

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matters of:

ELECTRONIC APPLICATION OF KENTUCKY)	
UTILITIES COMPANY FOR AN ADJUSTMENT)	
OF ITS ELECTRIC RATES, A CERTIFICATE)	
OF PUBLIC CONVENIENCE AND NECESSITY)	CASE NO.
TO DEPLOY ADVANCED METERING)	2020-00349
INFRASTRUCTURE, APPROVAL OF CERTAIN)	
REGULATORY AND ACCOUNTING)	
TREATMENTS, AND ESTABLISHMENT OF A)	
ONE-YEAR SURCREDIT)	

ELECTRONIC APPLICATION OF LOUISVILLE)	
GAS AND ELECTRIC COMPANY FOR AN)	
ADJUSTMENT OF ITS ELECTRIC AND GAS)	
RATES, A CERTIFICATE OF PUBLIC)	CASE NO.
CONVENIENCE AND NECESSITY TO DEPLOY)	2020-00350
ADVANCED METERING INFRASTRUCTURE,)	
APPROVAL OF CERTAIN REGULATORY AND)	
ACCOUNTING TREATMENTS, AND)	
ESTABLISHMENT OF A ONE-YEAR)	
SURCREDIT)	

ORDER

On October 15, 2021, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (jointly, LG&E/KU) filed a joint petition, pursuant to KRS 278.400, requesting partial rehearing of the Commission’s September 24, 2021 Order regarding qualified facility (QF) and net metering service (NMS 2) rates, NMS 2 netting period, NMS 2 legacy period, QF and NMS 2 cost recovery, and a discussion of LG&E/KU’s experience and expertise with distributed energy management systems (DERMS).

Kentucky Solar Industries Association, Inc. (KYSEIA) and Mountain Association, Kentuckians for the Commonwealth, Kentucky Solar Energy Society, and Metropolitan

Housing Coalition (collectively, Joint Intervenors) filed their respective responses to the petition on October 22, 2021. LG&E/KU filed a response to KYSEIA's and Joint Intervenors' responses on October 27, 2021.

This matter now stands submitted for a decision.

LEGAL STANDARD

KRS 278.400, which establishes the standard of review for motions for rehearing, limits any new evidence on rehearing to evidence not readily discoverable at the time of the original hearings, to correct any material errors or omissions, or to correct findings that are unreasonable or unlawful. A Commission Order is deemed unreasonable only when "the evidence presented leaves no room for difference of opinion among reasonable minds."¹ An order can only be unlawful if it violates a state or federal statute or constitutional provision.²

By limiting rehearing to correct material errors or omissions, and findings that are unreasonable or unlawful, or to weigh new evidence not readily discoverable at the time of the original hearings, KRS 278.400 is intended to provide closure to Commission proceedings. Rehearing does not present parties with the opportunity to relitigate a matter fully addressed in the original Order.

DISCUSSION AND FINDINGS

The issues raised by LG&E/KU in their petition, the responses filed by KYSEIA and Joint Intervenors, and the Commission's findings are set forth below.

¹ *Energy Regulatory Comm'n v. Kentucky Power Co.*, 605 S.W.2d 46 (Ky. App. 1980).

² *Public Service Comm'n v. Conway*, 324 S.W.3d 373, 377 (Ky. 2010); *Public Service Comm'n v. Jackson County Rural Elec. Coop. Corp.*, 50 S.W.3d 764, 766 (Ky. App. 2000); *National Southwire Aluminum Co. v. Big Rivers Elec. Corp.*, 785 S.W.2d 503, 509 (Ky. App. 1990).

1. QF and NMS 2 Rates: Lowest Reasonable Cost

LG&E/KU

LG&E/KU asserted that the September 24, 2021 Order was unlawful and therefore rehearing should be granted on the issue whether the QF and NMS 2 rates reflect the lowest reasonable cost.

LG&E/KU argued that the Commission's long-time interpretation of KRS 278.020, the statute that controls approval of Certificate of Public Convenience and Necessity, and KRS 278.030, which provides that utility rates should be fair, just and reasonable, is that costs should reflect the lowest reasonable cost to the ratepayer. LG&E/KU argued that the 20-year, energy-only solar purchase power agreement (PPA) they entered into with Rhudes Creek Solar, LLC (Rhudes Creek PPA) represents the market price that LG&E/KU would pay to generate or purchase power and therefore represents the lowest reasonable cost. LG&E/KU further argued that the QF and NMS 2 rates approved by the Commission are higher than the Rhudes Creek PPA price and therefore do not represent the lowest reasonable cost. LG&E/KU asserted that the September 24, 2021 Order was arbitrary because the Commission disregarded its statutory duty to approve the lowest reasonable cost.

KYSEIA

KYSEIA argued that LG&E/KU's petition for rehearing on this issue should be denied because the QF and NMS 2 rates are lawful and reasonable. KYSEIA asserted that the September 24, 2021 Order explained why each cost component for QF and NMS 2 rates are consistent with statutory requirements, and that LG&E/KU failed to present any basis for rehearing on this issue.

Joint Intervenors

Joint Intervenors first argued that there is no statutory basis for “reconsideration,” only rehearing and that LG&E/KU untimely filed their petition 21 days after the September 24, 2021 Order, instead of the 20 days established in KRS 278.400. Joint Intervenors next argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Findings

Based upon the petition, responses, reply, and case record, and being otherwise sufficiently advised, the Commission finds that LG&E/KU failed to meet their burden of proof that the September 24, 2021 Order was unlawful, and thus rehearing is denied for LG&E/KU’s allegation that the QF and NMS 2 rates do not reflect the lowest reasonable cost.

During the pendency of this matter, LG&E/KU repeatedly asserted that the Rhudes Creek PPA price represented the lowest reasonable cost, and that QF and NMS 2 rates should be based on the Rhudes Creek PPA price. As an initial matter, the Commission notes that it found the Rhudes Creek PPA did not require Commission approval under KRS 278.020, a position explicitly advocated by LG&E/KU. Thus, the Commission has never found that the Rhudes Creek PPA was the least cost, most reasonable way to serve LG&E/KU’s customers. Further, the Commission previously noted that it would review the Rhudes Creek PPA energy purchases under the FAC “economy energy” standard. Although not the basis for its decision, the Commission would merely note that based on

its review of recent FAC filings,³ the QF and NMS 2 rates in their entirety, not just the energy component of either, would similarly be deemed “economy energy” under that same standard. Nevertheless, the Commission fully weighed the issue of reasonable least cost, and in the September 24, 2021 Order, explained why using the Rhudes Creek PPA price was flawed. As we stated in that order, “one contract does not determine market price.”⁴ We also stated that:

Although valuing the avoided energy and generation costs to a utility based on market prices is a valid method, LG&E/KU have not proposed such a reasonable option in this record. The competitive market methodology works best where the utility participates in an organized market and procures energy, capacity, and ancillary services. However, LG&E/KU do not fully participate in an organized market nor are they proposing a suitable alternative.⁵

There might have been more robust evidence in the record regarding market prices for energy and capacity had LG&E/KU made available the responses they received to a recent request for proposal (RFP). However, LG&E/KU requested the documents be made available only by *in camera* review, accessible only to the Commissioners and one Commission Staff member, with the information accessed only through a third-party site under the control of LG&E/KU’s counsel.⁶ As such, LG&E/KU did not enter this evidence into the record, and that evidence cannot now be considered under KRS 278.400.

³ See October 15, 2021 letters from Andrea M. Fackler to Commission Executive Director Linda Bridwell regarding LG&E/KU’s fuel inventories, power transaction, and fuel purchases for the month of August 2021. https://psc.ky.gov/PSCFAC/Louisville%20Gas%20%26%20Electric/2021_LGE.pdf

⁴ Order (Ky. PSC Sept. 24, 2021) (Sept. 24, 2021 Order) at 32–34.

⁵ *Id.* at 32–33.

⁶ April 26, 2021 Hearing Video Transcript (HVT) at 04:53:27–04:58:57; and April 27, 2021 HVT at 09:19:07–09:26:37. In statements at the hearing, LG&E/KU declined to make the data generally available until their analysis was finalized, but would make the final evaluation available in their 2021 Integrated Resource Plan that was scheduled to be filed in September 2021.

LG&E/KU seek to relitigate what has already been presented and decided. The Commission weighed the evidence and made a finding of fact based upon the evidence in the record that LG&E/KU failed to carry their burden of proof that the Rhudes Creek PPA represented market price or the lowest reasonable cost. Because the issue was fully litigated, the Commission finds that LG&E/KU failed to meet their burden of proof that the Commission's Order was unlawful, and therefore rehearing on this issue is denied.

Regarding the matters raised by Joint Intervenors, the Commission finds that LG&E/KU timely filed their petition for reconsideration. The Commission has long treated a request to reconsider or rehear a decision as a request for rehearing under KRS 278.400. KRS 278.400 provides that a party may request rehearing within 20 days after the service of the order, with service deemed complete 3 days after the date the order was mailed. The Commission has long treated a request for rehearing as timely if it is filed within 23 days of the date of the final order, which represents the 20-day period plus the 3 days to complete service. As for Joint Intervenors' argument that there is no basis for requesting "reconsideration" of an order, the Commission finds this issue is moot, as it effectively confirms the unavailability of rehearing for simply relitigating arguments already fully addressed. Seeking reconsideration of the Commission's Orders, regardless of how a petition is styled, is not appropriate or afforded by law, particularly when the issues have been fully addressed by the Commission.

2. QF Rates: Avoided Cost Component

LG&E/KU

LG&E/KU asserted that the September 24, 2021 Order was unlawful and therefore rehearing should be granted on the issue of the avoided cost components used to calculate the QF rate.

LG&E/KU asserted that the QF rates are not rationally related to LG&E/KU's avoided costs for solar energy and capacity. LG&E/KU stated that Commission regulations 807 KAR 5:054, Sections 7(2) and (4), and Federal Energy Regulatory Commission (FERC) Order 872 both request QF rates to be based upon avoided costs, which are defined as the incremental cost of energy or capacity, or both, that, if not for the purchase from the QF, the utility would generate itself or purchase from another source. For the same reasons discussed above, LG&E/KU argued that the Rhudes Creek PPA represents the costs for comparable energy and capacity on the open market, and, because the Commission did not base the avoided energy and capacity costs on the Rhudes Creek PPA, the September 24, 2021 Order violated Commission regulations and FERC orders.

