr. Neidich stated well, yeah, you'd mow. They're high enough you can mow under is the bottom line, yes.

*Miscellaneous conversations were occurring at this time.*

Mr. Neidich stated you can't put a big commercial tractor under there.

*Miscellaneous conversations were occurring at this time.*

Mr. Neidich stated and the livestock option is not a joke. It's a real option.

Mr. Musselman stated you'd also have to take care of it during the winter time. You'd have to feed it and stuff like that.

Mr. Neidich stated you do. You do.

Mr. Musselman stated there's also that factor.

Mr. Neidich stated everything has a cost. So, going back to the sheet. So, your electricity savings, right? It's basically just your offset of cost of electricity times your avoided cost of electricity savings. Here's your SREC Income which is just the SREC value times the output is the credit or the SREC Income itself. So, here's all of the cash into your project. Everything over here then is cash out. So, you would sign up under the Agreement that we already provided for a Power Service Agreement. That's a 25-year Agreement that we want you to buy out after five years again. That payment is shown in the first five years here, but after all of your income minus your payment, you're still going to see Net Cash Flow just a little south of \$100,000.00 a year, and that's if all these assumptions. Right? With your electricity value and SREC value and all those sorts of things, after five years we encourage you to buy the system out from the investor group. So, here's the buy-out, and at the bottom of the sheet shows that in your case, the principal is \$3.3 million dollars. So, there's your buy-out number after five years. That was the question earlier. What's the buy-out? So, you'd be at \$3.3 million. The USDA will loan 100% of that number, and if there's some USDA issue, we've got other banks that will do that as well. They understand solar projects and will loan at 100% because they know that there's already equity in the project at that point. So, if you had to go out and do this yourself, you can't take advantage of the 30% federal tax credit. So, that wouldn't make sense, but even if you wanted to ignore the 30% federal tax credit and just go out and buy the array yourself up front, you'd have to come up with 20% of the deal. Right? The banks aren't going to loan you 100% up front. You have to come up with 20% of it. So, in this case, that's \$6-\$700,000.00.

Mr. Nesbit inquired what is the actual cost?

Mr. Neidich responded actual cost at \$1.40 a watt times 4.1. So, it would be \$4.2 million, somewhere around there. That's real rough.

Mr. Nesbit stated okay.

Mr. Neidich stated so, here's the contract service payment for five years. Now, we can show you numbers, too, for the full 25-year Agreement if you want us to do that. It

doesn't make financial sense than this does, but if you wouldn't want to buy out for whatever reason, we would just extend that lease for 25 years. We don't encourage you to do that. When you buy out, this is what we're showing at a 30-40 term, 4% rate. That's the USDA rate. Right now, if you were five years into this, and you were ready to buy your system out now, I could actually get you 3.5%, 34-year fixed money, which is really good money. We're showing this 4% because we're not sure where this is going to go in five years. It could be anywhere, but right now, I can get you 3.5% for 34-year fixed. So, the USDA wants to encourage schools to go solar, and that's why they have low interest loans. So, here's your Principal and Interest Payments. Here's your Total Cash Outflow. This includes contract service payments for the first five years and Principal and Interest plus Operations and Maintenance after you buy out. So, for the first five years I'm not showing an operations and maintenance number because that's all included in that contract service payment. After you buy the system out, you contract with either us or someone else to maintain the system, and we'll take care of.

Mrs. Lauver inquired would it be that high? Your contract service with you would always be like around \$300,000.00 to \$400,000.00?

Mr. Neidich responded for this specific deal, that is where the payments would be, and basically, what that does is makes sense out of all of the numbers. You know we've got to make sure we take care of investors who were honestly in at about 8% per year.

Mrs. Lauver inquired well, but beyond the five years? Once we bought it out, like for you to continue?

Mr. Neidich responded you're done. When you buy out.

Mrs. Lauver inquired if we were to then get you to come?

Mr. Neidich responded or someone. Now, us to come and maintain it and us to maintain the SRECs.

Mrs. Lauver stated oh, okay. I see over here. Where it says maintenance?

Mr. Neidich stated yep.

Mrs. Lauver inquired that would be you guys? I gotcha.

