Q. If 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? –T. McNeal

A. In the final report, Siemens will look into the impact of one or more of MLGW members remaining with TVA. There could be an impact but as load is reduced, MLGW can adjust its plan and have offsetting cost reductions (e.g. lower MISO capacity and energy purchases, lower renewables etc.)

Q. 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?- Phil Dotson

A. MISO will not make these decisions, MLGW will. MISO is not a utility that supplies power like TVA. It is instead a not for profit system and market operator. Project decisions will be made by MLGW.

Q. I have a question regarding MLGW possibly leaving TVA. Have other power companies that left TVA rates gone down? If so, which companies and for which cities?- Martin Truitt

A. At the moment, 14 members of TVA have not made a decision, including MLGW. Historically, there have been some utilities that have left TVA with mixed results. Two-third of distributors have left TVA. 1-Paducah, Kentucky which left and invested in a coal plant/peaking plants. For a variety of reasons those investments didn't work out to provide the anticipated savings and customers experienced a significant increase in rates rather than a decrease. 2- Bristol, Virginia did achieve savings initially but ultimately returned to TVA. 3- Warren, Kentucky I believe also left TVA and is served by EKPC which abandoned its attempts to obtain rights to wheel power over TVA's transmission lines. In summary, results are heavily a function of how well you plan and manage risks. This is one of the reasons we are recommending an RFP to verify that savings are there.

Q. 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?

A. MISO's members make the decision on their environmental footprint. Historical trends show MISO members are moving away from coal to a more renewable footprint. MISO members were 75% coal in 2005, with no significant renewable generation. They were 39% coal and 9% renewable by 2019 and they announced plans to move from 27% coal and 32% renewable by 2030. Hence, energy purchases from MISO will have declining levels of

coal over time in its footprint.

MLGW can make their own determination on its mix of renewable and fossil resources and

how much it decides to purchase in the open market. Siemens suggests that a more renewable mix (with PPAs).

Q. Thank you for taking the time to consider the public's comments and questions. 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. Does that mean that over time our rates will increase to address rate changes provided to MLGW?
Will Entergy or any new company MLGW considers partnering with put guaranteed rates in writing and in our contract?

Also, as Entergy is headquartered out of state, aren't we going to be spending our money outside of Memphis and outside of Tennessee?
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).- Jonathan Epstein

A. Entergy is a for profit company, as are the independent power companies that build generation assets in MISO, and they expect returns on their investments, which are built into the pricing of assets considered in this study.
Entergy could participate in an RFP for new generation together with other developers and it will be up to MLGW to select the least cost suppliers the locations of the best portfolio of assets.

All of the gas fired resources and a significant portion of the renewable generation is to be installed locally within MLGW footprint.
TVA has legacy assets that will have to be paid for even if they are no longer competitive. Hence building newer, more efficient units built by companies earning a profit can be less expensive than paying off older assets developed by TVA.

Q. 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?- Michael Garriga

A. This suggests the importance of good planning and verifying savings. 1. Siemens analysis considered a wide range of future market conditions and the best performing portfolios performed better than the TVA options even under "worst case" conditions. That said, there is a risk that MLGW makes decisions that turn out poorly, which is why

several objectives have to be considered before a decision is made. 2. Before MLGW makes the decision, it plans to get an RFP to provide more clarity of projected savings. MLGW can also hedge investments to lock in prices. 3. TVA's incentives programs will disappear and will have to be replaced by MLGW. Costs to do so have been considered in the analyses completed.

Q. I have a question about the new IRP draft put out. 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.- Martin Zavala

A. Based on analyses completed to date, staying with TVA will result in higher rates. However, MLGW will go out for bids to verify that savings exist before making the decision.

MLGW will maintain high standards of reliability both staying with TVA or leaving. All portfolios evaluated can withstand the loss of 2 main lines simultaneously even during peak periods.