In their discussion of this issue, LG&E/KU also argued that their ability to bargain for utility-scale solar is adversely impacted because a merchant generator could break one project into two facilities to fit into the QF rate schedule and receive greater reimbursement than the Rhudes Creek PPA. LG&E/KU further argued that the Commission's finding that LG&E/KU will have a capacity need beginning in 2025 is unsupported by substantial evidence in the record and misunderstands LG&E/KU's recent RFP.

KYSEIA

KYSEIA argued that LG&E/KU's petition for rehearing on this issue should be denied because the QF rates are lawful and reasonable. KYSEIA asserted that the September 24, 2021 Order explained why each cost component for QF rates was consistent with statutory requirements, and that LG&E/KU failed to present any basis for rehearing on this issue.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Findings

Based upon the petition, responses, reply, and case record, and being otherwise sufficiently advised, the Commission finds that LG&E/KU failed to meet their burden of proof that the September 24, 2021 Order was unlawful, and thus rehearing is denied for LG&E/KU's allegation regarding avoided cost components upon which the Commission based QF rates.

The basis for the Commission's finding regarding the avoided cost component of the QF rates is the same as set forth above. Without repeating the discussion verbatim, the September 24, 2021 Order fully explained that the Commission weighed and ultimately rejected LG&E/KU's argument that the Rhudes Creek PPA represented market prices as flawed.⁷ To reiterate, "one contract does not determine market price."⁸ The

⁷ Sept. 24, 2021 Order at 32–33.

⁸ *Id.*

Commission made findings supported by substantial record evidence regarding the avoided energy and capacity costs upon which QF rates are based.

Regarding the assertion that a merchant generator would split one facility into two to game the system and obtain higher revenue, this assertion is contrary to the letter and spirit of both Commission regulation 807 KAR 5:054, Section 1(10), and the federal Public Utility Regulatory Policies Act (PURPA). PURPA established a rule that facilities are considered to be at the same site if they are owned by the same or affiliated entities, using the same energy resource, and located within one mile of each other. The one-mile rule was expanded to ten-miles by FERC Order 872 to allay these concerns. The assertion that merchant generators can game the system as proposed by LG&E/KU is foreclosed by both state and federal law.

Regarding the assertion that the finding that LG&E/KU would need additional capacity in 2025 and not 2028 is unsupported by substantial evidence in the record and the Commission misunderstands LG&E/KU's recent RFP, the Commission weighed the evidence of record and determined that the evidence provided by LG&E/KU was contrary to other evidence in the record, including LG&E/KU's press release, regarding the need for capacity in 2025 that would be addressed by the RFP.⁹ The Commission also provides no weight to the argument that, even with no identified need for capacity, the avoided capacity cost is zero. The Commission notes that LG&E/KU modeled the avoided

⁹ See *Energy Regulatory Commission v. Kentucky Power Company*, 605 S.W.2d 46, at 50; "The administrative trier of fact has the exclusive province to pass on the credibility of the witnesses and the weight of the evidence."

capacity cost as the stay open capacity cost of the most-expensive unit in their recent environmental compliance cases, Case Nos. 2020-00060 and 2020-00061.¹⁰

LG&E/KU seek to relitigate what has already been litigated and decided. The Commission weighed the evidence and made a finding of fact based upon the evidence in the record that LG&E/KU failed to carry their burden of proof that the Rhudes Creek PPA represented market price, and thus it was not reasonable to base the QF rate avoided cost components upon the Rhudes Creek PPA prices. The Commission similarly weighed the evidence regarding LG&E/KU's need for capacity in 2025 and the avoided capacity cost. Because the issue was fully litigated, the Commission finds that LG&E/KU failed to meet their burden of proof on rehearing that the Commission's Order was unlawful, and therefore rehearing on this issue is denied

3. NMS 2: Netting Period

LG&E/KU

LG&E/KU asserted that the September 24, 2021 Order was unlawful and therefore rehearing should be granted on the issue of the NMS 2 netting period.

LG&E/KU argued that the net metering netting period, as defined in KRS 278.465 and KRS 278.466, is the difference between the dollar value of all electricity generated by an eligible customer-generator that is fed back into the electric grid over a billing period and the dollar value of all electricity consumed by the eligible customer-generator over the same billing period. LG&E/KU state that the Commission violated the plain language

¹⁰ Case No. 2020-00060, *Electronic Application of Kentucky Utilities Company for Approval of Its 2020 Compliance Plan for Recovery by Environmental Surcharge* (Ky. PSC Sept. 29, 2020); Case No. 2020-00061, *Electronic Application of Louisville Gas and Electric Company for Approval of an Amended Environmental Compliance Plan and a Revised Environmental Surcharge* (Ky. PSC Sept. 29, 2020).

of these statutes in the September 24, 2021 Order by requiring LG&E/KU to “net the total energy consumed and the total energy exported by eligible customer-generators over the billing period in NMS 2 consistent with the billing period netting period establishes in NMS 1.”¹¹

KYSEIA

KYSEIA argued that LG&E/KU’s petition for rehearing on this issue should be denied because the netting period and methodology prescribed in the September 24, 2021 Order is lawful and reasonable.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Findings

Based upon the petition, responses, reply, and case record, and being otherwise sufficiently advised, the Commission finds that rehearing should be granted for the limited purpose of correcting an inadvertent omission on page 48 of the September 24, 2021 Order. The Commission finds that the first sentence in the second paragraph on page 48 of the September 24, 2021 Order should be stricken and replaced with the following: “Consistent with our finding in Case No. 2020-00174 and KRS 278.465(4), the Commission finds that LG&E/KU should continue to net the dollar value of the total energy consumed and the dollar value of the total energy exported by eligible customer

¹¹ See Sept. 24, 2021 Order at 48.

generators over the billing period in NMS 2 consistent with the billing period netting period established in NMS 1.”

4. NMS 2: Legacy Period

LG&E/KU asserted that the September 24, 2021 Order was unlawful and therefore rehearing should be granted on the issue of the NMS 2 legacy period.

LG&E/KU argued that the 25-year legacy period for the rate structure for NMS 2 customers established in the September 24, 2021 Order violates KRS 278.466(5), which LG&E/KU contended entitles utilities to recover all costs necessary to serve eligible customer-generators. LG&E/KU further argued that the only legacy right for eligible customer-generators is the 25-year legacy right for NMS 1 customers established in KRS 278.466(6). LG&E/KU asserted that the Commission acted outside of its statutory authority in establishing legacy rights in the rate structure for NMS 2 customers.

KYSEIA

KYSEIA argued that LG&E/KU’s petition for rehearing on this issue should be denied because LG&E/KU failed to identify any grounds for rehearing of the decision to establish a NMS 2 legacy period in the September 24, 2021 Order. KYSEIA contended that the authority to establish the legacy period for NMS 2 customers is consistent with the Commission’s plenary authority to regulate rates and service.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Finding

Based upon the petition, responses, reply, and case record, and being otherwise sufficiently advised, the Commission finds that LG&E/KU failed to meet their burden and, for the reasons set forth below, rehearing should be denied for the alleged violations of KRS 278.466(5) related to legacy rights for NMS 2 customers.

The Commission notes that the same or similar arguments were raised by Kentucky Power Company (Kentucky Power) and rejected by the Commission in Case No. 2020-00174.¹² Similar to Kentucky Power, LG&E/KU's argument is based upon the cramped reading of KRS Chapter 278 that the Commission has no authority to establish a rate or term of service unless the General Assembly has expressly specified. That view of the Commission's authority is contrary to the Kentucky Supreme Court's finding that the Commission has plenary ratemaking authority under KRS 278.030 and KRS 278.040, which give the Commission exclusive jurisdiction to regulate utility rates and service, including ensuring that a utility charges fair, just and reasonable rates and establishing reasonable rules governing the conditions under which the utility is required to render

¹² Case No. 2020-00174, *Electronic Application of Kentucky Power Company for (1) A General Adjustment of Its Rates for Electric Service; (2) Approval of Tariffs and Riders; (3) Approval of Accounting Practices to Establish Regulatory Assets and Liabilities; (4) Approval of a Certificate of Public Convenience and Necessity; and (5) All Other Required Approvals and Relief* (Ky. PSC June 23, 2021) (June 23, 2021 Order).

service.¹³ The Court agreed that the Commission’s plenary authority includes the implied authority to address ratemaking issues unless specifically limited by statute.¹⁴

KRS 278.466 does not include any language limiting legacy rights to NMS 1 customers only. In its May 14, 2021 Order in Case No. 2020-00174, the Commission explained the General Assembly “determined that there should be some allowance for customer expectation of and reliance on existing rate structures when the eligible generating facility was placed in service.”¹⁵ As we also explained in Case No. 2020-00174, because eligible generating facilities have a 25-year useful expected life, legacy provisions mitigate negative financial impacts that result from changes in rate design.¹⁶

Contrary to LG&E/KU’s argument that the Commission violated their rights to recover costs, the Commission did not approve legacy rights in rates, but in rate structure. We balanced LG&E/KU’s need to adapt to changing circumstances and the needs of NMS 2 customers who made a long-term investment in eligible generating facilities, facilities that the Commission found should be treated as system resources.

¹³ *Public Serv. Comm’n v. Commonwealth ex rel. Conway*, 324 S.W.3d 373 (Ky. 2010). LG&E/KU and their counsel are of course aware of this precedent as they participated in *Conway* as *amicus curiae* and advocated there for an expansive view of the Commission’s plenary ratemaking authority. As part of their brief in that matter, LG&E/KU and other parties argued “When a statutory end is required, the appropriate means to achieve the end is necessarily available to the agency that administers that statute.” The “required” “end” LG&E/KU’s *amicus* brief was referring to was fair, just and reasonable rates. *Kentucky Public Service Commission v. Commonwealth of Kentucky, ex rel. Gregory D. Stumbo*, No. 2009-SC-000134, Brief of Atmos Energy Corporation, Big Rivers Electric Corporation, Columbia Gas of Kentucky, Inc. Delta Natural Gas Company, Inc., East Kentucky Power Cooperative, Jackson Energy Cooperative Corporation, Kenergy Corp., Kentucky Association of Electric Cooperatives, Inc., Kentucky Power Company, Kentucky Rural Water Association, Inc., Kentucky Utilities Company, Louisville Gas and Electric Company, and Taylor County Rural Electric Cooperative Corporation as Amici Curiae (Nov. 5, 2009).

