

## GRU Solar PPA Questions and Responses from UAB Meeting on May 13, 2020

### UAB Member Fletcher Crowe

**Question:** What is the cost per-MW of the proposed Photovoltaic (PV) Solar Facility compared with other power supply options? The version of the proposed contract given UAB members had financial information redacted, but can GRU management provide information on the cost per-MWh of the proposed unit compared with other alternative fuel sources such as oil and natural gas?

**Answer:** GRU's price for the energy from the solar facility is less than GRU's average price to produce power. GRU's energy blend comes chiefly from natural gas, biomass, and coal, which in calendar year 2019 cost an average of about \$37 per MWh to produce. Under the Sunshine Law, Origis has restricted disclosure of the exact cost per MWh, but they have allowed us to disclose that it is less than \$34.

**Question:** The GRU 2020 Ten-Year Site Plan (TYSP) states that the Deerhaven FS01 80 MW plant is scheduled for retirement in December 2022. Is the 50 MW PV facility designed to replace this unit? If so, what other additions are planned to make up for the lost 80 MW?

**Answer:** Deerhaven 1 (FS01) is scheduled to retire in December 2022. After this unit retires, GRU will still have adequate generation resources to serve all its customers reliably. The energy from this solar facility will supplement GRU's remaining generation resources, but due to its intermittent energy supply and the fact that long lived commercially viable energy storage is not yet available, solar generation is not a replacement for traditional generation.

**Question:** The proposed contract includes specific dates when GRU could purchase the proposed PV Facility. The cost per MW of PV power has been dropping precipitously. What happens if GRU invests at the current price and the price of PV continues to drop substantially, leaving GRU with a facility generating power at an uncompetitive price? Would it be possible to build this eventuality into the contract?

**Answer:** GRU will be purchasing energy from the facility but not an equity position in the facility. At a future date, GRU will have the option to decide to enter negotiations and potentially to purchase the facility, but not the obligation. The market price of PV would be but one consideration at that future date.

The market price for solar panels has dropped by a factor of ten over the past decade. The present price is low enough to make it competitive with other sources of carbon-based generation. The annual cost of this energy is projected to be less than 4.3 million dollars. This represents about 4-5% of the annual fuel pass through. The price for this power will be constant over the 20-year period. While the market may see further

declines in solar offerings, it is also highly probable that fossil fuels have bottomed out and will be seeing price increases in the future.

Additionally, the Federal Investment Tax Credit for solar (currently at 26% of project cost) is a major driver for large solar installations. This tax credit decreases to 10% in 2022. Therefore, solar projects would have to come down in price significantly to match the reduction of the investment tax credit. As such, it currently appears to be an opportune time for this project.

**Question:** In 2019 GRU completed an Integrated Resource Plan (IRP) for future fleet planning, and GRU plans to have 100% renewable power sources by 2045? The TYSP says that two 23 MW natural gas units must be retired in 2026. How does the proposed PV facility fit in with these plans? What is the overall plan to achieve the 2045 goal?

**Answer:** This project is the next step in the process to increasing GRU's renewable energy portfolio. GRU foresees adding more renewable generation in its future, but these additions must be balanced with cost and technological advances. This particular project will move GRU 5% closer to its goal of 100% renewable. Last year GRU generated 33% of its generation from renewable resources. This new PPA will enable GRU to get close to 38%.

GRU recognizes the goal to achieve 100% renewable by 2045. We are also looking at ways to reduce our present carbon footprint by modifying the existing fossil technology. Energy Supply has been actively investigated the feasibility of converting DH-2 to natural gas. While gas is still a fossil fuel, the conversion to dual firing could reduce the CO2 production at DH-2 by 50% or approximately 250,000 tons per year.

The plan has a scheduled retirement date for the two Deerhaven 17.5 combustion turbine units of 2026. It is also likely that they may remain serviceable beyond this date. The units see very little actual run time. It will be an economic decision as to when they will be retired.

