



IRP Community Engagement Meeting Thursday, June 4, 2020

PRE-MEETING QUESTIONS

Prior to an online meeting June 4, 2020 to discuss a draft of the Integrated Resource Plan, several stakeholders emailed questions to be addressed by Memphis Light, Gas and Water and Siemens Industry Incorporated. The questions are listed below as part of the 30-day, public review period of the IRP that ends July 6, 2020.

Personal information is excluded from this list.

1. Memphis leaves TVA but cities like Lakeland or Collierville decide to stay with TVA, does that mean these estimates can change for the remaining city of Memphis rate payers? In short, if less people go to MISO will that have an impact on potential savings?
2. We've made strides in this city to ensure that there is local minority participation on projects, how does Miso or Entergy plan on ensuring that local minority companies participate, and what kind of local minority participation goals can we anticipate if we decide to switch to Miso or one of their companies?
3. Have other power companies that left TVA rates gone down? If so, which companies and for which cities?
4. From an environmental standpoint, MISO has given indications of their potential carbon footprint and what it maybe in the coming years, but the majority of their energy comes from coal, won't that be a set back from where we are?
5. Entergy is a for profit company, it is within reason to assume that they will look for ways to ensure profitability on any relationship they pursue. My question is three- fold.
 - a. Does that mean that over time our rates will increase to address rate changes provided to MLGW?
 - b. Will Entergy or any new company MLGW considers partnering with put guaranteed rates in writing and in our contract?

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- c. Also, as Entergy is headquartered out of state, aren't we going to be spending our money outside of Memphis and outside of Tennessee?
6. Paducah, Kentucky's municipal electric utility left TVA in 2006 and has been saddled with debt and skyrocketing rates. According to media reports, worse decisions couldn't have been made and they are longing to become a TVA customer again. Can you provide me an answer on what MLGW's contingency plan is once a decision is made to leave TVA, joins MISO and the assumptions and calculated cost savings aren't realized or rates begin to skyrocket due to volatile energy markets? In short how are the ratepayers going to be protected if this turns out to be the wrong decision? (Which it is). Once MLGW leaves TVA, what will happen to the economic incentives TVA is currently paying on existing economic/industrial development projects? What will happen to proposed incentives currently on the table? What about future economic/industrial incentives for industrial development projects or expansions?
 7. I am a new homeowner and I'm not sure I understand so. But from all the companies you've looked at, which one is more reliable and which one won't make the rates I already pay on my Mlgw bill go up? I saw that Mlgw is hosting a virtual meeting tomorrow, so I just wanted to get some more information on that and make sure my questions are answered.
 8. Since we just experienced a rate increase from MLGW to fix our systems, are they going to have to increase our rates again to build new power plants?
 9. The Siemens IRP Report seems to present staying with TVA as the most reliable option for supplying electricity to the MLGW customer. When the supply is not reliable, business and homeowners suffer. When they suffer enough, they leave and go elsewhere. Cheap is just that, cheap. What you need is constant reliability. My question is: Why would you leave a known reliable supplier, TVA, for an unknown, less reliable, cheaper supplier?
 10. In the IRP presented, Siemens highlighted what they describe as "Portfolios 5, 6, 9 and 10" as well as an "All MISO" option. If I'm understanding Slide 33 of their presentation correctly, every scenario would involve MLGW having to build approximately 500 megawatts (MWs) of conventional combined cycle natural gas turbines as well as around 200-400 MWs of conventional simple cycle natural gas turbines.

If I have read previous news articles and statements correctly, it should be pointed out that certain members of the Memphis City Council, MLGW and the group "\$450 million for Memphis" have made statements to the effect that there is very little community interest in the City of Memphis or MLGW owning, operating, maintaining and purchasing fuel for any kind of conventional generation power plant.

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The City of Memphis has direct experience with this. The original Allen Fossil Plant was built in the 1950s and was owned, operated and maintained by MLGW for the sole purpose of providing electricity for Memphis. By the 1980s, it had become abundantly clear that the City of Memphis no longer maintained an interest in performing this task, as maintaining power plants is very arduous.