¹⁴ *Conway* at 381.

¹⁵ Case No. 2020-00174, *Kentucky Power* (Ky. PSC May 14, 2021) (May 14, 2021 Order) at 43.

¹⁶ *Id.*, June 23, 2021 Order at 18.

The issue regarding legacy rights to rate structure for NMS 2 customers was fully litigated by the parties, is consistent with legislative intent, and is within the plenary authority of the Commission to ensure that rates are fair, just and reasonable. Therefore, we find that LG&E/KU failed to meet their burden of proof that the establishment of a legacy right to rate structure for NMS 2 customers is unlawful, and rehearing is denied for this issue.

5. NMS 2 Rate Components

LG&E/KU asserted that the September 24, 2021 Order was unlawful and that rehearing should be granted because of the lack of transparency in calculating QF and NMS 2 avoided cost components.

LG&E/KU argued that the September 24, 2021 Order violated their right to procedural due process because the Commission failed to include “workpapers or calculations” that support the avoided generation capacity cost for QF and NMS 2 rates, and the avoided transmission capacity cost, avoided distribution capacity cost, and avoided environmental compliance cost components for NMS 2 rates.¹⁷ LG&E/KU argued that, without workpapers or calculations to support the amounts, it is “impossible” to arrive at the values.¹⁸

KYSEIA

KYSEIA argued that LG&E/KU’s petition for rehearing on this issue should be denied because LG&E/KU failed to identify any grounds for rehearing. KYSEIA explained that the Commission explains the intent and design for each cost component, including

¹⁷ LG&E/KU’s Joint Petition (filed Oct. 15, 2021) at 20.

¹⁸ *Id.*

the evidence of record relied upon. KYSEIA asserted that, if LG&E/KU had a concern about the clerical nature of a value in a cost component, they should have sought clarification. KYSEIA also asserted that cases cited by LG&E/KU to support their position that they were deprived of due process are inapplicable, and that LG&E/KU had no right to engage in discovery upon the Commission or Commission Staff.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Finding

Based upon the petition, responses, reply, and case record, the Commission finds that LG&E/KU failed to meet their burden, and for the reasons set forth below, rehearing should be denied.

The plain language of the September 24, 2021 Order refutes LG&E/KU's assertion that it is "impossible" to calculate certain avoided cost components. The Order is replete with concrete, step-by-step explanations of the calculations. Further, the Order provides citations to the record for every factor used to calculate the avoided costs, a majority of which were based upon information provided by LG&E/KU. For example, in calculating the NMS 2 avoided transmission cost, the Commission explained step-by-step how the cost was calculated using LG&E/KU's own evidence filed in the case record. What follows is a screenshot from page 52 of the September 24, 2021 Order that includes both the discussion and citations to the case record:

Intervening parties supported a methodology similar Minnesota's VOS study.¹⁵⁶ The Commission finds it reasonable to modify the Minnesota VOS approach¹⁵⁷ to estimate an avoided transmission capacity cost. To estimate the cost of transmission capacity, the Commission averaged LG&E/KU's joint firm point-to-point transmission service rates¹⁵⁸ over the most recent five years to find a \$/kW deferred cost of transmission, and escalated at the same rate that LG&E/KU used for distribution escalation over the 25-year lifetime of a solar resource. Finding the net present value of that deferred annual cost, annualizing the avoided cost, and dividing by expected annual solar generation yields a \$/kWh avoided transmission capacity cost. To account for the time-dependent nature of capacity benefits, the Commission discounted the \$/kWh avoided transmission cost by a measure of the effective capacity of solar. To do so, the Commission used LG&E/KU's average annual availability factor, which averages the availability of a sample solar production profile during monthly peak hours.¹⁵⁹

Based on the approach described above, the Commission finds the fair, just and reasonable avoided transmission capacity cost to be \$0.00732.

Avoided Distribution Capacity Cost: LG&E/KU asserted that it is unlikely that net metering would result in any avoided distribution costs.¹⁶⁰ For similar reasons noted in

¹⁵⁶ Supplemental Testimony of Karl Råbago (filed July 13, 2021) (Råbago July 13, 2021 Testimony) at 3–5; August 18, 2021 HVT at 7:55:33.

¹⁵⁷ The Commission simplified Minnesota's approach in several ways, including not accounting for PV degradation, not adjusting transmission capacity for losses, as there was not information in the record to support those approaches.

¹⁵⁸ LG&E/KU's Response to Commission Staff's Eighth Request for Information, Item 19.

¹⁵⁹ Sinclair July 13, 2021 Testimony, Exhibit DSS–2 at 9.

¹⁶⁰ *Id.* at 27.

LG&E/KU's claim that they were deprived of due process fails given the plain language of the September 24, 2021 Order, particularly the reliance upon and citation to evidence in the record, especially evidence provided by LG&E/KU. As expressly addressed in the September 24, 2021 Order, the avoided cost calculations were based upon evidence in the record; evidence that LG&E/KU had the opportunity to test, explain, and refute, but now complain does not constitute substantial evidence.

For the above reasons, the Commission finds that LG&E/KU failed to meet their burden of proof that their due process rights were violated, and rehearing is denied for this issue.

Although we deny LG&E/KU's request for rehearing, we will provide the spreadsheets for the same reason we provided spreadsheets in Case No. 2020-00174. As LG&E/KU are aware, the Commission does not release internal workpapers in rate cases, but instead carefully carries out the Commission's duty to support decisions with substantial evidence in the record to support adjustments made in a rate case. In Case No. 2020-00174, we made an exception given that the proceeding was a matter of first impression regarding the methodology and inputs for developing net metering rates, and we thought it important to put all electric utilities on notice of the process. Here, we will again make an exception given that this is the second instance of developing net metering rates. Providing the spreadsheet should not be considered precedential.

6. QF and NMS 2: Cost Recovery

LG&E/KU asserted that the Commission should have provided for full cost recovery of all QF and NMS 2 costs. LG&E/KU argued that they have no control over quantity, pricing, or timing of QF and NMS 2 costs, and thus should have been allowed

to recover those costs through their fuel adjustment clause (FAC), regardless of whether purchases are economy or non-economy, or an allowed regulatory asset treatment for cost recovery.

KYSEIA

KYSEIA argued that LG&E/KU's petition for rehearing on this issue should be denied because LG&E/KU failed to identify any grounds for rehearing of the decision.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Finding

Based upon the petition, responses, reply, and case record, the Commission finds that rehearing should be granted on this issue and that LG&E/KU should be allowed to recover QF and NMS 2 costs through their FACs. In Case No. 2020-00174, the Commission had a similar finding in which it was found reasonable for Kentucky Power to collect the avoided costs payments or credits made to customers under NMS II through its Purchase Power Adjustment, concluding the payments are a purchased power expense for net energy exported to the grid.¹⁹ Similarly, the Commission finds compensation through a rider mechanism such as the FAC is appropriate as it allows for timely recovery independent of quantity or pricing.

¹⁹ Case No. 2020-00174, *Kentucky Power*, May 14, 2021 Order at 42.

7. LG&E/KU Experience with DERMS

LG&E/KU argued that the Commission made a material error of fact in the September 24, 2021 Order, and therefore rehearing should be granted.

LG&E/KU asserted that the Commission erred in discounting LG&E/KU's experience and expertise with DERMS based on the statement that LG&E/KU are not experienced enough with distributed energy resources (DER) to examine avoided cost. LG&E/KU maintained that they have considerable experience with DERMS and that the Commission statement prejudices LG&E/KU's DERMS evaluation result.

KYSEIA

KYSEIA argued that LG&E/KU's petition for rehearing on this issue should be denied because LG&E/KU failed to identify any grounds for rehearing of the decision.

Joint Intervenors

Joint Intervenors argued that rehearing should be denied on all issues because LG&E/KU seek to relitigate issues fully adjudicated and decided by the Commission, and do not offer new evidence not readily available prior to the September 24, 2021 Order.

Finding

Based upon the petition, responses, reply, and case record, the Commission finds that LG&E/KU failed to meet their burden of proof that the Commission made a material error.

LG&E/KU seek to relitigate what has already been litigated and decided. The Commission weighed the evidence of record and made a finding of fact based upon the substantial evidence in the record, including LG&E/KU's hearing testimony, regarding their experience with emerging technology in managing DER. The claim that the

Commission prejudged the outcome of LG&E/KU's ongoing DERMS analysis is not supported by the express language of the September 24, 2021 Order. The Commission set forth in detail the evidence of record and basis for concerns that LG&E/KU may not have sufficient familiarity with emerging technology regarding integrating distributed generation to conduct a robust, thorough analysis. The Commission did not instruct LG&E/KU to halt their DERMS analysis; the Commission pointed out areas of concern for LG&E/KU's consideration. Because the issue was fully litigated, the Commission finds that LG&E/KU failed to meet their burden of proof that the Commission's Order was unlawful, and therefore rehearing on this issue is denied.

Miscellaneous Items

Due to a few extraneous arguments made by LG&E/KU, the Commission feels it is necessary to address additional issues raised by LG&E/KU. First, LG&E/KU spend a significant amount of time in their Petition for Reconsideration discussing market prices, market rates, and markets generally, in reference to the pricing that a single 100 MW PPA represents. A single PPA resulting from a 2019 request for proposal is not a "market" price or rate in 2021, particularly not one that should be representative of a utility's avoided cost *going forward*. Furthermore, merely repeating "market" over and over again does not make it true. LG&E/KU do not participate in an organized wholesale electricity market, nor do they seem particularly interested in doing so.²⁰ A cursory review of LG&E/KU's recently-filed RTO Membership analysis provides no mention of FERC Order 872, PURPA or Qualifying Facilities as a consideration for RTO membership, although LG&E/KU's primary argument on rehearing for why the QF and NMS 2 rates set by the

²⁰ See 2021 RTO Membership Analysis, October 2021, filed in these dockets on October 19, 2021.

