WORKGROUP FOR INNOVATIVE SOLAR ENERGY RESOURCES (WISER) MINUTES
March 3, 2021

Present
Kimberly Newton, Bill Young, Bill DeBusk, Jr., Nick Sanzone, John Constantinide, Bruce Lindsay, Dr. Jim Fenton (UCF's FSEC), Lisa Ruckman (Public Participant), Colleen Kettles and Amanda Elmore (Planning & Development)

Call to Order
Called to order 5:02 p.m. via Zoom by Nick Sanzone, Chair

Determination of Quorum
Quorum was determined

Approval of February 3, 2021 Minutes
Motion by Bill DeBusk, seconded by Bruce Lindsay to approve the February 3, 2021 minutes. The motion passed unanimously.

Old Business
Amanda Elmore was to invite Dr. Fenton to the next meeting. Since he is present, she invited him under the Sunshine Law, to the April 7th meeting and will send him the WISER group draft for review. She will reach out to FP&L to see if they are interested in coming to speak. Dr. Jim Fenton agreed and asked if he should speak about roof top solar, jobs, electric vehicles, energy efficiency or pulling it all together. Nick Sanzone said it's a combination of those with a focus on energy efficiency. They are looking for comments and direction on the draft; specifically, where to house the Energy Manager position, anything missing from the plan and implementation techniques. Bruce Lindsay said they need help on their priorities. They are looking at procurement, FP&L solar, solar on building tops for resiliency and EVs. He asked for direction on what is feasible, quickest to implement and has the longest benefits. Jim Fenton said he will send Amanda a link to a presentation he gave to FSU's School of Law on rooftop solar.

The WISER group began to review the draft document. Nick Sanzone shared his screen of the Overview and Summary. Bruce Lindsay said the facility chart data is from a 2011 Energy Performance Contractor. It includes square footage, kWh and kW. The key takeaway is standard energy utilization index and kilowatt hours per square foot. The medical examiner is the energy hog due to its need for refrigeration in the morgue. Brevard Schools run about a dollar a square foot; where its higher he assumes longer hours of operation. The kW is not making sense, it looks like the kW for every month added up, rather than using the highest kW for the year. The load factor is kWh / kW x 8760 hours a year; it should be about 25%. These calculations should be done monthly. The next step is to upload this data to Energy Star or ASHRAE Building EQ to get a number for ranking against similar buildings. It is labor intensive as FP&L will not upload their billing data to Energy Star; Orlando Utilities Commission does. Orlando's BEWES program requires every commercial building over 50,000 square feet to publicize their energy star rating. That can't be done with their current data. Nick Sanzone said they could suggest to have the Energy Manager or County Commissioners request a relationship with FP&L that would facilitate that data. Dr. Jim Fenton said, because of that difficulty, FSEC installed their own meter and gets better than minute data. FP&L websites give 15-minute data for three months, which has to be put in, making it very difficult. Its in their best interest to buy electricity rather than use their numbers to be more efficient. It's not difficult to install your own meter. Bruce Lindsay said the district could not justify the expense including maintaining and calibrating. Dr. Jim Fenton said, with solar, a meter could be requested as part of the installation.

John Constantinide asked Bruce Lindsay if he was referring to revenue grade meters or smart meters. Bruce Lindsay replied that to battle with Utilities it has to be revenue; for tracking your own

without the need for calibration or correction, smart meters work fine. John Constantinide said smart meters calibrate themselves and address their own multipliers, eliminating technical issues and the need for an expert reader. There are many easy maintenance smart meters that can be hooked into an advanced meter reading system, so data can be uploaded electronically. Data could be pulled from the FP&L website, but accessibility cannot be guaranteed. Bruce Lindsay said requests to add anything requiring additional maintenance, will be met with resistance due to cost and man power. Bill DeBusk asked about meters that are already on these buildings. John Constantinide said they could be on the buildings or campuses dependent on where FP&L wants to drop off the power. Kimberly Newton said that add-ons may make the proposal difficult to pass; it should be kept streamline initially and grow from there. Bruce Lindsay said that revenue grade meters have to be coordinated to the exact second with the FP&L meter for consistency which requires a professional. FP&L can do a rate analysis on a system to determine what special rate structure it should be on. When done for the school system, there was a savings of 5 to 10% for each structure.

Nick Sanzone screen shared the Cost Benefit Analysis of Photovoltaic Solar Panel Installation. John Constantinide said it gives a look at what is needed and what it will cost for energy conservation measures and solar installations. He provided a calculations chart that gives details about where the information was pulled. Nick Sanzone said this information should go in the document as justification for much of what they are proposing and will be useful when talking to FP&L about their solar program. Bill DeBusk said it could be included in the introduction and reference these documents in the ETP. Nick Sanzone said they can be in the appendix. Amanda Elmore said it should be kept as a separate appendix.