Natural gas plants, be it simple cycle or combined cycle, are no different. They have to be maintained to the exact letter that the equipment manufacturers describe. Failure to perform maintenance can result in major equipment failure of components like: turbines, combustion cans, heat-recovery steam generator (HRSG) tubes, generator windings, transformers, pumps, valves, and other major auxiliary equipment needed to run the power plant. I do not feel this is a very wise endeavor for the City of Memphis to take on for several reasons: it is not what the City of Memphis specializes in, like providing police, fire, road paving, etc., Memphis has tried operating a power plant before and frankly decided it was more trouble than it was worth, from a cost, maintenance and level of effort perspective. Additionally, if Memphis were to join MISO, it should be pointed out that MISO DOES NOT provide engineering and technical services to support and help troubleshoot issues with power plants. Memphis would have to then train in-house expertise, find third party vendors, or the OEM itself to support the plant, and you're pretty much at their mercy of whatever they want to charge and whatever schedule they want to run to minimize their costs, and not necessarily when MLGW would need the units ready for service for economic dispatching purposes. Furthermore, in the period Siemens analyzed through 2039, that would be the approximate life expectancy (20 years) of many major components of a combined cycle natural gas plant, and many of the major components would require major maintenance, refurbishment or replacement, which is very expensive. It's just not a scenario where I see a definite win for Memphis or MLGW and its ratepayers.

Additionally, with the intermittent renewable resources Siemens highlighted as only being available 20-25% of the time, these natural gas plants will have to run more often than the strong renewable resource advocates are willing to admit. **IT CANNOT BE STATED ENOUGH THAT CONSTRUCTION OF NATURAL GAS GENERATION IN ANY OF THE SCENARIOS PRESENTED BY SIEMENS BY THE CITY OF MEMPHIS OR MLGW WILL HURT MEMPHIS' EFFORTS IN REDUCING GREENHOUSE GAS EMISSIONS.**

Furthermore, the IRP presented by Siemens does not address the bigger issue of disproportionately high energy burdens that a large number of MLGW customers face due to inefficient appliances, older homes that lack insulation, old inefficient doors and windows, and normal, weather-related climate challenges (both hot and cold, depending on the season). I feel that a large portion of the population of Memphis thinks a decision to leave TVA will automatically fix their high electric bill. Without addressing the issues previously mentioned, there is nothing in the Siemens IRP that will remedy that issue, other than continued investments into energy efficiency programs and home energy weatherizations that need to happen, regardless of who MLGW selects to purchase power from.

The Siemens IRP glossed over the issue of electric reliability moreso than I feel they should have. In the transmission upgrades that would be required in order to leave TVA, there are many scenarios, in my opinion, that could leave the MLGW electric system highly

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vulnerable in an extraordinary situation, such as the tornadoes that struck Shelby County not too long ago. From what Siemens recommended, there would be only 3 major connection points from MISO to the MLGW system. If a major storm knocks out at least one of them, it leaves the rest of the system vulnerable and could hamper efforts to restore reliable service to customers. If the same storm damages the combined cycle plant that MLGW would have to build along with one of the 3 connection points, I don't see a scenario where MLGW could guarantee reliable service to customers, until at least one of the 2 listed contingencies is resolved.

The Siemens presentation highlighted a lot of renewable resources that MLGW could possibly take advantage of in order to meet some of their energy needs. With present technology available, as well as technology available during the 5 year timeframe MLGW would be in once they gave TVA notice of exit, there is no renewable solution that can reliably supply electric power to MLGW. ELECTRIC RELIABILITY IS FAR MORE IMPORTANT THAN THE AMOUNT OF "RENEWABLE" ENERGY ONE HAS. If I have a car that boasts how cheap it is and claims to have 1000 horsepower, but only 200 of that is actually available consistently, for all practical purposes, I have a 200 horsepower car. This is essentially how renewable resources market themselves with only 20-25% capacity factors. In comparison, traditional thermal plants have at least a 60-70% capacity factor and nuclear plants generally have at or above 90%. It is true that renewable resources have extremely competitive market prices, but it is highly likely that they will let you down when you need them the most. It's not to say that they don't belong on an electric system, but their penetration should be limited to well below 40% (probably closer to 20%) in order to balance reliability and market volatility issues.