Commission are unreasonable is because the rates exceed LG&E/KU's perception of market prices. Of course, were LG&E/KU actually part of an organized wholesale electricity market, the Commission could give some weight to those prevailing "market" prices, or even past market trends.²¹ Until that is the case, it is wholly inconsistent for LG&E/KU to argue rates should be set based on market prices, while it has little interest in seriously considering participation in wholesale electricity markets.

On a related item, the Commission notes LG&E/KU's significant stated concerns regarding the QF rates ordered in this matter, arguing, with little actual support, that the rates "Will Likely Harm Customers."²² Of course, if LG&E/KU are truly concerned what impact a proliferation of QFs may have on its customers, they could seriously consider joining an RTO and seeking FERC approval to be relieved from their obligation under 18 C.F.R. 292.303(a) as afforded under 18 C.F.R. 292.310. As noted above, there was no consideration given to this "benefit" to alleviate LG&E/KU's concerns, on behalf of their customers, presented in the recently filed RTO analysis.

Moreover, contrary to LG&E/KU's assertions otherwise, the Commission believes it is imperative to confirm why it has determined the new QF rates will not harm customers. First, as the Commission recently stated, it intends on reviewing, and if necessary, amending its PURPA regulations in light of changed federal QF regulations.²³ Second,

²¹ See Case No. 2021-00198, *Electronic Tariff Filing of East Kentucky Power Cooperative, Inc. and Its Member Distribution Cooperatives for Approval of Proposed Changes to Their Qualified Cogeneration and Small Power Production Facilities Tariffs* (Ky. PSC Oct. 26, 2021) at 9–10 (discussing the requirement that a PSC-jurisdictional utility provide "the most-recent [Base Residual Auction] results" in future filings, and permitting East Kentucky Power Cooperative and its member-owners to include "real-time LMP at the time of delivery as the energy rates" for QFs).

²² LG&E/KU's Joint Petition (filed Oct. 15, 2021) at 4.

²³ Order (Ky. PSC Nov. 1, 2021) at 9.

the Commission has limited the length of QF contracts that provide an opportunity for capacity payments to only 2- and 7-years. These contracts lengths are certainly shorter than the 20-year agreements proposed by LG&E/KU.²⁴ Out of a concern for ratepayers, the Commission has already stated that it will “monitor the pace of development and the accuracy of the utility avoided cost forecasts and may wish to revisit the length [of contracts] in the future.”²⁵ Further, these payments are only available to a QF entitled to determined rates, and therefore must have a legally enforceable obligation. Additionally, any QF contract entered into between LG&E/KU and a QF will be negotiated with the stated rates a starting point for negotiations²⁶ and the applicable regulations provide the Commission an opportunity to conduct a hearing on QF contracts.²⁷ Stated QF rates can also be proposed to be amended as the utility’s avoided costs change. Furthermore, 807 KAR 5:054 also provides the Commission an opportunity to review QF contracts or settle disagreements about final rates. Finally, the Commission required LG&E/KU to refile avoided cost rates beginning in the fall of 2023 based on an expectation LG&E/KU will continue to file this information every two years.²⁸

Separately, in support of their petition for reconsideration, LG&E/KU argue that “under Kentucky law . . . utility management decisions are presumed to be reasonable

²⁴ September 24, 2021 Order at 27.

²⁵ *Id.* at 28.

²⁶ Order (Ky. PSC Nov. 1, 2021) at 8.

²⁷ *Id.*

²⁸ Sept. 24, 2021 Order at 27, 38.

unless demonstrated otherwise.”²⁹ Although the Commission feels that addressing this issue is important, it does not serve as a basis for its decisions in this matter. Given the gravity of the assertion though, it cannot go unaddressed. Whatever proposition *West Ohio Gas* stands for, it is not “Kentucky law,” nor does it state implicitly or explicitly, that this Commission’s standard is that “utility management decisions are presumed to be reasonable unless demonstrated otherwise.” This presumption appears nowhere in Kentucky statutes and stands in stark contrast to the clear burden of proof in KRS 278.190, for instance. Never mind that *West Ohio Gas* involved a ratemaking process absent in Kentucky, or that the underlying facts of that case predated even the creation of this Commission. *West Ohio Gas* precedes even the seminal case of *Hope*, where the Court held that under the federal standard of just and reasonable, “it is the result reached, not the method employed which is controlling.”³⁰ In *West Ohio Gas* though, the Court chose to go item-by-item, determining whether each adjustment by the Ohio Commission was permissible. This Commission can appreciate why a regulated monopoly would prefer a standard of review that presumes all utility decisions to be reasonable, effectively shifting the burden of proof onto the Commission and intervening parties. Nevertheless, that is not the standard in front of this Commission under plain and settled Kentucky law. Any assertion to the contrary, including those made by this Commission in previous proceedings, is in error.

IT IS THEREFORE ORDERED that:

1. LG&E/KU’s petition for rehearing is granted in part and denied in part.

²⁹ LG&E/KU’s Joint Petition (filed Oct. 15, 2021) at 25 (citing *West Ohio Gas Co. v. Ohio Pub. Util. Comm’n*, 294 U.S. 63 (1935)).

³⁰ *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 602 (1944).

2. LG&E/KU's petition for rehearing on the issue of the description of the netting methodology on page 48 of the September 24, 2021 Order is granted.

3. The first sentence in the second paragraph on page 48 of the September 24, 2021 Order is stricken and replaced with the following:

Consistent with our finding in Case No. 2020-00174 and KRS 278.465(4), the Commission finds that LG&E/KU should continue to net the dollar value of the total energy consumed and the dollar value of the total energy exported by eligible customer generators over the billing period in NMS 2 consistent with the billing period netting period established in NMS 1.

4. LG&E/KU's petition for rehearing regarding the calculation of NMS 2 rate components is denied. The calculation of these rates is provided in the Appendix to this Order.

5. LG&E/KU's petition for rehearing on the issue of cost recovery of QF and NMS 2 costs through their FAC is granted, with recovery as set forth in this Order.

6. LG&E/KU's petitions for rehearing on the remaining issues are denied.

7. This matter shall remain open pending the final determination on other matters, including those for which LG&E/KU were granted rehearing by Order entered August 12, 2021.

By the Commission

Commissioner Marianne Butler did not participate in the deliberations or decision concerning this case.



ATTEST:


Executive Director

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NOS. 2020-00349 & 2020-00350 DATED NOV 04 2021

Please note that the final rates are found at the following tabs in the Excel files:

NMS 2

Attachment: "LGE_KU_NEM_PROTECTED"

Tab: "Excess Gen Price"

SQF/LQF/QF

Attachment: "LGE_KU_QF_Rates_PROTECTED.xlsx"

Tab: "CurrentMkt"

Kentucky Power	
Energy	\$ 0.03893
Ancillary Services	\$ 0.00063
G Capacity	\$ 0.02816
T Capacity	\$ 0.01245
D Capacity	\$ 0.01046
Carbon cost	\$ 0.00578
Enviro Comp Cost	\$ 0.00105
Job's benefit	-
NMS Price for Excess Gen	\$ 0.09746

LG&E NMS 2 Export Rate		Source
Energy*	\$ 0.02478	<i>Seelye Suppl Testimony</i>
Ancillary Services	\$ 0.00082	<i>4% * G Capacity, Seelye Suppl Rebuttal</i>
Generation Capacity*	\$ 0.02061	<i>KU/LG&E LevelCT Approach</i>
Transmission Capacity	\$ 0.00732	
Distribution Capacity	\$ 0.00129	
Carbon Cost	\$ 0.01338	<i>KU/LG&E Provided Exact Value</i>
Environmental Compliance Cost	\$ 0.00105	
Jobs Benefit	\$ -	
NMS 2 Price for Excess Gen	\$ 0.06924	
<i>*With losses</i>		

KU NMS 2 Export Rate		Source
Energy*	\$ 0.02526	<i>Seelye Suppl Testimony</i>
Ancillary Services	\$ 0.00084	<i>4% * G Capacity, Seelye Suppl Rebuttal</i>
Generation Capacity*	\$ 0.02106	<i>KU/LG&E LevelCT Approach</i>
Transmission Capacity	\$ 0.00732	<i>Calculated based on simplified MN VOS Approach</i>
Distribution Capacity	\$ 0.00185	<i>Calculated based on simplified MN VOS Approach</i>
Carbon cost	\$ 0.01338	<i>Data anc calculation provided in PSC-8-Q21</i>
Environmental Compliance Cost	\$ 0.00397	<i>Calculated using data from PSC-7-##</i>
Jobs Benefit	\$ -	
NMS 2 Price for Excess Gen	\$ 0.07366	
<i>*With losses</i>		

QF	\$ 0.04632
fixed tilt QF from PPT	0.043895

Avoided Energy					Market/Index			
Year	Solar: Single-Axis Tracking	Solar: Fixed Tilt	Wind	Other	Year	Market: Solar	Index: Solar	Index: Wind
2022	23.04	23.33	22.55	22.06	2022	27.82	32.96	29.90
2023	22.83	23.05	22.47	22.02	2023	27.82	32.96	29.90
2024	23.12	23.38	22.81	22.31	2024	27.82	32.96	29.90
2025	23.24	23.49	23.10	22.54	2025	27.82	32.96	29.90
2026	22.64	22.82	22.34	21.90	2026	27.82	32.96	29.90
2027	23.03	23.24	22.80	22.36	2027	27.82	32.96	29.90
2028	22.81	22.95	22.70	22.00	2028	27.82	32.96	29.90
2029	23.24	23.40	23.09	22.42	2029	27.82	32.96	29.90
2030	23.82	23.94	23.72	23.08	2030	27.82	32.96	29.90
2031	24.34	24.48	24.33	23.61	2031	27.82	32.96	29.90
2032	24.89	25.05	24.80	24.11	2032	27.82	32.96	29.90
2033	25.49	25.65	25.46	24.69	2033	27.82	32.96	29.90
2034	25.25	25.49	25.26	24.07	2034	27.82	32.96	29.90
2035	25.76	26.05	25.69	24.52	2035	27.82	32.96	29.90
2036	26.24	26.47	26.15	25.07	2036	27.82	32.96	29.90
2037	26.01	26.29	25.95	24.73	2037	27.82	32.96	29.90
2038	26.07	26.47	25.87	24.65	2038	27.82	32.96	29.90
2039	24.03	24.39	25.19	23.42	2039	27.82	32.96	29.90
2040	23.65	24.05	23.68	22.82	2040	27.82	32.96	29.90
2041	23.45	23.75	23.76	22.82	2041	27.82	32.96	29.90
2042	23.76	24.06	24.15	23.18	2042	27.82	32.96	29.90
2043	24.38	24.67	24.49	23.58	2043	27.82	32.96	29.90
2044	24.81	25.13	25.19	24.10	2044	27.82	32.96	29.90
2045	25.65	26.05	25.56	24.72	2045	27.82	32.96	29.90