Mr. Neidich responded yes. The one exception, the one outstanding piece is what I've highlighted in yellow in Year 21, so if there's a 30-year power production warranty on the panels. I told you about that a little bit ago, we're going to put a 20-year warranty on the inverters. I told you those inverters are the only thing about the system that's going to go belly up at some point. It used to be you could only get a 10-year warranty on those things. About a year or so ago, the industry started to offer an extended warranty for 20 years instead of 10, and we've done the numbers on that, and it's worth doing the extended warranty. So, we've got that built into the proforma. So, we'll put a 20-year warranty on the inverters which means that sometime in Year 21 or 22 or 23 or 24, those guys are going to start going belly up on you, and you're going to have to replace them, and for a system your size at current numbers which are only going to get cheaper. What's that say? I can't even read it on the screen.

Mr. Nesbit responded 253,000.

Mr. Musselman responded 253,000.

Mr. Neidich stated okay. So, you'd have to come up with that, but when you look at your cash savings prior to those 20 years, it's in the noise level almost. Right? You just have to escrow some of that aside. We've done these two ways. We've done it with you responsible for it after 20 years. We've also built that into a sinking fund and upped our operations and maintenance charge, and then you don't have to pay for the inverters. We build it in in a sinking fund if you'd want to do it that way, and it doesn't matter to us. That's up to you. So, when you do all of that, this shows Total Cash Outflow then. Here's your Net Cash per year. Again, what's shown here at \$42.00 a certificate, and this shows \$11.6 million dollars' worth of savings, and what we've done in red on the right is we've basically done a calculation. Again, to show you the formula up top showing you what your net effective cost of solar is versus what you're paying right now. So, on a 40-year average, your net effective cost of solar generated electricity is \$0.026 a kilowatt hour which is cheap.

Mr. Rubillo inquired what do we spend a year in electric?

Mr. Musselman responded we're like \$300, I think. Around \$300,000.00.

Mrs. Simmons stated he (Mr. Neidich) should have it. Do you have our total electric?

Mr. Neidich responded well, your offsettable savings are \$236 so you're probably in the \$300 range.

Mrs. Simmons stated yeah.

Mr. Rubillo stated that's what I'm just wondering where that first \$367,000.00 is going to come from, and is that going for our first payment?

Mr. Neidich responded well, so, your net cash in Year 1 is net after you make the contract service payment. You know, it's basically all of your income minus the contract service payment still leaves you with \$93,000.00. So, you'll basically, out of your savings, pay that contract service payment and still be left at \$42.00 a certificate and your current electricity value, you'll still be left with \$93,000.00 to the good.

Mr. Pinci inquired but when would we be able to collect the full amount on that? Would that be? You were saying like every three or every five years or.

Mr. Neidich inquired on?

Mr. Pinci responded on the certificates.

Mr. Neidich stated the certificates we sell, I believe, it's quarterly. You'll see that income routinely.

Mr. Musselman inquired now you can build those up, right?

Mr. Neidich responded you can build those up.

Mr. Musselman stated if you want to play that market as far as I'm going to wait. I'm listening to what's happening and maybe we want to hold onto them. Hold onto them and then sell them, right?

Mr. Neidich responded I've got. I don't have it with me.

Mr. Musselman inquired we can hold onto them?

Mr. Neidich responded absolutely. I got about 50 KW of solar on a roof of a commercial building in Midtown. I'm putting another 55 KW up in two weeks. I'm doing it with the same company we're doing here. Another 55 KW up in two weeks. I spent for 50 KW ten years ago, I spent almost \$400,000.00 to put it on the roof. I'm going to put 55 KW up this year at less than \$100,000.00. It cost me almost \$400 ten years ago. That's how much the cost has come down. So, basically, I'm putting it up. There is no way I'm selling any of my certificates right now. Right? Stock market? Uh, I'm thinking about getting out because I'm not sure if it's going to crash. SREC futures, I'm not selling. If those things double on you, that's huge.

Mr. Nesbit inquired the inverter cost replacements, \$253,000.00, is that material and labor to replace them?

Mr. Neidich responded yes, that's the cost to replace them.

Mr. Nesbit stated okay. Parts and labor?

Mr. Neidich responded yes.

Mr. Musselman stated today's cost.

Mr. Neidich stated today's, and you know in 20 years. So, what I tried to do here is every column that needs an explanation has a color code on it, and the explanations are down the right-hand column. I tried to make that as stand-alone as possible.