Q. My name is Alexis Morris, and I wanted to submit a question regarding the IRP Draft. 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? -Alexis Morris

A. If MLGW chooses to exit TVA, it will have to build transmission infrastructure. They will also get contracts for power from its Request for Proposal (RFP). But currently all of this can be done at a rate lower than it currently pays TVA. This will be confirmed before any decision is made.

Q. 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?-Mike Walcyzk

A. This is a very good question. The decision MLGW must face is how good is good enough. Siemens analysis suggests that TVA's reliability is a little better than the average in MISO and higher than projected with the transmission linkages developed for the study. All portfolios considered meet or exceed MISO and NERC reliability requirements, which

are very high. All plans were made to exceed the minimum reliability requirements and provide resiliency to extreme events, e.g. loss of two of the interconnections.

MLGW could invest even more in transmission and improve reliability even more but it would cost more to do so. That is the tradeoff MLGW must consider when evaluating its options

Q. My name is Nick Rutledge and I'm writing to provide public comments for the Power Supply Advisory Team (PSAT) as they analyze and consider the Integrated Resource Plan (IRP) prepared by Siemens. In full disclosure, I work for TVA and live in Chattanooga. However, I'm writing this on behalf of myself only and not as a representative of TVA or any of its affiliates or contractors. The views, questions and comments expressed in this email are my own and do not necessarily reflect those of TVA. I am writing this email on my own personal time using my own personal computer, email address and home internet connection. I am not using any of TVA's Information Technology (IT) resources in composing this email.

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.

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 more so 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 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 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.

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.- Nick Rutledge

A. We appreciate your views and will only make a couple of substantive comments. First, MLGW doesn't have to own, maintain or operate any fossil plants. They can partner with Entergy, or with Independent Power Producers who are experienced in operating and maintaining these plans to meet their needs. In addition, MLGW can determine how much power and of what type to develop locally to manage its carbon footprint. And third, its overall footprint is likely to be considerably higher renewable and lower in carbon than it receives from TVA today, if Siemens estimates are confirmed through an RFP. Finally, most utilities in the U.S. operate in an environment like MISO's, so the risks are well understood in the industry.

Q. 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. Thank you and I look forward to hearing from you.- Sonia Peña.

A. The $450 million savings are being discussed by external entities not related to the work completed by Siemens and therefore we cannot speak to how they derived at those cost savings. The $120 million saving reported by Siemens take into account the capital costs (e.g. transmission construction) MLGW would have to spend to connect to MISO.

Q. 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?-Tevis Shaw

A. This is a concern of all customers of MLGW. If MLGW can get reliable power at a lower cost than TVA can provide, it should consider it. This is the trade-off MLGW must consider. But the differences in reliability are slight. NERC requires that the power systems are built to ensure that no more than a once in ten year event occur. All portfolios considered either met or exceed that criteria. In fact, Siemens ensured that the system could withstand outages of two lines simultaneously.

Q- 1. 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?
2. 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?
3. 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?
4. 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?- Eddie Settles

A. History is not a good predictor of future market volatility because of the shift from fossil to renewable based generation. 1. TVA provides a bundled rate to MLGW of which its wholesale prices are only one component. It builds nearly all of its generation. Hence a direct comparison hasn't been completed. However, TVA's costs do not vary as much as the portfolios Siemens developed using local and MISO resources. This is because much of TVA's cost for its nuclear and hydro facilities are fixed while the MISO portfolios are subject to fluctuating gas prices. Gas prices have been pretty stable over the past several years, as has energy and capacity prices in MISO. In the future, there are scenarios where volatility in market prices return. Overall, the best performing portfolios are lower cost than TVA's even in worst case conditions, but this is a factor MLGW must consider. MLGW could enter into future contracts for gas providing price stability. MLGW will need to have City Council approval for all decisions being vetted in the IRP and the subsequent RFP.