CT as Proxy for Capacity				
Year	Solar: Single-Axis Tracking	Solar: Fixed Tilt	Wind	Other
2022	0.00	0.00	0.00	0.00
2023	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00
2025	18.37	22.10	14.49	12.81
2026	18.70	22.49	14.75	13.04
2027	19.03	22.89	15.01	13.27
2028	19.37	23.29	15.27	13.51
2029	19.71	23.70	15.54	13.75
2030	20.06	24.12	15.82	13.99
2031	20.42	24.55	16.10	14.24
2032	20.78	24.99	16.39	14.49
2033	21.15	25.43	16.68	14.75
2034	21.52	25.88	16.97	15.01
2035	21.90	26.34	17.27	15.27
2036	22.29	26.81	17.58	15.54
2037	22.69	27.28	17.89	15.82
2038	23.09	27.77	18.21	16.10
2039	23.50	28.26	18.53	16.39
2040	23.91	28.76	18.86	16.68
2041	24.34	29.27	19.19	16.97
2042	24.77	29.79	19.54	17.27
2043	25.21	30.32	19.88	17.58
2044	25.66	30.86	20.24	17.89
2045	26.11	31.41	20.59	18.21

1	
SCCT	Solar: Single-Axis Tracking
0	0
0	0
0	0
112,244	41,776
114,231	42,516
116,255	43,269
118,314	44,035
120,410	44,815
122,544	45,609
124,715	46,418
126,926	47,240
129,176	48,078
131,466	48,930
133,797	49,798
136,170	50,681
138,585	51,580
141,043	52,495
143,546	53,426
146,093	54,374
148,686	55,339
151,325	56,322
154,011	57,321
156,746	58,339
159,529	59,375

Avoided Energy	20-Year Energy Payment for Contract Beginning:						All-in avoided cost for QFs w/o Losses					
	2-Year PPA	2022	2023	2024	2025	2026	AVERAGE 2022/2023	2022	2023	2024	2025	2026
1 Solar: Single-Axis Tracking	22.94	23.85	23.92	24.03	24.14	24.26	40.34	39.46	41.21	43.12	45.16	45.65
2 Solar: Fixed Tilt	23.19	24.07	24.14	24.26	24.36	24.48	43.89	42.85	44.94	47.21	49.64	50.21
3 Wind	22.51	23.71	23.83	23.97	24.11	24.24	36.74	36.02	37.46	39.02	40.68	41.11
4 Other	22.04	22.98	23.07	23.18	23.29	23.39	34.50	33.87	35.13	36.50	37.95	38.31

Avoided Energy w/ Losses KU			Avoided Energy w/ Losses LG&E		
PPA	2022	2023	PPA	2022	2023
24.03	24.98	25.06	23.57	24.51	24.58
24.29	25.22	25.29	23.83	24.74	24.81
23.58	24.84	24.96	23.14	24.37	24.49
23.08	24.08	24.17	22.65	23.62	23.71

2025 Capacity Need		Note: Change cell C10 in LevelCT worksheet to change year of capacity need.				
Avoided Capacity	2-Year PPA	20-Year Demand Payment for Contract Beginning				
		2022	2023	2024	2025	2026
1 Solar: Single-Axis Tracking	0.00	15.61	17.29	19.09	21.02	21.39
2 Solar: Fixed Tilt	0.00	18.78	20.79	22.96	25.28	25.73
3 Wind	0.00	12.31	13.64	15.05	16.58	16.87
4 Other		10.89	12.06	13.31	14.66	14.92

Avoided Capacity w/ Losses KU			Avoided Capacity w/ Losses LG&E		
PPA	2022	2023	PPA	2022	2023
0.00	16.62	18.40	0.00	16.26	18.01
0.00	19.99	22.13	0.00	19.56	21.65
0.00	13.11	14.51	0.00	12.82	14.20
0.00	11.59	12.83	0.00	11.34	12.56

Line Losses	Transmission		Primary	
	Energy	Demand	Energy	Demand
KU	2.564%	3.112%	2.184%	3.337%
LG&E	0.807%	1.393%	1.965%	2.746%

Source: Seelye Supplemental Testimony pages 11-13, KUPSC-5 Q:20 page 5 of 51 (pdf 156 of 202), page 25 of 51 (pdf 176 of 202), and LGPEPC-5 Q:21 page 5 of 51 (157 of 203)

	total energy	total demand
KU	4.748%	6.449%
LG&E	2.772%	4.139%

2		3			4 \$/MWh		
Solar:		Solar:			Solar:		
Fixed Tilt	Wind	Other	Tracking	Single-Axis	Fixed Tilt	Wind	Other
0	0	0	0.00	0.00	0.00	0.00	0.00
0	0	0	0.00	0.00	0.00	0.00	0.00
0	0	0	0.00	0.00	0.00	0.00	0.00
32,326	32,166	112,244	18.37	22.10	14.49	12.81	
32,899	32,735	114,231	18.70	22.49	14.75	13.04	
33,481	33,315	116,255	19.03	22.89	15.01	13.27	
34,074	33,905	118,314	19.37	23.29	15.27	13.51	
34,678	34,506	120,410	19.71	23.70	15.54	13.75	
35,293	35,117	122,544	20.06	24.12	15.82	13.99	
35,918	35,740	124,715	20.42	24.55	16.10	14.24	
36,555	36,373	126,926	20.78	24.99	16.39	14.49	
37,203	37,018	129,176	21.15	25.43	16.68	14.75	
37,862	37,674	131,466	21.52	25.88	16.97	15.01	
38,534	38,342	133,797	21.90	26.34	17.27	15.27	
39,217	39,022	136,170	22.29	26.81	17.58	15.54	
39,912	39,714	138,585	22.69	27.28	17.89	15.82	
40,621	40,419	141,043	23.09	27.77	18.21	16.10	
41,341	41,136	143,546	23.50	28.26	18.53	16.39	
42,075	41,866	146,093	23.91	28.76	18.86	16.68	
42,822	42,609	148,686	24.34	29.27	19.19	16.97	
43,582	43,365	151,325	24.77	29.79	19.54	17.27	
44,355	44,135	154,011	25.21	30.32	19.88	17.58	
45,143	44,919	156,746	25.66	30.86	20.24	17.89	
45,944	45,717	159,529	26.11	31.41	20.59	18.21	

All-In AC Rate w/ Losses KU				All-In AC Rate w/ Losses LG&E			
PPA	2022	2023	AVERAGE 22/23	PPA	2022	2023	AVERAGE 22/23
24.03	41.60	43.46	42.53	23.57	40.77	42.59	41.68
24.29	45.21	47.42	46.31	23.83	44.30	46.47	45.38
23.58	37.94	39.47	38.71	23.14	37.19	38.69	37.94
23.08	35.67	37.00	36.34	22.65	34.96	36.27	35.62

WACC 6.75%
 1st Year of Analysis Period 2021
 Capital ECC 3
 Base Year for ALL Costs 2021
 Sales Tax 6.0%
 Operating Scenario 1
 Proposal 1
 Evaluate Proposals Over Fixed Period 1
 1st Year of Fixed Period 2025
 Last Year of Fixed Period 2070
 QF Contract Begins 2024
 QF Term 7

Respondent NREL
 Technology SCCT
 Description SB SCCT (220 MW)
 Location Greenfield
 Capacity 220

Cost Item	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
1 Overnight Capital	0	0	0	0	16,533,586	16,807,682	17,086,322	17,369,580	17,657,535	17,950,264	18,247,845	18,550,360	18,857,889	19,170,518	19,488,328	19,811,408
2 Capital w/ Profile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 XM System Upgrades	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 On-Going Capital #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 On-Going Capital #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 On-Going O&M #1	0	0	0	0	2,879,613	2,937,205	2,995,949	3,055,868	3,116,985	3,179,325	3,242,912	3,307,770	3,373,925	3,441,404	3,510,232	3,580,437
7 On-Going O&M #2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 On-Going XM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 On-Going FGT	0	0	0	0	5,280,395	5,386,002	5,493,723	5,603,597	5,715,669	5,829,982	5,946,582	6,065,514	6,186,824	6,310,560	6,436,772	6,565,507
10 Annual Fuel Burn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Energy Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Variable O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Start Cost	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Start Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Hourly Operating Cost	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	24,693,594	25,130,890	25,575,993	26,029,045	26,490,190	26,959,571	27,437,339	27,923,643	28,418,639	28,922,482	29,435,332	29,957,352

Generation	0	0	0	0	289,080	289,080	289,080	289,080	289,080	289,080	289,080	289,080	289,080	289,080	289,080	289,080
QF Contract Term	0	0	0	220	220	220	220	220	220	220	0	0	0	0	0	0
\$/MW-Year	0	0	0	0	112,244	114,231	116,255	118,314	120,410	122,544	124,715	126,926	129,176	131,466	133,797	136,170

QF: \$/MW-Year 96,792
 Levelized Cost of Energy (\$/MWh) \$102.66

\$96,791.61	2022	2023	2024	2025	2026
2028	13,776	28,727	44,935	62,489	81,487
2034	0	0	0	0	0
2035	0	0	0	0	0