Mrs. Lauver stated I have to quick ask just because I'm a real big figures person. I'm just glancing at it, but your savings, does that include if you were to figure your loan?

Mr. Neidich responded everything else.

Mrs. Lauver inquired so, that's your interest and everything? So, that's your bottom line?

Mr. Neidich stated and again, Rick's got the Excel version of this sheet if you want to play with different rate increases or a flat electric rate over five or ten years or whatever due to your cash, or what \$100.00 a certificate does, or what a 4 or 5% increase in electricity value does in ten years. You can play with any of those things, and really all you're playing with are SREC values and cost of electricity. Right? And the interest rate after five years when you're ready to take a loan out. Those are the three things.

Mr. Rubillo inquired when is this first payment due?

Mr. Neidich responded uh, it's in the contract, first payment.

Mr. Rubillo inquired after we've already saved and earned cash?

Mr. Neidich responded yes, yes. Yeah, we structured it specifically so that you're not writing a check into the project at any point. You're taking it out of savings not writing a check out of your account.

Mr. Rubillo stated okay.

Mr. Pinci inquired so, it won't be a monthly payment? Is that what you're saying?

Mr. Neidich responded it is. Well, it's a monthly payment while you're saving. I believe it is a monthly payment while you're saving on your electricity and generating SRECs that you may sell or hold.

Mr. Pinci stated okay.

Mr. Neidich inquired other questions?

Mr. Pinci inquired so, the only thing that we need to do is get that?

Mr. Musselman inquired the Agreement?

Mr. Pinci responded yes. You (Attorney Knepp) want the one thing taken out of it.

Attorney Knepp responded well, I'm going to give him my card here.

Mr. Neidich stated sure.

Attorney Knepp stated I'd like to see the other solicitor opinion where it says that its exempt so that they can delegate that responsibility to you, and we can strike that.

Mr. Neidich stated got it.

Attorney Knepp stated same thing with the lending. Because if it's not their responsibility, and they're not worrying about securing the lending, and nobody has to sign off on that, and you guys are taking the ball and running with it, then we can eliminate that language.

Mr. Neidich stated okay. Good. Real good.

Mr. Musselman inquired is there anything else in the Agreement that you guys are seeing as problematic or?

Attorney Knepp responded that was the only thing that I saw that I was like, and that's why I asked the question.

Mr. Neidich stated sure, sure. If you just want to just shoot me a quick e-mail and let me know specifically what you want to see pulled.

Attorney Knepp responded sure.

Mr. Neidich stated we'll just yank that out.

Attorney Knepp stated I can do that.

Mr. Neidich stated and show it to you once it's ready.

Attorney Knepp stated I have my e-mail on the back of that. You can send me the solicitor's.

Mr. Neidich stated you got it. You got it. Other questions? Timing wise, it really does make sense to do this stuff right now. Penn State just did a 500-acre array, 500 acres.

Mr. Musselman stated I saw that. It's only 25% of their electricity or something like that, right?

Mr. Neidich stated big. It's big. Yep. Bucknell did just one. Shippensburg's doing one, and schools are going in.

*Miscellaneous conversations were occurring at this time.*

Mr. Musselman inquired so, any other questions? I mean while Doug's here, I want you to ask the questions that you have.

Mr. Pinci stated I did have a question. On West Snyder with the small array, how are you seeing that going over to the school?

Mr. Neidich responded that was really close to the building itself. So, what you want to do with any array layout is you want to get to the meter in as short a distance as you can because you got to go underground by utility regulations because it's high voltage. You got to underground, and it's expensive per foot. So, you try to keep that as short as possible. We're located close enough here to the building. We're going to go right to the meter underground and done.

Mr. Musselman stated yeah, and I sent.

Mr. Pinci stated I thought the meter's in here, though.

Mr. Musselman stated right. Actually, it's somewhere up in here, yeah. So, this is all geothermal in here. So, I don't know if it's possible to put it in somehow, but I think Rob sent you images as far as that goes with where the field is and everything.

Mr. Neidich stated once you tell us that you're serious, and you approve the Agreement, then we start doing the hard engineering.

Mr. Musselman stated gotcha.

Mr. Neidich stated right, and we build contingencies in so that for reasonable costs overs, we're covered. Right?