Q. 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:
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?
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? 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.- Bryan Jacob

A. Siemens has not evaluated the potential for win-win negotiations with TVA should it choose to exit the TVA agreement. At this point in time TVA loses under any circumstance where MLGW leaves the existing contract. However, should MLGW exit the agreement, TVA would have both generation and transmission assets that it would not be using to support MLGW. TVA then has options to either find other ways to increase its load or cut costs by closing some facilities or negotiating with MLGW for use of these facilities. The

last option could reduce the need for MLGW to invest as much in transmission infrastructure. In addition, if TVA allows wheeling, there is a possibility of a win-win situation. The potential for a win-win solution would depend upon the negotiating leverage of both parties.

Regarding an RFP, there are examples in the public domain that Siemens has provided to MLGW. Among questions an RFP can answer includes: the cost of different sizes of gas combined cycles; the cost of more remote renewables to see if higher transmission costs offset lower renewable prices; test to ensure that local generation is in fact lower cost than MISO generation; and how much solar is available locally – at a cost effective price considering land availability. The overall goal is to produce a reduction in the cost of supply. The savings obtained can be used to benefit MLGW stakeholders and could include a reduction in rates or an increase in benefits or both.

Q. 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? – (SEE PDF ATTACHED)-Freddy Nalos

A. President Young has indicated that he is interested in providing the best solution for his customers. If he can get energy supply less expensively than he does today, he wants to consider it. But, he wants to weigh carefully the risks of doing so. That is the purpose of the IRP and the RFP and the approval steps ahead. The end goal of the IRP and follow up process is to find a solution that reduces the cost of supply and hence the rates for MLGW costumers.

Q. For the renewable energy portfolios, what commitments and measurements are there to actually obtain this clean energy?

What programs will be included for residential and community solar, and if none, why? 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? -JoeOzegovich

A. Currently, MLGW must secure its energy from TVA. Under TVA's long term partnership proposal, there is somewhat more flexibility for community and residential solar and its associated benefits. These programs are also an option for MLGW to provide if it joins MISO, since it has more control over its supply.
Virtual Power Plants that integrate rooftop solar + home batteries could be part of the offering in the future RFP. Batteries were selected under P5 and P9.

Q. I wanted to send in my concern with the current IRP draft I saw online for a new mlgw? 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. -Kathryn Hise

A. This is a very good question. It is a very complex and technical topic. Boiled down, MLGW has two very good options. Stay with its current provider, which has been a reliable supplier to the citizens of Memphis for 80 years and provides some of the lowest rates in the country, or exit the agreement for the possibility of even lower rates, if confirmed by an RFP. The decision will undoubtedly rest on some important considerations, including whether MLGW wants to control how sustainable (green) it wants to be and whether it accepts the risks of being part of a big market run by an independent operator. Most utilities in the country operate under this type of arrangement so the risks are known. But TVA is even more certain.

Q. 1. 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?

2. 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.- John Threadgill

A. **MLGW has considered this possibility and asked Siemens to evaluate the impact of the loss of one or more suburban utilities on the analysis. That assessment is on-going. Siemens has estimated the potential impact of having local generation in the region and has also evaluated the comparison assuming that MLGW replaces TVAs economic programs with an equivalent one of their own.**

Q. 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? –Greg Hurst

A. MISO quoted $92 million in savings in 2024 and it included variable but not fixed costs. Siemens estimated savings of about $122 million per year under the Long Term Partnership Agreement and $150 million per year (in 2018 dollars) with the existing TVA agreement, which does include all infrastructure costs for connecting to MISO.

Q. I know that there is a dump site on at least 3 sides of town that produce methane gas.

Some of which is being transported through pipelines to California for use in electric generating power plants there.

Why not build our own power plants at those dump sites and use that gas here to produce power I have some environmental concerns/questions that haven't really been addressed during this process. How do you plan to get transmission lines across the Mississippi River from Arkansas, especially given the environmental regulations and likely backlash from environmental groups? And what happens if you can't get transmission lines across the Mississippi River, then what?- I look forward to hearing your responses during the community meeting tomorrow.- Deacon Paul Hayes

A. If transmission lines cannot be permitted, MLGW should not exit the TVA agreement. That said, other utilities have been able to permit transmission across the Mississippi River

Landfill gas is an option if it meets local environmental requirements. This option exists in the MISO plus local (exiting TVA) portfolios.