**Question:** In addition to three retirements, the 2020 GRU Ten-Year Site Plan forecasts a growth of purchased GRU power from 1831 GWh/yr. in 2020 to 1930 GWh/yr. in 2030, a growth of 100 GWh/year. At a rate of 2.8 GW capacity per MWh sold, at a 48 percent capacity factor, this is tantamount to needing an additional capacity of about 35.5 MW simply from growth of demand in ten years. The proposed PV facility is rated at 50MW. How was this capacity determined? What other measures are planned to achieve needed capacity? How does the proposed facility contribute to the overall system plan?

**Answer:** The size of the facility was determined largely by an Area Control Error (ACE) study, which will be covered in the presentation. Also factored into the decision was the individual unit response capabilities (ramp rates) of the existing fossil fleet, the minimum

turn down capability of the fossil fleet and which fossil units would be required to be online to meet the daily load requirements throughout the typical generating year.

Due to the magnitude of GRU's energy debt, it is expected that for the foreseeable future, replacement generation capacity if and when needed will have to be procured from the marketplace (the grid).

GRU's load forecast is shown on page 30 of its Ten-Year Site Plan. By 2029, GRU's load is not expected to grow appreciably. GRU's contract with the City of Alachua for power expires in March 2022, which if not renewed, would decrease GRU's peak demand by approximately 30 MW.

**Question:** It is possible that a hurricane could damage the proposed PV installation. What maximum wind speed is the proposed PV system to be capable of withstanding?

**Answer:** The facility will be designed in accordance with the requirements of the Florida Building Code. The facility must be insured, and the contract structure would make it economically advantageous for the seller to repair the facility and return it to service.

**Question:** The proposed PV facility would have a substantial impact on land use planning. What is the size of the proposed facility? Are there any natural or cultural resources on the proposed site that might impede, delay or prevent construction, factors such as water courses, historical Native American sites, and endangered species? How is the land currently zoned? Would the City Commission need to annex the land?

**Answer:** Origis Energy is responsible for providing the site and for all permitting, construction and operation of the facility. Origis has demonstrated experience in developing similar projects in Florida and nationwide and has evaluated their site and engaged qualified firms to prepare and submit required information required for permitting the facility. It is not anticipated that the facility would be annexed into the City at this time.

**Question:** The on-site battery for the proposed facility is to be rated at 12 MW. What would be the typical kWhrs/sunny day contribution of the proposed unit? And how long would such a battery last in terms of number of generating hours? Does GRU have adequate back-up capability to operate reliably in the event of a major PV outage?

**Answer:** The project is expected to produce around 124,000 MWh annually. On a sunny day, the project could produce around 540 MWh, but of course this varies with weather conditions and the season.

The battery stores 24 MWh of energy, but its function is to dampen the ramp rate (up or down) of the facility's electrical output. GRU has enough generation to function without the solar facility. The solar facility serves to supplement GRU's traditional generation, but it is not necessary for reliability.

## **UAB Member Wes Wheeler:**

**Question:** This contract is solely an agreement that if FL Solar 6 (Seller) builds the facility, GRU (Purchaser) will purchase the power produced, subject to the terms of the agreement. Where do we stand with the interconnect agreement? Paragraph 4.1(c)(ii) notes that this Agreement is a required milestone and Schedule N states that an application be submitted no more than 30 days from the effective date of the PPA. And then the parties have ten months to complete. Where do we stand with this? Will it take that long?

**Answer:** The interconnection agreement is a separate agreement due to the volume of detailed engineering that must be performed. The input of other utilities and the FRCC must be received prior to executing the interconnection agreement; therefore, it must take its own course. The timetable for response can be impacted by the “queue” of projects in the review cycle of entities that GRU does not directly control. The interconnection application has already been submitted by Origis and GRU is currently evaluating.

**Question:** I am requesting that staff prepare and submit, to the UAB and Commission, an updated “Schedule N,” with actual calendar dates, immediately upon execution of the PPA.