Mr. Musselman stated we may actually get lucky. I don't know, and I'm just guessing here, but the stadium here I think the wire is underground. There's conduit there. So, I don't know how big that conduit is. If that's the case, it runs right over to here, and you could hook right up to it. I don't know the size of it or anything else. I'm just saying I know there is conduit there.

Mr. Neidich stated once you approve, we're going to get our engineering group up here, and I'll come along up with them. It would be great to get moving because at that point, I'm watching the clock and want to get going. Alright? Got to get on the horse.

Mrs. Lauver stated I know our church it took us a couple of months to get three-phased done. PPL, they're booked. So, hopefully, you can leverage them.

Mr. Neidich stated well, but again, we don't have to get it done. We just need 5% of the project.

Mrs. Lauver stated that's true. We just have to, but I mean as far as.

Mr. Musselman stated well, that's the thing, too, and that's why we wanted to do this. Instead of the last time, it took forever, and the thing is getting you guys together. Ask all your questions that you want. If you want to do this, quite honestly, the time is really getting short as far as making a decision.

Mrs. Lauver stated I like the savings. I think the savings is good. I mean I'm looking at the kilowatts. I know that's good.

Mr. Pinci stated but I think we're paying 7.5 now.

Mr. Neidich stated so, this is your offsettable down out of your 7.5. That's how that works. We can't take it all out, but we can take most of it out. If you'd like me to step out of the room for a couple of minutes if you want to talk, I can do that. Tell me.

Mr. Nesbit stated I don't have any need for that.

Mr. Rubillo stated I don't either.

Attorney Knepp inquired if they vote on the 28<sup>th</sup>, is that enough time for you guys?

Mr. Neidich inquired the 28<sup>th</sup> of October?

Attorney Knepp responded yeah, that's their next voting meeting.

Mr. Musselman stated well, that's as soon as we could vote.

Mr. Neidich stated I think that works. I think that works.

Mr. Rubillo stated you'll make it work.

Mr. Neidich stated I'll get you the answer to your one question prior to that. I think we can make it work. If there's a problem with that, I'll let you know right away if there's any need for you to do like a special meeting or something.

Mr. Musselman inquired are you guys okay if Orris gets this worked out with the Agreement, are you guys okay with putting this on for a voting meeting after our work session?

Mr. Nesbit responded yes.

Mrs. Lauver responded yes.

Mr. Rubillo stated I am.

Mrs. Lauver inquired do you think it needs to be advertised as a voting meeting next Monday?

Mr. Musselman responded no, no, we'll do it at our regular meeting. We're not going to change that, but you can have more discussions if you want to at our next meeting. We'll try to get it put on the agenda, and we will go ahead and try to have it on the agenda, and you guys can then actually move forward and kind of pull the trigger on this thing if you want to.

Mr. Pinci inquired pull the trigger? What do you mean by that?



Mr. Musselman responded approve it, the Agreement, so we can go ahead and sign it, and then to have them move forward.

*Laughter occurred at this time.*

Mr. Musselman stated we're not shooting Doug here.

Mrs. Lauver stated that gives Orris time to work out any, some of the questions.

Mr. Musselman stated well, he already had the contract. He's already.

Attorney Knepp stated yeah, Rick gave it to us a couple of weeks ago.

Mrs. Lauver stated oh, okay.

Mr. Musselman stated so that he could look at it, and so, they had this one question, but if they work out those details, and we get that back, and you guys then can vote on it. If Orris would say that everything's good to go with the contract, you could vote on it, and then these guys could get together working on those permits and everything else, get that purchase order in for our panels. We make the end-of-the-year deadline, and then I don't know how soon they could start moving dirt out there or whatever, but the sooner we get them in, the sooner you start saving money, the sooner we start, you know, making those credits. So, I think it's good. It's not an opportunity we often have a school where we could actually produce revenue, and I've said before is that, you know, you can bring in more tax dollars, or you can reduce your spending. This is a reduction in spending. It has no negative consequences with kids. That's a win for us. That's a huge win.

*Mr. Abate left at approximately 8:07 p.m.*

Mrs. Lauver stated I like the curriculum thing, yes.

Mr. Neidich stated I'm going to do that free of charge. There's nothing built in there that's an extra cost for curriculum. That just comes out of pocket.

Mr. Pinci inquired does that have a built-in monitoring system that you put right on?