Q. Having been a paying MLGW customer for over 40 years, it is my opinion that we should choose the option that does NOT continue with TVA, as it has for so many years. TVA has repeatedly overcharged its Shelby County clients.

TVA has courted East Tennessee far more than 50 years, and now that MLGW has the choice of going with another provider who would be less expensive in the long run, TVA has suddenly begun to point out advantages to MLGW of staying with them.

It is of course, too little too late.- Beth Wilson

A. Thank you for your comment. To be fair MLGW rates under TVA are some of the lower rates in the country. The question is whether it is possible to reduce rates even more if they join MISO.

Q. IRP Comment/Question: I strongly desire that MLGW will continue the partnership with TVA. It is important to me to use our very own natural resource from our own region. I do not agree with purchasing all power from an outside source. I do agree with being able to supplement. Thank you for your considerations.- CatherineAlvarez

A. Thank you for your comment. The IRP will help MLGW determine if their continued partnership with TVA is the best long-term option for their customers.

Q. The very first sentence of the draft report from Siemens says "Memphis Light, Gas and Water (MLGW) is the largest municipal utility in the State of Tennessee, serving approximately 4,312,000 electric customers in Shelby County."

I assume it must be a typo because it's an order of magnitude higher than what MLGW reports on its website ("more than 429,000 customers in Memphis and Shelby County."). But did that higher number factor at all into the load forecast or any other aspect of the IRP?

A. You are correct, this is a typo. Thank you.

Q. I have viewed the YouTube MLGW PSAT/IRP Virtual Meeting of Jun 10th twice. Having paid particular attention to Nelson's graphs and explanations I came away with the following information, and I am paraphrasing Nelson: 1. The current TVA contract would save $3 billion over the next 20 years 2. With TVA the NPVRR risk is only 5% 3. With TVA there is virtually no risk in cost volatility 4. With TVA there is less water consumption 5. With TVA there is less exposure to market risk 6. With TVA it is the most reliable except for a single portfolio out of six, presented by MISO.

As a MLGW customer, reliability power, and stable costs are the most important factors to me as a consumer. Viewing the fact TVA has provided a constant source of reliable power at steady rates, and considering the other factors mentioned above, I feel it would be an undue risk to

MLGW customers if MLGW choose MISO over TVA.

I understand completely that MISO is not a power broker, buying and selling power to the highest bidders. However, the fact that MISO deals with so many different energy producers, all I can think of is Enron. And we all know how the Enron story ended.

I cannot remember the exact projected savings MISO presented, but it is not significant enough to forgo MLGW's long successful relationship with TVA.- Gilbert Brooks

A. I am not certain what statements Nelson made that you are referring to. The Siemens report indicates that exiting TVA would reduce costs by about $1.5 billion over 20 years. Under 95% of the scenarios evaluated, TVA is higher cost than the MISO and local alternative portfolios. There remains risk with the TVA portfolio, but it is smaller than with the MISO plus local portfolios - still in 95% of the scenarios, exiting TVA is lower cost. Regarding reliability, TVA has been 100% reliable. In the other portfolios, reliability is at least 99.97% reliable. Lastly, there is a big difference between joining MISO and Enron. MISO does not provide power to utilities, it simply ensures that there is a reliable supply of power. Enron was a supplier of power to utilities and was convicted of corrupt practices in manipulating markets.