The ERCOT electric system in Texas has seen these reliability and market volatility issues in the summer of 2019 when all available wind generation shut down abruptly, multiple times and the spot clearing price of replacement power was \$9,000 per megawatt-hr with little to no reserve margin left (<https://www.dallasnews.com/business/energy/2019/08/14/does-texas-need-to-build-more-power-plants-state-s-electricity-use-puts-focus-on-record-demand/>). In tangible terms, at those prices, if you had a customer with a typical 3-ton HVAC unit, that spot price would have translated to a \$41 electric bill in just energy costs (not including the base rate) for just ONE HOUR of use, for the air conditioner alone (without turning on any other lights or appliances in their home). You can quickly see how this would add up on a customer's bill and how catastrophic it could be for their monthly finances.

By opening yourself up to the open market, you take on those real risks with real-world consequences that we have already begun to witness, right here in the United States. In those situations, I feel very strongly that much of the proposed \$150 million in savings that Siemens states as possible would be eaten up very quickly and it could then quickly cost MLGW and its customers far more money than it ever saves.

Lastly, the task of becoming a Balancing Authority (BA) with NERC is nothing easy or trivial. There are a lot of administrative processes that have to be taken on and that never go away once you become a BA. Memphis is in an era where there is real pressure for MLGW to cut major costs. When one becomes a BA, "cutting costs" (as they relate to staffing and administrative costs) is just not possible.

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Therefore, I feel very strongly that remaining with TVA and taking advantage of the 20-year long term partnership is the best option for MLGW and its customers. It offers the most steady rates, while allowing for healthy, balanced levels of renewable energy penetration into the MLGW and TVA systems.

And NONE of what I mentioned above incorporates the impacts of TVA's economic development programs and the work that goes in to getting sites in Memphis and Shelby County shovel-ready for major industries that bring more jobs to Memphis and to the region.

Siemens talked about not having regrets. I sincerely feel that if MLGW is trying to balance volatile market pricing from MISO while having to maintain natural gas fired plants and meet additional regulatory compliance standards as a result of becoming a BA, they along with their customers will undoubtedly be having MAJOR regrets when all of these additional burdens that MLGW has previously not had to undertake all of the sudden all come together to create a very difficult situation for both MLGW and its ratepayers. And this does not have to happen if MLGW stays with TVA.

I understand this is a difficult process, and as I stated before, I'm writing this on behalf of myself only and not on behalf of TVA or any of its affiliates or contractors. I've not received any additional compensation or endorsements by TVA or any of its affiliates or contractors in composing this email. This is just myself as an engineer doing the best I can to give sound technical advice based on what I feel is best for MLGW customers, the City of Memphis and Shelby County. It is what I personally would want as an MLGW ratepayer.

I sincerely appreciate MLGW and the PSAT reading these comments and wish you all the best in sorting through all of the information presented and coming up with recommendations for MLGW and the City of Memphis. Please let me know if you all have any questions or need clarification on anything I have written.