Mr. Neidich responded yes, it includes a monitoring system.

Mr. Musselman stated we'll be able to see the same thing they're seeing pretty much, but like I said, they're going to be watching it more than we are.

Mr. Pinci inquired the students will be able to have access to it?

Mr. Neidich responded sure, and then the Solar Schools curriculum that this National Energy Education Development Project down in Virginia, they have general energy educational curriculum, but they've got a solar schools program so if you've done your own solar array, they've got a curriculum specifically for you, and they will use the data of your array, your array, in the educational curriculum.

Mr. Musselman stated nice.

Mr. Neidich stated really cool, and solar installers is the fastest growing job in the country. You got your kids on a path into one of the fastest, well, the fastest growing job in the country.

Mr. Musselman stated great.

Mr. Rubillo inquired so, there's no zero up. Sorry.

Mr. Nesbit stated no, you're fine. Go.

Mr. Rubillo inquired zero up front cost to us?

Mr. Neidich responded correct.

Mr. Rubillo inquired and then there's no payment until the system? The system makes its own payments?

Mr. Neidich responded yes.

Mr. Rubillo stated I just. I repeated myself.

Mr. Neidich stated I want you to repeat that.

Mr. Rubillo stated in a different way, but, yeah.

Mr. Musselman stated see now, like what Tommy's saying, we put this in, and I don't know how long like, it could be in in the winter time which we're not going to be generating as much electricity. So, the offset's not going to be that great, right?

Mr. Pinci stated the sun is going to be out.

Mr. Rubillo stated yeah, you'll still generate.

Mr. Musselman stated well, your days are not as long.

Mr. Rubillo stated the days are shorter, right.

Mr. Musselman stated your days are not as long so you are generating less electricity in the winter than you do in the summer.

Mr. Pinci stated okay.

Mr. Musselman inquired I mean, right?

Mr. Pinci stated well, I still do just about half of mine.

Mr. Nesbit inquired how long does it take to put up? How long does it take to put it up?

Mr. Neidich responded approvals take longer than actually putting it up. It takes a couple months for approvals and a couple months to put it up. So, six months' total including approvals.

Mr. Musselman stated oh, okay.

Mr. Nesbit stated so, we're in the spring.

Mr. Musselman stated well, that wouldn't be a problem then at all.

Mr. Nesbit stated so, the array at this school here is the larger array.

Mr. Neidich stated yes.

Mr. Nesbit inquired is that the maximum for the field that you can put in there?

Mr. Neidich responded between the two of them, it's the max that we can do to avoid having you sell excess at wholesale.

Mr. Nesbit inquired I guess what I'm getting at is, do we need both, or can we put them all?

Mr. Musselman responded you have to have both because. Go ahead.

Mr. Neidich stated continue.

Mr. Musselman stated because West Snyder is too far away.

Mr. Neidich stated yes.

Mr. Musselman stated you can't use. We can't produce enough electricity to pay for West Snyder's because of the distance. It has to be within a certain distance. You can't do. We looked at that to make this a megafield to cover that one, and they said no, I can't because of regulations.

Mr. Nesbit stated okay.

Mr. Neidich stated it would be honestly slightly less expensive to put it all here (Middleburg), but you're too far away. So, we put up an array specifically for that school at that school.

Mr. Nesbit stated okay, but the new football stadium, is that going to have any real impact on our electric?

Mr. Neidich responded this will have expandability so that you can increase the size of this system when you're ready for the stadium.

Mr. Nesbit stated the stadium will be up in a year. Can we just not plug it in?

Mr. Neidich stated so, we'll come back up and put up an additional.

*Laughter occurred at this time.*

Mr. Nesbit stated just not plug them in until we're ready.

Mr. Neidich stated exactly.

Mrs. Lauver stated that's what I was thinking. Put them there just don't.

Mr. Musselman stated well, here's the other thought I had about that because I said that to him as well, the only thing is we're transferring where, for example, football. For example, we're using stadium lights out at West Snyder. We're having those locker rooms and everything else out at West Snyder which is running off geothermal and all that other stuff. We're going to be moving it into here. So, basically, we already are using some of that electricity, we're just moving it into here to this campus, but we're also going to trade out the old lights for LEDs which is going to be a big savings for some of that as well, so, and we want to look at it when we do this field. Initially, I told Jay I said I want this to be an energy neutral, and he just laughed at me. I said, no, I want it to be an energy neutral. So, he didn't know I was thinking about a solar farm either, but I don't want it to have a lot of a huge impact on us as a District as far as energy wise so we want to try to fit that in when we do bringing in energy efficient systems.