Q. I know and understand the urge to look elsewhere for power supply to the city. I think it is always worth making sure the city and its residents get the best value for their dollar. VALUE, not just cost. TVA is a huge proponent and developer of green power sources. I am personally a green power switch member and STRONGLY believe this is a required option for our future. The group should consider if any other supplier can prove their use and development of more environmentally conscious sources of electricity. Gas and coal are NOT the future. No reason not to use an offer from another supplier as a bargaining chip in negotiations with TVA, but as an MLGW customer and a TVEPA (central MS) customer I can assure you that the power we get from TVA Is more reliable and cheaper than what surrounding communities get. Add that to green options (yes, I know TVA has plenty of environmental faux pas to own up too) and they are the better choice.- Michael O'Nele

A. Thank you for your comment. If MLGW exited TVA, it would be able to contract with multiple suppliers, not just one. There are a large number of developers that are willing to supply MLGW with renewable supplies. MLGW can determine how green its portfolio is, as long as it meets reliability requirements. MLGW is faced with two good choices for providing relatively low cost power.

Q. This is Nick Rutledge writing a set of follow-up comments on the MLGW Integrated Resource Plan. Again, in full disclosure, I am a TVA employee. However, the views, comments, questions and statements contained in this email are those of my own and do not necessarily reflect those of TVA or any of its affiliates or contractors. I am NOT writing this email IN ANY OFFICIAL CAPACITY as an actual or perceived representative of TVA or any of its affiliates

or contractors or any of their respective opinions. I have received no additional compensation or endorsements by TVA or any of its contractors or affiliates in composing this email. And I'm writing this on my own personal time using my own personal IT resources and internet connection.

I appreciate the response given to my initial email sent to the PSAT. The response from the team read: "We appreciate your views and will only make a couple of substantive comments. First, MLGW doesn't have to own, maintain or operate any fossil plants. The can partner with Entergy, or with Independent Power Producers who are experienced in operating and maintaining these plants to meet their needs. In addition, MLGW can determine how much power and of what type to develop locally to manage its carbon footprint. And third, its overall footprint is likely to be considerably higher renewable and lower in carbon that it receives from TVA today, if Siemens estimates are confirmed through an RFP. Finally, most utilities in the U.S. operate in an environment like MISO's, so the risks are well understood in the industry."

It should be pointed out that the original purpose of the IRP process was to work to identify solutions that would be in the best interest of all of MLGW ratepayers in how they get and deliver electricity. It was NEVER intended to be a proxy to how MLGW could build power plants or arrange for power purchase agreements from Entergy or an any other IPP generation owner.

Also, this response glosses over my original point that deals with CAPACITY FACTOR (e.g. Do I have the generation I need to supply total electric load at the time need it?), which has nothing to do with the nameplate rating of how much or little renewable or any other generation technology one has in their generation and transmission portfolio. The fact of the matter is that renewables are extremely land intensive and require full redundant backup of conventionally fueled generation, such as diesel, natural gas or coal, in order to ensure that the electric grid remains stable.

Why? BECAUSE, RENEWABLE ENERGY RESOURCES LET YOU DOWN AT THE EXACT TIMES YOU NEED THEM TO WORK. Since 2014, there have been approximately 3-4 polar vortex events that lasted between 3-5 days, along with a couple of extremely hot summer days where renewable wind resources simultaneously shut down due to excessive heat and lack of wind. On the days of the polar vortex in 2014, the clearing prices per megawatt-hour of electricity was over $1000 per megawatt-hr on the PJM market (Source: https://energyresearchcouncil.com/Polar-vortex-effect-on-electricity-prices.html). While PJM is not the same as MISO, it is reasonable to assume that costs would be similar on the MISO market. This is somewhat shown again in 2019 when the clearing price was $578 per megawatt-hr on the MISO market during a similar polar vortex (Source: https://www.genscape.com/blog/polar-vortex-2019-how-did-power-markets-weather-storm).