11. I've seen lots of advertisements in the news articles about saving \$450million for the city. But now you say it's only \$120 million. Can you tell me why there's such a major price difference in this? As a customer, I want to know.
12. I own a couple of businesses in Memphis and both require that I ensure lights are on every day and that I have refrigeration. I need reliability and affordability. I can't tell based on this information if leaving TVA is going to negatively impact my businesses. How do we know that this change won't cause problems for small business owners? And can you assure me that MISO or Entergy will have better reliability than we currently have with TVA?
13. (multi-part question)

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- a. What has been the high to low kilowatt price in the wholesale energy market over the last ten and twenty years? How do those values compare to the prices paid to TVA by Memphis?
- b. What is the measure of wholesale price volatility over the last ten and twenty year periods? How has that measurement varied over time? For 10 years? For 20 years? How do those values compare to the volatility of prices paid to TVA by Memphis?
- c. How would MLGW "hedge" against wholesale price swings if it terminates its contract with TVA? How much would such "hedging" strategies cost MLGW each year on average based on the cost of similar strategies employed by comparably-sized private municipal retail power providers over the last ten years? Twenty years?
- d. What kinds of problems will "hedging" strategies uniquely present to a publicly-owned power provider like MLGW? For example, will MLGW have to get Council approval? Will minority set aside provisions apply? Will such requirements be likely to eliminate many hedging services firms?

14. On behalf of the Southern Alliance for Clean Energy (SACE), let me start by saying thank you for undertaking a diligent, impartial process to explore long-term power supply options for MLGW customers. Thank you, as well, for coordinating the Community Engagement session and for this opportunity to submit comments and questions in advance of that forum. SACE is encouraged that MLGW's lowest-cost option for power is also the cleanest. Of the many scenarios that Siemens examined, the lowest-cost energy portfolio would get MLGW up to 75% renewable energy, and cut carbon pollution by 50% compared to TVA levels, resulting in better public health, cleaner air, and cleaner water. Having provided representation on the Power Supply Advisory Team (PSAT), many of our questions were already asked and answered. That notwithstanding, we would like to raise a few additional questions on the process moving forward:

- a. In the draft recommendations, Siemens suggests that there could be a "win-win" situation if, after notifying TVA of its intention to leave its current contract, Memphis were able to negotiate with TVA on certain services or facilities. If you were to be negotiating on behalf of Memphis, what would you want to get out of such negotiations with TVA and what would be the fiscal implications of getting those agreements?
- b. Siemens suggests that various issues should be considered/taken into account by an RFP issued by Memphis for an alternative power supply. Could you please list what you consider to be the key considerations that should be covered by an RFP? Are there example RFPs Siemens would suggest as a model for what Memphis should be preparing?
- c. How would the identified savings and benefits of alternative power supplies affect customer bills?

Thank you again for this opportunity to submit questions in advance of the Community Engagement meeting.

15. Without affordable power, my construction business could not operate. If rates increase it does not just impact my business, it impacts my construction projects and construction costs. In a time when investing in Memphis is so important, why do we want to risk increasing rates?

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- a. For the renewable energy portfolios, what commitments and measurements are there to actually obtain this clean energy?
 - b. What programs will be included for residential and community solar, and if none, why?
 - c. A residential Battery storage program, similar to ones in Australia, provide the opportunity to stabilize the grid and provide a source of back up power locally. Wouldn't this help in the goal of getting the amount of space for solar/storage area needed?
16. I rent and want to be able to come home and go about my day, but I know this is important to Memphis, however it is so technical that I don't understand how we make the right decision. How are you going to break this down so that people like me can understand it?
Thanks for taking this into consideration.
17. (multi part question)
- a. Has anyone considered the possibility that some or all of the suburban municipalities may decide to leave MLGW and stay with TVA? If that were to happen what economic impact would it have on MLGW and the ratepayers of Memphis?
 - b. If MLGW leaves TVA what role will MLGW and its new power supplier play in economic development for suburban Shelby County? Currently MLGW does not support the municipal chambers of commerce in their economic development efforts.
18. COULD YOU PLEASE CLARIFY ONE POINT. IS IT TRUE THAT MLGW WOULD POTENTIALLY SAVE \$92 MILLION DOLLAR AFTER IT HAS PAID FOR BUILDING AND PURCHASING ANY INFRASTRUCTURE ASSOCIATED WITH LOCAL ENERGY PRODUCTION?