Mrs. Lauver stated well, taking that into account then, would West Snyder's need to be smaller that you don't over produce?

Mr. Neidich responded if you're going to add a new stadium and do some other things.

Mrs. Lauver stated down here (Middleburg) but not up there (West Snyder).

Mr. Musselman stated it's just going to be the lights and going to be some of the after-school activities will be, you know, reduced out there at West Snyder, so.

Mr. Rubillo stated just leave the lights on.

*Laughter occurred at this time.*

Mr. Musselman stated oh, now you sound like my wife.

*Laughter occurred at this time.*

Mrs. Lauver stated you said you don't want to over produce. You're saying you don't want to over produce, so you may need to take that into consideration.

Mr. Neidich stated yeah, but it's the way the utility regulations are in place. If you put up a system that's 110% or less of your current use, and you do an electricity or an energy upgrade, and you reduce your energy, you'll still get full retail for what you put in at this time if it wasn't more than 110% of your use. Does that make sense? So, you put up what you proved to the utility over the last 12 months you were using, you offset that much or 110% of that much, you'll get full retail value, and if you reduce your energy costs over the next year or two or three or four or five, but you were at the energy use when you put the array up, you still get the full value. They don't hurt you for. They don't penalize you.

*Miscellaneous conversations were occurring at this time.*

Mr. Pinci stated all the numbers are put together, though. That's the. I mean it's not like.

Mr. Neidich stated you'll still get the value, though, for that production.

Mr. Pinci stated yeah, but it's not like saying we're looking at West Snyder. Now, we're looking at Middleburg. We're looking at the two together.

Mr. Neidich stated yes, exactly.

Mr. Nesbit stated okay. So, if consumption goes down there, but it goes up here, it's a wash.

Mr. Neidich stated again, we're going to offset 105% of both buildings, respectively. So if consumption goes down at either one, you're still going to be dialed in to get full retail value for what we're putting up. So, even if you can't use the. So, if you did a horrendous, not horrendous, a stupendous energy efficiency project in both buildings and somehow magically your energy use went down 40%, you'd still get full retail value for what you were producing because that's what you were using when you put the array up. There's no penalty built in for efficiency in the future because who knows that some whiz bang HVAC system's not going to come out, and you'd be penalized then for doing it now.

Mr. Nesbit inquired but does that? Is there a clause in there that says that for the first year it has to maintain?

Mr. Neidich responded no, no. I'll double check that, but no, not that I'm aware of. Yep, not that I'm aware of. If you show that over the previous 12 months your use is this.

Mr. Nesbit stated gotcha. You're good. So, we're fine.

Mr. Neidich stated yep, yep. That's why PPL in particular won't let you put a new meter in. If you didn't have a meter at that location, they wouldn't let you put one up because then they get into well, you have to prove to me you're using the electricity over a 12-month period. Other questions? These are great questions. You know, normally, to be able to save this kind of money, you got to spend all kinds of money on lighting upgrades or whatever. What I like about. What I love about this is is it really is a great plan, and it makes financial sense. You don't have to put any money on the street. You just save money.

Mr. Nesbit stated he's planning, and I'm financial.

*Laughter occurred at this time.*

Mr. Nesbit stated and he, he's Washington.

*Laughter occurred at this time.*

Mr. Rubillo stated leave the lights on.

Mr. Musselman stated like my wife. I put in brand new LED bulbs on our outside lights, and she said, "Oh, so, now we can leave them on longer." I go, "No, that was not the point."

*Laughter occurred at this time.*

Mr. Musselman stated I said seriously. She was like, oh, we can leave them on longer. No.

Mr. Nesbit stated you know that's going to be in the notes.

Mr. Musselman stated but I said I love you anyway.

*Laughter occurred at this time.*

Mr. Neidich stated honest, my son sells residential solar in Las Vegas, and he does for a living, and his biggest problem is he'll put solar up for a customer on a residential situation. Six months later, they're calling and bitching about the fact that they're not saving the kind of electricity that he told them they would, and it turns out, they crank the air-conditioning, and they turn the heat up in the winter time, and they leave the lights on the time. They figured everything is free. Well, no.