It was previously mentioned that the ERCOT system in Texas had prices reach over $9000 per megawatt hour twice during Summer 2019 because all available wind generation shut off

simultaneously, leaving very little reserve margin left (Source: 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 the power generation and transmission world, capacity correlates directly with reliability. TVA has a very diverse generation mix along with best in class transmission reliability. By opening yourself up to MISO, you're somewhat rolling the dice on extreme weather events and low renewable capacity factors. There have been several times within the last decade where that proved to be an undesirable situation (such as the events listed above). I do not see how doing this would be a win for MLGW or its ratepayers. And I certainly don't see any viable way this would ever amount to appreciable savings for the average MLGW customer over the 20 year study period through 2039. I see many ways that this could end up costing MLGW ratepayers far more through the same study period.

Lastly, going back to the point of possibly using Entergy in a power purchase agreement (PPA) for natural gas conventional generation, it is fair to compare data with other comparable cities where Entergy provides power. In MLGW's own survey from 2019 (http://www.mlgw.com/images/content/files/pdf/2019%20Annual%20Rate%20Survey%20Pub_v10comp.pdf), they examine costs of several other cities, including three directly served by Entergy: Little Rock, AR, New Orleans, LA, and Jackson, MS. The average cost of all 3 Entergy-served cities was $103.15 (per 1000 kw-hrs). The same bill would have been $106.77 for MLGW. However, the cities mentioned in the Entergy analysis are served by Entergy generating assets that have been largely depreciated and paid off. If they were to have to build a new combined cycle natural gas plant, they would have to then depreciate this cost and add a guaranteed profit margin into their investment. I think this margin could possibly consume the roughly $3 difference in the 2 hypothetical bills, and would leave Memphis far more vulnerable to power market swings and lower reliability and reserve margin. And this doesn't even add extra administrative costs associated with being a NERC Balancing Authority (previously mentioned in my last comments).

Again, I strongly feel that the best option for Memphis, Shelby County and MLGW is to take advantage of the 20-year partnership with TVA.

I appreciate the continued dialogue with MLGW and the PSAT. And as a reminder in closing: in full disclosure, I am a TVA employee. However, the views, comments, questions and statements contained in this email are those of my own and do not necessarily reflect those of TVA or any of its affiliates or contractors. I am NOT writing this email IN ANY OFFICIAL CAPACITY as an actual or perceived representative of TVA or any of its affiliates or contractors or any of their respective opinions. I have received no additional compensation or endorsements by TVA or any of its contractors or affiliates in composing this email. And I'm writing this on my own personal time using my own personal IT resources and internet connection. Please let me know if you have any questions.

A. Siemens agrees that renewable energy operates only a portion of the time and requires fossil based generation and potentially batteries (storage) to supplement renewable capacity. In addition, in polar vortex events, the market prices of power can temporarily rise rapidly. Siemens also agrees that the solution that MLGW is looking for is the one that is best for all their customers. Developing portfolios when considering MLGW is one way of determining what level of investment is required to have a reliable system and so comparisons of TVA's and alternatives like joining MISO can be made in an appropriate manner.

MISO is a very large and diverse market, where unlike Electric Reliability Council of Texas (ERCOT), there is an energy and capacity market that helps manage the volatility that energy only market experiences.
Finally, as you could see in our report, we do assess the impact of an uncertain future using the stochastic analysis and there it can be observed that the TVA option has less volatility, but not enough to cover the differences.

Q. What is the difference between the C02 emissions results between the Draft IRA and the Final IRP report?

A. The difference between the reports is that in the final report the CO2 production presented includes the impact of the CO2 emissions associated with MISO purchases. Siemens believes this is a more appropriate metric than just the emissions of the thermal generation added in each Portfolio as presented in the draft report.

Q. How did Siemens determine the emissions associated with spot market purchases in the final report? Are they tied to the MISO emissions rate at the time that MLGW was estimated to need to make the purchase, or did Siemens use the annual average emissions rate for all of MISO (or MISO South) and multiply by the total amount purchased?

A. The emissions rate is based on the annual average emissions for MISO-Arkansas zone (which the IRP assumes MLGW will be connected to) for each year, and then it is multiplied by the amount of net market purchases made during that year.