Dr. Jim Fenton asked John Constantinide about the average electricity rate used. He said, with the monthly bills for a year for their buildings and the total amount of energy divided by what is paid, they could calculate what the bill is. For electricity, efficiency will save every time. For solar, it depends on the demand charges. He would encourage looking at how far off of 10 cents the typical building is. On the FP&L website, each meter can be looked at, for monthly data. Some buildings will be paying a much higher rate than others, highlighting what building might want to be attacked first. John Constantinide said the County has over 900 accounts with FP&L. It's not just the rates for one type of building, its different rates, agreements and locations complicating it. He spoke to the County about a blended rate, which was not as possible as getting a fuel cost rate and associated rates that may or may not have a franchise tax based on agreements. Dr. Jim Fenton said they could request that whoever pays the bill, tabulate and submit that data. Amanda Elmore said not just one person pays the bill, each department gets bills for their structures. They have been trying to do this for the Greenhouse Gas Inventory for the Climate Cohort, for 2019, and it has been very difficult.

Kimberly Newton asked if the installation cost was based on a project this large; hired by the County under the Energy Management Department. John Constantinide replied yes, he took various Federal government costs and looked at labor, materials, company overhead profit support, construction mobilization/demobilization, land prep and studies. It may be different for the County, having different levels of access and infrastructure. Kimberly Newton said the Energy Manager position would corollate with a project manager to be able to coordinate these aspects. John Constantinide said the Energy Manger would be a project manager or assist construction, providing information backing, paperwork and insight into grant funding. The County would already have construction project managers. The Energy Manager would work with the various project managers providing support with

cost, payback, grants and negotiations with facilities. The Energy Manager would be versatile in working with other positions but specific with that task.

Nick Sanzone suggested recommending that roof infrastructure and roof life be a determining factor in prioritizing solar installation. The Energy Manger would look at all buildings, but they are using this list because the data provided from the previous study gave a window into possible costs. Bruce Lindsay said he sees solar as more beneficial on parking structures and shading for shopping areas and is a big proponent of floating solar as there are no structural maintenance issues. Kimberly Newton said she agrees with floating solar and has researched the destruction of solar panels and the cost to replace them when they are rooftop. Solar is moving off of rooftops and is not ideal for coastal communities. Nick Sanzone said they would not be the first, Orlando has a lot of floating solar and Satellite Beach is looking into it.

Nick Sanzone screen shared the Executive Summary. Bill DeBusk said he added a paragraph regarding how burning fossil fuels effects the Indian River Lagoon, FP&L's Solar Together program, electric powered vehicles and the evolution to clean transportation. He said power needs cannot be solved only with solar on rooftops, there will be solar farms. Amanda Elmore said the Solar Together program was approved by the Board and may already be implemented. Bruce Lindsay said that the program had been oversubscribed and doesn't think we are signed up for it. They should reach out to other counties to get in front of the public service commissions to say they want to participate in the program but they need a commercial rate. Bill DeBusk said there is a premium for the first four years, money is made on the investment after. Dr. Jim Fenton said the issues with solar are the need for an electric bill, tie in behind a meter and to own the real-estate. Whoever owns it makes the profit; it can also be leased. He said 45% of California's solar is on roof tops, the utilities have 55%. They are at 20% total capacity. Florida is at 3 or 4%. He said a program with FP&L should not be a first step.

John Constantinide agreed that real estate, an electric bill and behind the meter is needed. The County has a lot of real estate and resources. The volume of solar supplies obtained is cheaper per unit than would be for an individual home owner; a home owner would benefit from signing up. Because of the volume of electric consumption, potential for offsetting consumption and the savings, it would be more beneficial to pursue the County's own route. Energy as a service is to offer up the property, but contract out the energy production for energy needs to a company who builds the solar, electrical infrastructures and tie ins, providing that service at a rate that includes the cost of all the installation that can be spread out. The energy as a service then becomes a contract that could be written to include that the infrastructure belongs to the County at the end. This could be a public/private approach that other large campuses have taken. Dr. Jim Fenton said he compares it to buying vs. leasing a car. There are not up-front costs and there won't be as much profit, but someone is hired to take the responsibility. He suggests letting the Energy Manger figure much of this out. A good Energy Manager will make his salary in savings. Altamonte Springs has created their own municipal utility; they have floating solar and worked out a deal with Duke. On March 31st, the representative from Altamonte Springs will speak on it; he will send the link.