Availability

Multiplier	2028 Need	2022	2023	2024	2025	2026	CF	2022	2023	2024	2025	2026	
37.2% Solar: Single-Axis Tracking	5,127	10,692	16,724	23,258	30,328		1	25.96%	2.26	4.70	7.36	10.23	13.34
28.8% Solar: Fixed Tilt	3,968	8,273	12,941	17,997	23,468		1	16.7%	2.71	5.66	8.85	12.30	16.04
28.7% Wind	3,948	8,232	12,877	17,908	23,352		1	25.3%	1.78	3.71	5.80	8.07	10.52
100% Other	13,776	28,727	44,935	62,489	81,487		1	100.0%	1.57	3.28	5.13	7.13	9.30
2034 Need													
37% Solar: Single-Axis Tracking	0	0	0	0	0		2	26%	0.00	0.00	0.00	0.00	0.00
29% Solar: Fixed Tilt	0	0	0	0	0		2	17%	0.00	0.00	0.00	0.00	0.00
29% Wind	0	0	0	0	0		2	25%	0.00	0.00	0.00	0.00	0.00
100% Other	0	0	0	0	0		2	100%	0.00	0.00	0.00	0.00	0.00
2035 Need													
37% Solar: Single-Axis Tracking	0	0	0	0	0		3	26%	0.00	0.00	0.00	0.00	0.00
29% Solar: Fixed Tilt	0	0	0	0	0		3	17%	0.00	0.00	0.00	0.00	0.00
29% Wind	0	0	0	0	0		3	25%	0.00	0.00	0.00	0.00	0.00
100% Other	0	0	0	0	0		3	100%	0.00	0.00	0.00	0.00	0.00

Year

2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035

inSES

Proposal	1 SB SCCT (220 MW)									
LCOE	\$102.66									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Overnight Capital Investment	0	0	0	0	#####	0	0	0	0	
Capital Investment w/ Profile	0	0	0	0	0	0	0	0	0	
XM System Upgrades	0	0	0	0	0	0	0	0	0	
On-Going Capital #1	0	0	0	0	0	0	0	0	0	
On-Going Capital #2	0	0	0	0	0	0	0	0	0	
On-Going O&M #1	0	0	0	0	2,879,613	2,937,205	2,995,949	3,055,868	3,116,985	
On-Going O&M #2	0	0	0	0	0	0	0	0	0	
On-Going XM	0	0	0	0	0	0	0	0	0	
On-Going FGT	0	0	0	0	5,280,395	5,386,002	5,491,723	5,601,597	5,715,669	
Annual Fuel Burn	0	0	0	0	0	0	0	0	0	
Energy Price	0	0	0	0	0	0	0	0	0	
Variable O&M	0	0	0	0	0	0	0	0	0	
Start Cost	0	0	0	0	0	0	0	0	0	
Start Fuel	0	0	0	0	0	0	0	0	0	
Hourly Operating Cost	0	0	0	0	0	0	0	0	0	

Capital & Fixed Costs
Note: # columns per input needs to be same for all inputs. Inserting new inputs is OK but WILL require coordination with
1 2 3

Source: 2020 NREL ATB

Year	SCCT: Overnight Capital (\$/kW; Real 2018\$)	SCCT: Fixed O&M (\$/kW-yr; Real 2018\$)	SCCT: Overnight Capital (\$/kW; Nominal \$)	SCCT: Fixed O&M (\$/kW-yr; Nominal \$)	SCCT Capital Esc.	SCCT O&M Esc.
2018	943	11.39	943	11.39		
2019	939	11.39	958	11.62		
2020	934	11.39	972	11.86		
2021	930	11.39	987	12.09		
2022	925	11.39	1,002	12.33		
2023	915	11.39	1,010	12.58		
2024	898	11.39	1,012	12.83		
2025	887	11.39	1,019	13.09		
2026	881	11.39	1,032	13.35		
2027	874	11.39	1,044	13.62		
2028	869	11.39	1,059	13.89		
2029	866	11.39	1,077	14.17	1.6%	2.0%
2030	862	11.39	1,093	14.45	1.5%	2.0%
2031	858	11.39	1,110	14.74	1.6%	2.0%
2032	854	11.39	1,127	15.04	1.5%	2.0%
2033	850	11.39	1,143	15.34	1.5%	2.0%
2034	846	11.39	1,162	15.64	1.6%	2.0%
2035	844	11.39	1,182	15.96	1.7%	2.0%
2036	841	11.39	1,201	16.27	1.6%	2.0%
2037	839	11.39	1,222	16.60	1.8%	2.0%
2038	836	11.39	1,243	16.93	1.7%	2.0%
2039	834	11.39	1,263	17.27	1.6%	2.0%
2040	830	11.39	1,284	17.62	1.6%	2.0%
2041	829	11.39	1,307	17.97	1.8%	2.0%
2042	826	11.39	1,329	18.33	1.7%	2.0%
2043	824	11.39	1,352	18.69	1.7%	2.0%
2044	822	11.39	1,375	19.07	1.7%	2.0%
2045	820	11.39	1,399	19.45	1.8%	2.0%
2046	817	11.39	1,422	19.84	1.6%	2.0%
2047	814	11.39	1,446	20.24	1.7%	2.0%
2048	812	11.39	1,471	20.64	1.7%	2.0%
2049	810	11.39	1,496	21.05	1.7%	2.0%
2050	801	11.39	1,509	21.47	0.8%	2.0%

WACC 6.75%
 Capital Escalation 2.00%
 BL 30
 FCR 8.8%
 YR1 ECC 6.4%

NPV (K Factor) \$1.1257 \$1.1257 \$1.1257

	A	B	C	D	E	D*E	
	RRProfile	Level	ECC%	ECC	Esc	ECC%	
0	12.4%	8.8%	7.2%	7.2%	1.000	7.2%	-
1	12.0%	8.8%	7.3%	7.2%	1.020	7.3%	-
2	11.6%	8.8%	7.5%	7.2%	1.040	7.5%	-
3	11.1%	8.8%	7.6%	7.2%	1.061	7.6%	-
4	10.7%	8.8%	7.8%	7.2%	1.082	7.8%	-
5	10.4%	8.8%	7.9%	7.2%	1.104	7.9%	-
6	10.0%	8.8%	8.1%	7.2%	1.126	8.1%	-
7	9.6%	8.8%	8.2%	7.2%	1.149	8.2%	-
8	9.3%	8.8%	8.4%	7.2%	1.172	8.4%	-
9	8.9%	8.8%	8.6%	7.2%	1.195	8.6%	-
10	8.6%	8.8%	8.8%	7.2%	1.219	8.8%	-
11	8.2%	8.8%	8.9%	7.2%	1.243	8.9%	-
12	7.8%	8.8%	9.1%	7.2%	1.268	9.1%	-
13	7.5%	8.8%	9.3%	7.2%	1.294	9.3%	-
14	7.1%	8.8%	9.5%	7.2%	1.319	9.5%	-
15	6.8%	8.8%	9.7%	7.2%	1.346	9.7%	-
16	6.5%	8.8%	9.9%	7.2%	1.373	9.9%	-
17	6.3%	8.8%	10.1%	7.2%	1.400	10.1%	-
18	6.1%	8.8%	10.3%	7.2%	1.428	10.3%	-
19	5.8%	8.8%	10.5%	7.2%	1.457	10.5%	-
20	5.6%	8.8%	10.7%	7.2%	1.486	10.7%	-
21	5.4%	8.8%	10.9%	7.2%	1.516	10.9%	-
22	5.1%	8.8%	11.1%	7.2%	1.546	11.1%	-
23	4.9%	8.8%	11.3%	7.2%	1.577	11.3%	-
24	4.7%	8.8%	11.5%	7.2%	1.608	11.5%	-
25	4.5%	8.8%	11.8%	7.2%	1.641	11.8%	-
26	4.2%	8.8%	12.0%	7.2%	1.673	12.0%	-
27	4.0%	8.8%	12.3%	7.2%	1.707	12.3%	-
28	3.8%	8.8%	12.5%	7.2%	1.741	12.5%	-
29	3.5%	8.8%	12.8%	7.2%	1.776	12.8%	-
30		8.8%	13.0%	7.2%	1.811	13.0%	-
31		8.8%	13.3%	7.2%	1.848	13.3%	-
32		8.8%	13.5%	7.2%	1.885	13.5%	-
33		8.8%	13.8%	7.2%	1.922	13.8%	-
34		8.8%	14.1%	7.2%	1.961	14.1%	-
35		8.8%	14.4%	7.2%	2.000	14.4%	-
36		8.8%	14.6%	7.2%	2.040	14.6%	-
37		8.8%	14.9%	7.2%	2.081	14.9%	-
38		8.8%	15.2%	7.2%	2.122	15.2%	-
39		8.8%	15.5%	7.2%	2.165	15.5%	-

Proposed Avoided Energy	20-Year Energy Payment for Contract Beginning:					
	<u>2-Year PPA</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
Solar: Single-Axis Tracking	22.93844078	23.84748	23.91991	24.03195	24.13579	24.25651
Solar: Fixed Tilt	23.19100154	24.07375	24.14187	24.25639	24.35957	24.48231
Wind	22.51289519	23.70941	23.82751	23.96944	24.10709	24.23721
Other	22.03841493	22.98376	23.07417	23.18481	23.28883	23.39426

	QF Avoided Energy, KU (with			QF Avoided Energy, LG&E		
	2-Year PPA	2022	2023	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$24.03	\$24.98	\$25.06	\$23.57	\$24.51	\$24.58
Solar: Fixed Tilt	\$24.29	\$25.22	\$25.29	\$23.83	\$24.74	\$24.81
Wind	\$23.58	\$24.84	\$24.96	\$23.14	\$24.37	\$24.49
Other	\$23.08	\$24.08	\$24.17	\$22.65	\$23.62	\$23.71

Source: PSC-7-Q30_Att1 Modified

	QF Avoided Capacity,			QF Avoided Capacity,		
	2-Year PPA	2022	2023	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$16.62	\$18.40	\$0.00	\$16.26	\$18.01
Solar: Fixed Tilt	\$0.00	\$19.99	\$22.13	\$0.00	\$19.56	\$21.65
Wind	\$0.00	\$13.11	\$14.51	\$0.00	\$12.82	\$14.20
Other	\$0.00	\$11.59	\$12.83	\$0.00	\$11.34	\$12.56

Source: PSC-7-Q30_Att1 Modified

Combined

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	(\$ Thousands)
2019	52.7	\$11,653
2020	0.0	\$75
2021	46.4	\$7,261
2022	22.4	\$12,905
2023	119.4	\$11,057
Total	240.9	\$42,951
Cost per kW		\$178.29