**Answer:** GRU will continue to keep the UAB and Commission informed of progress through periodic updates.

I am also requesting that staff forward, to the Advisory Board and Commission, all satisfaction of milestone notices delivered by Seller to Buyer required by Paragraph 4.2, within one business day of receipt of those notices. Or, in the alternative, if Seller fails to timely meet a scheduled milestone and thus does not provide notice, that staff notify the Advisory Board and Commission of that missed milestone, whether an extension has been requested, and staff’s opinion on that requested extension.

GRU will continue to keep the UAB and Commission informed of progress through periodic updates.

**Question:** Paragraph 2.1 (b) states that this facility “shall be fifty (50) MWs as of the Commercial Operation Date. . .” Why not make this a “minimum of 50 MW’s”? In other words, start with 50 MW and then build in the ability to scale up total energy production, as needed by mutual agreement of the parties, over the life of the agreement? We may only want 50 MW now, but over the life of this 20-year agreement (with extensions) we likely will need more as we transition away from our current generating facilities to more solar.

**Answer:** The size of the facility was determined in large part by an Area Control Error (ACE) study, which will be reviewed in GRU's presentation. Additional tranches of solar could be added in the future at this site or at other sites in the area.

**Question:** Paragraph 3.5 (b), (c) and the redacted Attachment C hint at, but do not explicitly state that output may exceed 50MW. As noted in my question #2, above, I would like to explicitly state the parties may agree to sell and purchase as much power as both parties agree is mutually beneficial. With annotations in Attachment C so stating. Or however else that GRU and City staff best determine to incorporate the concept that 50MW is a floor, and not a ceiling.

**Answer:** The project will actually be oversized such that the output will continue to be capable of 50 MW through the term of the agreement. The solar panels to experience a minimal amount of degradation each year. It is expected that the vendor would build additional panels into the base capacity at initial installation to accommodate planned degradation and maximize solar output over the course of the year. GRU needs to be able to limit the output to 50 MW to be able maintain GRUs system reliability. We may learn that based on this solar design utilizing a limited amount of battery backup, the system can tolerate additional solar capacity. We did not want to sign up for a contract where the system was not cable of absorbing all of the power. Even at 50 MW, we suspect there may some hours early in the morning during shoulder periods where GRU may not be able to accommodate the contribution and will have to partially dispatch the unit down to permit proper operation of other generating assets within their capabilities.

**Question:** Paragraph 3.1 (b), first sentence, states that Seller may terminate the Agreement if financing is not available in time for completion and commencement of operation ... by December 31, 2021. And while this Section is titled "Financing," it also appears to include a right of termination for non-financial reasons in the second sentence. The third sentence says that the right of termination under this Section 3.1(b) "shall automatically expire and be deemed to have been waived by Seller on March 31, 2022 if no termination notice has been given by seller. . ."

**Answer:** So, what is the termination rights date? December 31, 2021 or March 31, 2022? If the latter, how can the termination date be later than the required completion date? And why are termination rights, other than financing, given in the financing section?

The December 31, 2021 date is a termination right for the seller in the event that they are not able to obtain financing. March 31, 2022 is before the required completion date.

**Question:** Paragraph 3.11. Why 8, 10 and 14 years out? What is the rationale for these chosen years?

**Answer:** Financing parties typically limit how many times a Buyer can go through the appraisal and negotiation process for purchasing the facilities. Due to the investment tax

credit limitations, financing parties often limit the first opportunity to purchase the facility until after the eighth year of operation.

The contract provides the opportunity for a buyout. Given the level of debt held by GRU Energy, it is highly unlikely that GRU would buy the facility before year 15.

**Question:** Paragraph 3.9. Please explain “dispatch down.” I would like assurances that this does not include reduction of solar power production for reasons other than FERC regulations. Or not, if that is not the case.