Bill DeBusk continued through the document highlighting areas of rewording, his additions regarding infrastructure for electric vehicles, resiliency, and electric rate escalation rate. He said he will be consolidating the comments made by the group. The final Cost Benefit Analysis will need to be included as part of the introduction and in goal one. John Constantinide explained how the electric rate escalation rate is similar to the one used for his estimate which is partly based off of what the

Federal Government put in. He said the real rather than the nominal should be looked at. Bill DeBusk said a major update added a model for electric vehicles costs. Nick Sanzone said they may want to add language regarding the emerging market of electric vehicle variety, not just the infrastructure. Bill DeBusk said he added a cost benefit analysis for ECMs, in order to have one for each of their avenues to transition to clean energy. John Constantinide explained that the Energy Reduction Implementation plan is a roll out of the ECMs, explaining what and how. The cost benefit analysis he provided is the ECMs, the cost. The Energy Manager can take that information to the next level.

Amanda Elmore said that she long documents and presentations may not be best and suggested that content that isn't critical be attached as appendices and keeping a presentation to 10 slides or less. Bill DeBusk thought the Energy Manager could use it as a reference document.

Kimberly Newton said her changes did not need review, they were edits to remove information specific to the sponsors of the co-op. Nick Sanzone said he may go through it and add more.

Nick Sanzone screen shared an email from Bruce Lindsay regarding inconsistencies in utility bills. Bruce Lindsay said his spreadsheet showed a kW of 75,000, which seems high. He said FP&L should talk to them about Solar Together, LED streetlights which have a lower wind profile and their program on bio-diesel fuels. He explained that Waste Management has CNG facilities for their garbage trucks; it could be a partnership if the County wanted to convert vehicles to CNG, rather than having to invest in a compression plant. The City of Orlando has converted all of their garbage trucks and buses to CNG. Colleen Kettles said the last time she checked, Waste Management was not willing to share their facilities with other fleets, however Florida City Gas is Rockledge was recently acquired by FP&L. They have a CNG station there that is not open to the public, they may be open to sharing. Bruce Lindsay said that FP&L would be a challenging partner, but they do have resources and programs that should be looked at. CNG has been around for along time, has been proven and can use an existing gasoline tank with the addition of a CNG switch. CNG is the bridge fuel to get to clean energy. Bill DeBusk said this information could be included in the transportation section. He wants to promote maintaining the WISER board to have an opportunity to investigate different avenues of clean energy in the future. Kimberly Newton said she agrees with LED lights but recently learned that they are efficient only up to a 70% life span. They then deteriorate, the quality of light is diminished and they can be a safety issue; this was on a home use level. Bruce Lindsay said he was not aware of that, he will look into it. Kimberly Newton will send Amanda a link to the information.

Nick Sanzone screen shared an email from Bruce Lindsay regarding FP&L's Solar Together. Bruce Lindsay said it's the easiest way to become carbon free and renewable. Problems include solar not being viable at night. He does not think batteries are viable for commercial buildings. Bill DeBusk said a solar analysis using the tools developed by the Department of Energy, figures out the best mix of clean energies. Wind, solar and batteries can be considered. The analysis using the Viera Government Center reported that batteries are needed. Battery technology is changing rapidly. For some buildings and rate structures, they will save money.

Bill Young said in 2012 they put solar on schools for the shelter and explained distributive energy, from multiple sources. The Solar on Schools program looks at the utility, battery and solar, time of day, usage, power outages and the computer solar system' resources, demands and loads. It goes through an algorithm and distributes the energy to where it is needed. The shelter's mission is to keep the critical loads of life support operating. To do that, it has three sources of distributive energy that it

supplies to those loads. With the Space Center and General Electric, he worked in Fault Tolerant Architecture, which is not a familiar concept today. He said this plan would sell better reduced to 20 pages with a big appendix. He was not sure how to add to the document because there are a lot of details in some areas and not in others. He explained that solar can be added to a roof in many ways that do not require putting holes in it. Younger people may not be aware of the method. Nick Sanzone said the solar on his City Hall was put on with a ballast system. Regarding the Fault Tolerant Architecture of the battery, Bill Young said, the utilities are putting in one, two or three MW of batteries at the end of their farms to handle night time operation. There are a lot of grid tied, utility powered battery systems, added for distributive generation. The control system looks at it's source and load and decides where its going to pull from and push to. The school system they did has a 10-kW system with a brain that is programmed to keep the load hot. He said that solar can be attached with clamps to a standing seem metal roof without putting holes in the roof. He noted that 30% of county buildings are metal with a standing seem that would support metal brackets. He said that concepts should be included in their 20-page document and details such as the presentation that shows different ways of mounting solar, in the appendix.