KU

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	(\$ Thousands)
2019	52.7	\$11,653
2020	0.0	\$75
2022	46.4	\$7,261
2023	22.4	\$9,705
2024	74.6	\$8,357
Total	196.1	\$37,051
Cost per kW		\$189

LG&E

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	(\$ Thousands)
2019	0.0	\$0
2020	0.0	\$0
2022	0.0	\$0
2023	0.0	\$3,200
2024	44.8	\$2,700
Total	44.8	\$5,900
Cost per kW		131.6964286

Inputs

Distribution cost (\$/kW)	178.2939
Distribution Cost Escalation	3%
PV Capacity Factor	16.7%

WACC	6.75%
Annual Energy	1,461.03
PV Availability Factor	29%

Outputs

Deferral Savings (NPV \$/kW)	\$ 105.37
Avoided Dist (\$/kW-year)	\$8.84
Avoided Dist (\$/kWh)	\$0.0060
PV-Adj Avoided Dist (\$/kWh)	\$0.0017

	Year	Distribution Cost	Capital Cost	Deferred capital cost	
		\$/kW	\$/kW	\$/kW	
	1	2021	\$ 178.29	\$ 178.29	
	26	2046	\$ 373.31		\$ 373.31
			Discounted Value	\$ 178.29	\$ 72.92
					\$ 105.37

Inputs

Distribution cost (\$/kW)	188.9393
Distribution Cost Escalation	3%
PV Capacity Factor	16.7%

WACC	6.75%
Annual Energy	1,461.03
PV Availability Factor	29%

Outputs

Deferral Savings (NPV \$/kW)	\$ 111.66
Avoided Dist (\$/kW-year)	\$9.37
Avoided Dist (\$/kWh)	\$0.0064
PV-Adj Avoided Dist (\$/kWh)	\$0.0018

	Year	Distribution Cost	Capital Cost	Deferred capital cost	
		\$/kW	\$/kW	\$/kW	
	1	2021	\$ 188.94	\$ 188.94	
	26	2046	\$ 395.60		\$ 395.60
			Discounted Value	\$ 188.94	\$ 77.28
					\$ 111.66

Inputs

Distribution cost (\$/kW)	131.6964
Distribution Cost Escalation	3%
PV Capacity Factor	16.7%

WACC	6.75%
Annual Energy	1,461.03
PV Availability Factor	29%

Outputs

Deferral Savings (NPV \$/kW)	\$ 77.83
Avoided Dist (\$/kW-year)	\$6.53
Avoided Dist (\$/kWh)	\$0.0045
PV-Adj Avoided Dist (\$/kWh)	\$0.0013

	Year	Distribution Cost	Capital Cost	Deferred capital cost	
		\$/kW	\$/kW	\$/kW	
	1	2021	\$ 131.70	\$ 131.70	
	26	2046	\$ 275.74		
		Discounted Value	\$ 131.70	\$ 53.87	NPV of savings \$ 77.83

		MW Net Capacity (LG&E	ownership	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
			KU										
Annual Capacity Factors	Brown 3	409	100%	23.5	21.7	25.6	24.6	23.1	19.8	18.4	0	0	0
	Ghent 1	475	100%	59.8	58.9	65.5	63.9	59.8	63.7	63.2	60.4	54.2	59
	Ghent 2	485	100%	64.5	62.4	64.3	56.7	62.4	61.4	54	60.4	58.1	56.2
	Ghent 3	481	100%	59.8	57.7	55.4	55.7	54.2	51	55.1	53.5	50.9	49.3
	Ghent 4	478	100%	54.7	50.3	51.9	47	51.9	47.6	48.5	40.3	44.4	46.6
	Mill Creek 1	300	100%	70.4	76.3	69.5	80.8	0	0	0	0	0	0
	Mill Creek 2	297	100%	24	30.8	30.3	31.7	79.6	71.2	79.4	0	0	0
	Mill Creek 3	391	100%	63.7	76.5	66.6	81.6	75	82.3	68.4	79.8	73.3	79.3
	Mill Creek 4	477	100%	72.9	63.7	72.9	71.3	78.2	73.6	79	70.2	76.4	68
	Trimble County 1	370	100%	71.6	80	76	79.7	70	81.3	77.8	81	76.9	81.2
Trimble County 2	549	19%	81%	62	59.3	54.5	60.8	61.9	55.3	61	60.7	59.6	60.3
Total Energy (MWh)	Brown	409		84196740	77747628	91720704	88137864	82763604	70940232	65924256	0	0	0
	Ghent	1919		1003877604	963938136	996481536	938280972	959635224	940125828	927649836	902112684	872755296	887126076
	Mill Creek	1465		770249280	808845840	794207880	872238456	790744176	774672204	770960592	566659872	570303156	555754548
	Trimble County	919		530242800	544483932	508434780	550725432	524575956	529460532	545529000	554458068	535878984	553182612
Avg CF	Brown			23.5	21.7	25.6	24.6	23.1	19.8	18.4	0	0	0
	Ghent			59.71750912	57.34163627	59.27754039	55.81537259	57.08566962	55.92511725	55.18295987	53.66383533	51.91745701	52.77232934
	Mill Creek			60.01911263	63.02662116	61.88600683	67.96627986	61.61610922	60.36375427	60.07453925	44.15508532	44.43897611	43.30532423
	Trimble County			65.86507073	67.63405876	63.15614799	68.409358	65.16115343	65.76789989	67.76387378	68.87301415	66.56517954	68.71458107

Lifetime 20
WACC 6.75%

Last Year Online	Brown	2027
	Ghent	2034
	Mill Creek	2028
	Trimble County	2034
2021 NPV (Capital)	Brown	\$6,736,567.04
	Ghent	\$179,847,308.95
	Mill Creek	\$58,159,345.97
	Trimble County	\$52,902,565.84
Cost per MW	Brown	\$16,470.82
	Ghent	\$93,719.29
	Mill Creek	\$39,699.21
	Trimble County	\$57,565.36
Average CF	Brown	22%
	Ghent	50%
	Mill Creek	49%
	Trimble County	53%
Capital Recovery Factor		9.26%
Annualized Cost	Brown	\$623,581.75
	Ghent	\$16,647,871.10
	Mill Creek	\$5,383,618.47
	Trimble County	\$4,897,015.71
Levelized Cost (\$/MWh)	LG&E	\$1.05
Levelized Cost (\$/kWh)	LG&E	\$0.001
Levelized Cost (\$/MWh)	KU	\$3.97
Levelized Cost (\$/kWh)	KU	\$0.004

Summary of Generation Plant of KU & LG&E

Generating Facility/Unit	Unit Type	Summer Net Capacity (MW) ¹	KU Ownership (%)	LG&E Ownership (%)
Brown 3	Coal-Fired	412	100%	n/a
Brown 5	CT	130	47%	53%
Brown 6, 7	CT	292	62%	38%
Brown 8, 9, 10, 11	CT	484	100%	n/a
Brown Solar	Solar	8	61%	39%
Cane Run 7	CCGT	662	78%	22%
Dix Dam 1, 2, 3	Hydroelectric	31.5	100%	n/a
Ghent 1, 2, 3, 4	Coal-Fired	1,919	100%	n/a
Haefling 1, 2	CT	24	100%	n/a
Mill Creek 1, 2, 3, 4	Coal-Fired	1,465	n/a	100%
Ohio Falls 1-8	Hydroelectric	64	n/a	100%
Paddy's Run 11, 12	CT	35	n/a	100%
Paddy's Run 13	CT	147	47%	53%
Simpsonville Solar (Solar Share)	Solar	0.7	56%	44%
Trimble County 1 ²	Coal-Fired	370	n/a	100%
Trimble County 2 ³	Coal-Fired	549	81%	19%
Trimble County 5, 6	CT	318	71%	29%
Trimble County 7, 8, 9, 10	CT	636	63%	37%
Zorn 1	CT	14	n/a	100%

2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61.9	61.1	61.9	55.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59.2	60.3	58.5	64.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54.5	51.6	52.9	50.9	48.9	47.3	55	0	0	0	0	0	0	0	0	0	0	0
47.6	46.8	47.5	43.4	41.7	39.2	42	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74.7	79.1	74.4	72.3	61.8	68.6	60.3	57.8	63.7	0	0	0	0	0	0	0	0	0
77.6	73.9	77.9	66.8	68.7	64	61.4	52.5	61.9	0	0	0	0	0	0	0	0	0
74.4	80	68	77.8	71.9	75.9	69.1	62.8	57.9	58.2	49	48.5	46.2	49	60.2	0	0	0
60.3	60.3	60.9	52.4	57.4	56.3	53.3	50.7	47.7	44.9	38.5	34.7	39.3	38	34.7	36.3	35.7	37.8
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
938036568	923812080	927902124	899885016	380652660	363442764	407611560	0	0	0	0	0	0	0	0	0	0	0
580112604	579722784	580338612	526764204	498739212	502391256	463098276	417346548	476833080	0	0	0	0	0	0	0	0	0
531142452	549293172	513284316	504169536	509092656	516767292	480299412	447375828	417066228	404572716	343974540	324078828	338746572	341569920	362000868	174575412	171689868	181789272
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55.80083377	54.95466389	55.19796769	53.53131839	22.64382491	21.62006253	24.24752475	0	0	0	0	0	0	0	0	0	0	0
45.20334471	45.17296928	45.22095563	41.04634812	38.86259386	39.14716724	36.08539249	32.5203413	37.1556314	0	0	0	0	0	0	0	0	0
65.97682263	68.23144723	63.75854189	62.62633297	63.23786725	64.19118607	59.66126224	55.57159956	51.80663765	50.25473341	42.72742111	40.25603917	42.07801959	42.42872688	44.96659412	21.68520131	21.32676823	22.581284