*Laughter occurred at this time.*

Mrs. Lauver stated I do know Heimbach's out here had put in some kind of solar system, and they do not have the savings that they anticipated they would have in the winter, and it had something. I don't know. I don't know too much about the system. I just know that they were very disappointed in what they should have had.

Mr. Neidich stated with energy systems in general, efficiency systems, there's a lot of whiz bang out there, and you got to be careful. I'll let you talk to as many customers of ours as you want to. We've never had any go south. We know what the system is going to produce, and all you have to do is factor in what your energy costs are going to be, what the escalation is, what your SREC value is going to be, what that loan rate is going to be, play with different scenarios, and all it does is takes you a little bit lower in savings if some of the worst case happens.

Mrs. Lauver inquired like if we had a really cloudy winter or whatever?

Mr. Neidich stated I've got bunches of historical data, weather data, for this location built into HelioScope.

Mr. Musselman stated volcano with ash.

*Laughter occurred at this time.*

Mr. Rubillo stated a spaceship casts its shadow. Turn the lights on. It scares them off.

*Miscellaneous conversations were occurring at this time.*

Mr. Neidich stated technology, actually, the first solar panel was sold in 1954 at \$1,000.00 a watt. So, solar is older than I am.

Mrs. Lauver stated but the technology has improved.

Mr. Neidich stated oh, it's improved dramatically. Cost has come down to \$1,000.00 a watt to \$0.43. There's new technology that may or may not be out there, but it's gotten to the point now where it's there. And, yeah, some people. Well, I don't want to get into it. People bitch about the fact that there's incentives for solar, but there's so many incentives for fossil fuels it's ridiculous. Right?

Mr. Pinci stated there is one question I have.

Mr. Neidich stated sure.

Mr. Pinci inquired how much subsidy is there for solar?

Mr. Neidich responded well, for solar it's a 30% federal tax credit, and it's the state SREC program which is basically a subsidy, if you will. Right? When they're charging for those credits, right? Making the utility buy credits. Those are the two subsidies you're dealing with. The only other thing that we built in that doesn't show is accelerated depreciation. The 2017 tax proformax depreciates construction projects 85% in Year 1. So, we've got that built into performance. So, those investors are actually going to be able to depreciate 85% of the system Year 1 even though they're able to claim 30% Year 1 as a federal tax credit. So, there's a 15% overlap built in there. That's all. Those are all the reasons why we're able to do the kind of numbers that we are, and get you down to two and a half cents a kilowatt hours' worth of electricity.

Mrs. Lauver stated I thought you educated us very well.

Mr. Pinci inquired are there any additional questions?

Mr. Rubillo responded yes. No questions for this. I'm done.

Mr. Pinci inquired would you like to make a motion?

Mr. Rubillo responded no, I have some pamphlets that I want to hand to each of you just to, not to be reviewed today, for next meeting is for that system for the Board room recording that I'd like you just to look at. Allyson has looked at it, looked at what you're looking at, and just take some time. I don't want to go over it this meeting, but at least you can review it and see what we're looking at.

Mr. Musselman inquired did she talk to you about that head?

Mr. Rubillo responded yep, and that can be pulled out of there because she's the one that's got to use it.

Mr. Musselman stated right.

Mr. Rubillo stated so, whatever is going to work best for her.

Mr. Pinci inquired any other business? May I have a motion to close the meeting?

Mrs. Lauver responded I make a motion that this meeting is adjourned.

Mr. Pinci inquired somebody second?

Mr. Rubillo responded I will two it.

Mr. Musselman stated I don't think you have to vote because it's not a voting meeting, but still it's good to do, but.

Mr. Neidich stated I appreciate everybody's time.

Mr. Musselman stated it was very helpful to come and talk. So, thank you.

Mr. Neidich stated if anyone has individual questions, you got my card. Please feel free.

V. **CLOSING CEREMONIES**

VI. **ADJOURNMENT**

Mr. Donald D. Pinci

There being no further business, Mr. Pinci adjourned the work session at 8:29 p.m.

Recording Secretary:

Chairperson:

Date:

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\_\_\_\_\_

\_\_\_\_\_