Colleen Kettles said she agrees with 20 pages and a big appendix. She said regarding electric vehicles, batteries can be used by directional charging and feed the grid. The City of Orlando is doing that with Rivian trucks and possibly school buses, but electric vehicles must be in the fleet to do that. She said FP&L's Solar Together program is not a true community solar program. They got it through the commission by adding a low-income component, otherwise groups that typically challenge their programs would not approve. She would not consider that program, but recommends discussing a true community solar program with FP&L.

Nick Sanzone asked Bill DeBusk to reorganize a clean version of the document to send to Amanda. He suggested that an agenda item for next meeting be to discuss what goes in the first 20 pages and what is in the appendix. Lisa Ruckman suggested finding out who on the WISER Board has the time and skills to condense the document to 20 pages. John Constantinide said they should use the framework that was given to them of what WISER is supposed to do, with everything else going into the appendix. Amanda Elmore said they need to answer the questions the Board asked very clearly, putting the rest in references or an appendix. In a Board meeting of 50 items, their 10 or 20 minutes needs to count. Bruce Lindsay said an executive summary should have 10 items and emphasize needing an Energy Manager. Bill DeBusk said he put the Energy Manager recommendation in the barrier section. Nick Sanzone said that battery topic would be in the appendix.

New Business

Nick Sanzone said they will have presentations from FSCEC's Dr. Fenton, Bill Young's condensed version review, and a presentation from FP&L. John Constantinide suggested 15-minute presentations from each followed by 10 minutes for questions. Bill DeBusk said that how they're going to approach Solar Together needs to be resolved. Nick Sanzone said having both there will prompt a discussion about community solar and commercial rates. John Constantinide said this may promote healthy competition. There are a lot of items that could be discussed with FP&L including rates, Solar Together, tariffs, commercial rates and metering. They may need a few meetings with FP&L depending on what portion is discussed. If they are going to talk about Solar Together, FSEC & FP&L could each provide their vision which would provide options for discussion.

Bill Young said both FP&L and FSEC do a lot of things. Jim could talk for eight hours and maybe touch everything they do. He said FSEC is dedicated to renewables and employs 100 people with different ideas and options. FP&L will have few options. FP&L could have their time to explain billing and Solar Together. They could ask FSEC how they can do renewables and if FP&L fits. FP&L is in business; FSEC is a non-profit research center that has 2,000 energy related publications on their website. He said an Energy Manager will likely follow their own path with a particular science if not required to adhere to another. John Constantinide agreed that FSEC has a lot of different options; but they need to challenge them to offer the few that work for County Government. Government and Residents need to be treated differently. For residents, they need to find a community model that benefits the residents and that FP&L will buy into. For County Government, what the Board is looking for, FSEC needs to find the best solution considering several buildings, 900 plus FP&L accounts, different rate structures for a lot of square footage. A community model provided by FSEC could be included in the appendix.

Lisa Ruckman said an article in Florida Today from 2018 described an agreement made between twelve municipalities in the state of Florida and NextEra, which is the parent company of FP&L. The agreement was made to build solar farms, a separate agreement outside of FP&L. If FP&L is coming to speak, the question is, would they only be speaking about themselves or would someone from NextEra, who made these agreements, be coming. By consensus, the WISER Board agreed to ask a representative from FP&L and FSEC to speak for 20 minutes, followed by 10 minutes of questions at the next meeting, with FP&L speaking first. Amanda Elmore will ask FP&L to present on the Solar Together program, and the ability for NextEra energy to be involved with FP&L and the County to create a community solar program with better rates.

Motion by John Constantinide, seconded by Bill DeBusk to invite a representative from FP&L and Dr. Jim Fenton from FSEC to speak at the WISER Board meeting on April 7, 2021.The motion passed unanimously.

Bruce Lindsay said they should talk about solar demonstration at key public facilities, a review of our electric utility rates to determine which would be better to change to, Solar Together, the biodiesel program and any other program that FP&L can offer for energy efficiency and resiliency. Nick Sanzone said that the presenters can have more time if needed. John Constantide said talks about natural gas, biodiesel programs, metering and rates should be at another meeting. Bill Young said that FSEC’s competition is Natural Gas; FP&L will not want to share natural gas.

General Public Comment
No public comment

Final Comments
Nick Sanzone thanked all for their contributions and is looking forward to condensing the document to 20 pages.

Adjournment
Motion by John Constantinide, seconded by Bill DeBusk to adjourn the meeting at 7:20 p.m. The motion passed unanimously.