	2049	2050	KU O&M	TOTAL	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	0	0	Ghent																
	0	0	CCR	159,344,470	7,835,515	7,462,936	8,990,941	10,616,046	10,743,798	10,958,674	11,177,847	11,401,404	11,629,432	11,862,021	12,099,262	12,341,247	12,588,072	6,416,571	6,544,903
	0	0	ELG	61,046,704	-	-	-	2,439,208	5,060,045	5,161,246	5,264,471	5,369,760	5,477,155	5,586,699	5,698,433	5,812,401	5,928,649	3,022,035	3,082,476
	0	0	Total Ghent	220,391,175	7,835,515	7,462,936	8,990,941	13,055,254	15,803,843	16,119,920	16,442,318	16,771,165	17,106,588	17,448,720	17,797,694	18,153,648	18,516,721	9,438,607	9,627,379
	0	0	EW Brown	0															
	0	0	CCR	23,882,633	3,112,401	3,288,641	3,232,352	3,504,169	3,511,002	3,581,222	3,652,846								
	0	0	ELG	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0	0	Total EW Brown	23,882,633	3,112,401	3,288,641	3,232,352	3,504,169	3,511,002	3,581,222	3,652,846								
	0	0	Trimble County	0															
	0	0	CCR	139,483,924	1,549,698	1,675,499	2,591,408	2,667,215	2,775,947	2,831,466	2,888,096	2,945,858	3,004,775	3,064,870	3,126,168	3,188,691	3,252,465	3,317,514	3,383,864
37.3	36.9		ELG	64,569,553	-	-	618,201	1,281,370	1,328,003	1,354,563	1,381,655	1,409,288	1,437,473	1,466,223	1,495,547	1,525,458	1,555,968	1,587,087	1,618,829
0	0		Total Trimble County	204,053,480	1,549,698	1,675,499	3,209,609	3,948,585	4,103,951	4,186,030	4,269,750	4,355,145	4,442,248	4,531,093	4,621,715	4,714,149	4,808,432	4,904,601	5,002,693
0	0		KU Capital	TOTAL	2021	2022	2023	2024	2025										
179384652	177460956		Ghent																
0	0		CCR	77,080,493	39,544,326	24,594,870	9,657,422	3,213,452	70,423										
0	0		ELG	127,784,546	32,992,546	55,055,000	18,030,000	21,707,000	-										
0	0		Total Ghent	204,865,039	72,536,872	79,649,870	27,687,422	24,920,452	70,423										
22.28258977	22.04363439		EW Brown																
			CCR	6,528,902	6,477,352	12,313	13,079	13,079	13,079										
			ELG	710,416	72,800	637,616	-	-	-										
			Total EW Brown	7,239,318	6,550,152	649,929	13,079	13,079	13,079										
			Trimble County																
			CCR	34,456,319	12,424,129	6,958,906	15,022,484	25,359	25,441										
			ELG	21,118,866	6,746,586	10,023,120	4,349,160	-	-										
			Total Trimble County	55,575,185	19,170,715	16,982,026	19,371,644	25,359	25,441										
			LG&E O&M	TOTAL	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			Mill Creek																
			CCR	5,584,973	-482,440	41,300	-192,716	184,541	475,822	485,338	495,045	376,217	383,742	391,417	399,245	407,230	415,374	423,682	432,155
			ELG	45,291,906	-	-	-	1,644,148	3,441,759	3,510,594	3,580,806	2,721,290	2,775,715	2,831,230	2,887,854	2,945,611	3,004,524	3,064,614	3,125,906
			Total Mill Creek	50,876,879	-482,440	41,300	-192,716	1,828,689	3,917,581	3,995,933	4,075,851	3,097,507	3,159,457	3,222,646	3,287,099	3,352,841	3,419,898	3,488,296	3,558,062
			Trimble County																
			CCR	155,991,416	1,773,099	1,921,384	2,915,512	2,995,479	3,101,980	3,164,019	3,227,300	3,291,846	3,357,683	3,424,836	3,493,333	3,563,200	3,634,464	3,707,153	3,781,296
			ELG	69,950,348	-	-	669,718	1,388,151	1,438,670	1,467,444	1,496,792	1,526,728	1,557,263	1,588,408	1,620,176	1,652,580	1,685,631	1,719,344	1,753,731
			Total Trimble County	225,941,758	1,773,099	1,921,384	3,585,229	4,383,630	4,540,650	4,631,463	4,724,092	4,818,574	4,914,945	5,013,244	5,113,509	5,215,779	5,320,095	5,426,497	5,535,027
			LG&E Capital	TOTAL	2021	2022	2023	2024	2025										
			Mill Creek																
			CCR	6,083,502	5,841,051	57,918	61,511	61,511	61,511										
			ELG	60,731,067	15,770,067	23,993,000	10,007,000	10,961,000	-										
			Total Mill Creek	66,814,569	21,611,118	24,050,918	10,068,511	11,022,511	61,511										
			Trimble County																
			CCR	37,339,026	13,472,249	7,538,837	16,273,904	27,018	27,018										
			ELG	22,878,771	7,308,801	10,858,380	4,711,590	-	-										
			Total Trimble County	60,217,797	20,781,050	18,397,217	20,985,494	27,018	27,018										
			KU + LG&E O&M	725,145,925	13,788,273	14,389,760	18,825,415	26,720,327	31,877,027	32,514,568	33,164,857	29,042,391	29,623,238	30,215,703	30,820,017	31,436,417	32,065,146	#####	#####
			KU + LG&E Capital	394,711,908	140,649,907	139,729,960	78,126,150	36,008,419	197,472										
			Total cost (O&M + Capital)		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			Brown		9,662,553	3,938,570	3,245,431	3,517,248	3,524,081	3,581,222	3,652,846								
			Ghent		80,372,387	87,112,806	36,678,363	37,975,706	15,874,266	16,119,920	16,442,318	16,771,165	17,106,588	17,448,720	17,797,694	18,153,648	18,516,721	9,438,607	9,627,379
			Mill Creek		21,128,678	24,092,218	9,875,795	12,851,200	3,979,092	3,995,933	4,075,851	3,097,507	3,159,457	3,222,646	3,287,099	3,352,841	3,419,898	3,488,296	3,558,062
			Trimble Coun		43,274,562	38,976,126	47,151,976	8,384,592	8,697,060	8,817,493	8,993,842	9,173,719	9,357,193	9,544,337	9,735,224	9,929,928	10,128,527	#####	#####

2060 2061 2062 2063 2064 2065

3,317,357	3,383,704	3,451,378	3,520,406	3,590,814	3,662,630
<u>1,587,012</u>	<u>1,618,752</u>	<u>1,651,127</u>	<u>1,684,150</u>	<u>1,717,833</u>	<u>1,752,189</u>
4,904,369	5,002,456	5,102,505	5,204,556	5,308,647	5,414,820

2060 2061 2062 2063 2064 2065

3,706,977	3,781,117	3,856,739	3,933,874	4,012,552	4,092,803
<u>1,719,263</u>	<u>1,753,648</u>	<u>1,788,721</u>	<u>1,824,495</u>	<u>1,860,985</u>	<u>1,898,205</u>
5,426,240	5,534,765	5,645,460	5,758,370	5,873,537	5,991,008

10,330,609 10,537,221 10,747,965 10,962,926 11,182,184 11,405,828

2060 2061 2062 2063 2064 2065

10,330,609 10,537,221 10,747,965 10,962,926 11,182,184 11,405,828

Effective Date	Firm PTP Rate (\$/MW-year)		Escalation
	As Filed	As Revised	
6/1/2016	\$20,195		
6/1/2017	\$22,278		10%
6/1/2018	\$23,771		7%
6/1/2019	\$24,437	\$24,255	3%
6/1/2020	\$27,272	\$27,279	12%
6/1/2021	\$33,929		24%
5-Year Average	\$26,302		

Inputs

Transmission cost (\$/kW-yr)	\$26
Transmission Cost Escalation	3%
PV Capacity Factor	16.7%
WACC	6.75%
Annual Energy	1,461.03
PV Availability Factor	29%

Outputs

Avoided Transm (\$/kW)	\$442.50
Avoided Transm (\$/kW-year)	\$37.12
Avoided Transm (\$/kWh)	\$0.0254
PV-Adj Avoided Transm (\$/kWh)	\$0.0073

		\$/kW	\$/kW-yr	\$/kWh
NPV		\$442.50	\$37.12	0.0254066
	Year			Cost
				\$/kW-yr
	1	2021		\$26
	2	2022		\$27
	3	2023		\$28
	4	2024		\$29
	5	2025		\$30
	6	2026		\$30
	7	2027		\$31
	8	2028		\$32
	9	2029		\$33
	10	2030		\$34
	11	2031		\$35
	12	2032		\$36
	13	2033		\$38
	14	2034		\$39
	15	2035		\$40
	16	2036		\$41
	17	2037		\$42
	18	2038		\$43
	19	2039		\$45
	20	2040		\$46
	21	2041		\$48
	22	2042		\$49
	23	2043		\$50
	24	2044		\$52
	25	2045		\$53

	Existing and Expansion				
	2018IRP CO2	Units CO2 Emissions		Discount	
	(\$/ton)	(tons)	Net Load (GWh)	\$/kWh Rate	6.75%
2022	0	28,859,221	31,805	0	
2023	0	28,769,120	31,773	0	
2024	0	29,203,936	31,768	0	
2025	0	28,476,969	31,632	0	
2026	17.00	28,312,937	31,538	0.015261	
2027	18.17	28,166,522	31,430	0.016283	
2028	19.37	26,072,956	31,362	0.016103	Q-21.
2029	20.62	25,573,069	31,201	0.016901	
2030	21.90	25,634,384	31,054	0.018078	
2031	23.23	25,905,057	31,019	0.019400	
2032	24.59	25,994,265	31,025	0.020603	
2033	26.00	25,753,257	30,979	0.021614	
2034	27.44	22,796,310	30,970	0.020198	A-21.
2035	28.94	21,409,836	30,970	0.020006	
2036	30.47	21,372,634	31,009	0.021001	
2037	32.05	19,246,798	30,996	0.019901	
2038	33.68	17,788,962	31,019	0.019315	
2039	35.36	15,779,800	31,041	0.017975	
2040	37.09	14,745,550	31,073	0.017601	
2041	38.87	14,401,678	31,049	0.018029	
2042	46.51	14,241,961	31,057	0.021328	
2043	48.56	14,410,578	31,070	0.022523	
2044	44.52	14,479,064	31,116	0.020716	
2045	46.51	13,812,494	31,098	0.020658	
2046	48.56	13,447,829	31,113	0.020989	

NPV of 22-46 0.159481

life (years)	25
Discount factor	6.75%
Capital Recovery Factor	0.083886912
avoided cost	0.013378

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