**Answer:** There may be times when for operational reasons, GRU must dispatch down the solar facility to make room for other units to come online or remain online. This will be covered in the presentation. Generation has to match load. There may be times during the early morning hours during low load conditions when GRU can't accept all of the solar generation. This was covered during GRU's presentation of “Here Comes the Sun” presented about 9 months ago.

**Question:** Paragraph 4.2 (b) and (c). As a general comment, not a question, I note that actual completion date may be as late as December 31, 2022, if the Seller elects to take the extensions authorized in this paragraph.

**Answer:** The planned (goal) completion date is December 31, 2022. Under extensions, this may be extended to December 31, 2023.

**Question:** Paragraph 4.5. Why is Buyer not obligated to purchase power upon Completion Date (December 31, 2021), but may delay that purchase until November 1, 2022? That is almost a year out from completion. I understand that completion may not occur in a timely manner, but why not tie purchase to a set time following that completion, say 30 days?

**Answer:** The planned completion date is December 31, 2022.

**Question:** Paragraph 15.12. This is a very nit-picky question, to be asked of legal staff, perhaps after the meeting. The paragraph addresses what happens if the facility is damaged or destroyed before “five years before the end of the initial term.” What happens this damage or destruction occurs within that five-year period, or during an extension?

**Answer:** Legal referral

### **UAB Member Jason Fults**

**Question:** Is Origis using an in-house construction crew or contracting it out?

**Answer:** Construction means and methods will be at the option of Origis Energy. It is our understanding that on past projects, they have acted as general contractor and manage subcontractors, but ultimately, it is up to their discretion.

**Question:** Are there any incentives for this construction work to be locally sourced?

**Answer:** Origis energy has made a commitment to engage local firms and personnel for construction, which is estimated to require a field construction force of ~200 for <6 Months duration of construction.

**Question:** Will the City's living wage ordinance apply to this project?

**Answer:** No, because the PPA is a contract for the delivery of electricity service, exempt under living wage ordinance.

Question Posted on Facebook 5/11/2020

**Question:** Is there an opportunity for UAB members to interview current customers of FL Solar 6 before making any recommendations to the City Commission - customers either in the US or another country?

**Answer:** Florida Solar 6 is a project specific LLC, sometimes called a special purpose entity (SPE). In the industry, it's a standard practice to create an SPE in order to take advantage of non-recourse financing and other risk mitigation. During the evaluation process, team members spoke with current customers, some of which are repeat customers.

**Question:** What is the projected price of Solar Electric Power in 2025, 2030, 2035 for Florida or Nationally?

**Answer:** Solar prices may continue to decrease slightly, but the biggest driver for prices is the Investment Tax Credit (ITC), which currently decreased from 30% to 10% on December 31, 2023. The expiration of the ITC would have the effect of increasing solar prices.

**Question:** What is the projected MW of customer owned Solar Electric Power in the GRU service territory in 2025, 2030, 2035?

**Answer:** In 2023, GRU is projected to have 11 MW of customer-owned PV solar connected to its system.



**Question:** What operational fiscal impact would a 50 MW Utility Scale Solar Electric Power have on existing power infrastructure, over the next 20 years?

**Answer:** GRU will be installing infrastructure to connect the PV system to its grid. This infrastructure is estimated to cost approximately \$1 million. Additional tranches of solar beyond this 50 MW PPA will necessitate additional future capital commitments for battery storage or fast start generating capacity.

**Question:** Does this additional 50 MW Utility Scale Solar Electric Power have an impact on the retirement plans of any existing power infrastructure?

**Answer:** No, this PV facility does not affect the retirement of other units.

**Question:** Does entering this 20-year PPA have a positive or negative impact on GRU/City of Gainesville bond rating?

**Answer:** This facility is not expected to have an impact to GRU's bond ratings.

**Question:** Is customer owned Solar Electric generally viewed as a money loser for the local utility?

**Answer:** For planning purposes, customer-owned solar decreases energy served. The fixed and variable costs of providing Backup service to solar customers (nights and cloudy days) is paid for by all GRU customers.