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 TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE-YEAR SURCREDIT)))))	CASE NO. 2020-00349
ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES, A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE-YEAR SURCREDIT))))))	CASE NO. 2020-00350

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.

<u>KYSEIA</u>

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.

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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

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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.

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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.

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<u>KYSEIA</u>

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. <u>NMS 2: Netting Period</u>

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

<u>KYSEIA</u>

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. <u>NMS 2: Legacy Period</u>

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.

<u>KYSEIA</u>

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.

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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 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. <u>NMS 2 Rate Components</u>

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

<u>KYSEIA</u>

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.

<u>Finding</u>

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:

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Intervening parties supported a methodology similar Minnesota's VOS study.¹⁵⁶ The Commission finds it reasonable to modify the Minnesota VOS approach ¹⁵⁷ 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 annu|al 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.

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

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.

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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.

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

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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.

<u>KYSEIA</u>

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 prejudges LG&E/KU's DERMS evaluation result.

<u>KYSEIA</u>

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

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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

- ²⁵ *Id*. at 28.
- ²⁶ Order (Ky. PSC Nov. 1, 2021) at 8.
- ²⁷ Id.
- ²⁸ Sept. 24, 2021 Order at 27, 38.

²⁴ September 24, 2021 Order at 27.

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:

Priduell

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:

<u>NMS 2</u> Attachment: "LGE_KU_NEM_PROTECTED" Tab: "Excess Gen Price"

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

KU NMS 2 Export Rate	e		<u>Source</u>
Energy*	\$	0.02526	Seelye Suppl Testimony
Ancillary Services	\$	0.00084	4% * G Capacity, Seelye Suppl Rebuttal
Generation Capacity*	\$	0.02106	KU/LG&E LevelCT Approach
Transmission Capacity	\$	0.00732	Calculated based on simplified MN VOS Approach
Distribution Capacity	\$	0.00185	Calculated based on simplified MN VOS Approach
Carbon cost	\$	0.01338	Data anc calculation provided in PSC-8-Q21
Environmental Compliance Cost	\$	0.00397	Calculated using data from PSC-7-##
Jobs Benefit	\$	-	
NMS 2 Price for Excess Gen	\$	0.07366	
*With losses			
QF	\$	0.04632	
fixed tilt QF from PPT		0.043895	

		Avoided En	ergy		Market/I	ndex			
		Solar: Single-	Solar:				Market:	Index:	Index:
`	Year	Axis Tracking	Fixed Tilt	Wind	Other	Year	Solar	Solar	Wind
2	022	23.04	23.33	22.55	22.06	2022	27.82	32.96	29.90
2	023	22.83	23.05	22.47	22.02	2023	27.82	32.96	29.90
2	024	23.12	23.38	22.81	22.31	2024	27.82	32.96	29.90
2	025	23.24	23.49	23.10	22.54	2025	27.82	32.96	29.90
2	026	22.64	22.82	22.34	21.90	2026	27.82	32.96	29.90
2	027	23.03	23.24	22.80	22.36	2027	27.82	32.96	29.90
2	028	22.81	22.95	22.70	22.00	2028	27.82	32.96	29.90
2	029	23.24	23.40	23.09	22.42	2029	27.82	32.96	29.90
2	030	23.82	23.94	23.72	23.08	2030	27.82	32.96	29.90
2	031	24.34	24.48	24.33	23.61	2031	27.82	32.96	29.90
2	032	24.89	25.05	24.80	24.11	2032	27.82	32.96	29.90
2	033	25.49	25.65	25.46	24.69	2033	27.82	32.96	29.90
2	034	25.25	25.49	25.26	24.07	2034	27.82	32.96	29.90
2	035	25.76	26.05	25.69	24.52	2035	27.82	32.96	29.90
2	036	26.24	26.47	26.15	25.07	2036	27.82	32.96	29.90
2	037	26.01	26.29	25.95	24.73	2037	27.82	32.96	29.90
2	038	26.07	26.47	25.87	24.65	2038	27.82	32.96	29.90
2	039	24.03	24.39	25.19	23.42	2039	27.82	32.96	29.90
2	040	23.65	24.05	23.68	22.82	2040	27.82	32.96	29.90
2	041	23.45	23.75	23.76	22.82	2041	27.82	32.96	29.90
2	042	23.76	24.06	24.15	23.18	2042	27.82	32.96	29.90
2	043	24.38	24.67	24.49	23.58	2043	27.82	32.96	29.90
2	044	24.81	25.13	25.19	24.10	2044	27.82	32.96	29.90
2	045	25.65	26.05	25.56	24.72	2045	27.82	32.96	29.90

	<u>CT</u>	as Proxy for Ca	pacity			
						So
	Solar:					Sin
	Single-Axis	Solar:				
Year	Tracking	Fixed Tilt	Wind	Other	SCCT	Track
2022	0.00	0.00	0.00	0.00	0	
2023	0.00	0.00	0.00	0.00	0	
2024	0.00	0.00	0.00	0.00	0	
2025	18.37	22.10	14.49	12.81	112,244	41,
2026	18.70	22.49	14.75	13.04	114,231	42,
2027	19.03	22.89	15.01	13.27	116,255	43,
2028	19.37	23.29	15.27	13.51	118,314	44,
2029	19.71	23.70	15.54	13.75	120,410	44,
2030	20.06	24.12	15.82	13.99	122,544	45,
2031	20.42	24.55	16.10	14.24	124,715	46,
2032	20.78	24.99	16.39	14.49	126,926	47,
2033	21.15	25.43	16.68	14.75	129,176	48,
2034	21.52	25.88	16.97	15.01	131,466	48,
2035	21.90	26.34	17.27	15.27	133,797	49,
2036	22.29	26.81	17.58	15.54	136,170	50,
2037	22.69	27.28	17.89	15.82	138,585	51,
2038	23.09	27.77	18.21	16.10	141,043	52,
2039	23.50	28.26	18.53	16.39	143,546	53,
2040	23.91	28.76	18.86	16.68	146,093	54,
2041	24.34	29.27	19.19	16.97	148,686	55,
2042	24.77	29.79	19.54	17.27	151,325	56,
2043	25.21	30.32	19.88	17.58	154,011	57,
2044	25.66	30.86	20.24	17.89	156,746	58,
2045	26.11	31.41	20.59	18.21	159,529	59,

[Avoided Energy		20-Year Ene	rgy Payment for	r Contract Be	ginning:				All-in avoide	d cost for QF	s w/o Losses	
								AVERAGE					
		2-Year PPA	2022	2023	2024	2025	2026	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	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

Av	oided C	apacity w/ Losse	Avoided Ca	pacity w/ Lo:	sses 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

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

	Transmi	ssion	Primary		
Line Losses	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 LGEPSC-5 Q:21 page 5 of 51 (157 of 203)

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

2	3	4	\$/MWh			
			Solar:			
			Single-			
Solar:			Axis	Solar:		
Fixed Tilt	Wind	Other	Tracking	Fixed Tilt	Wind	Other
0	0	0	0.00	0.00	0.00	0.00
0	0	0	0.00	0.00	0.00	0.00
0	0	0	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										
			AVERAGE				AVERAGE							
PPA	2022	2023	22/23	PPA	2022	2023	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 1st Year of Analysis Period Capital Base Year for ALL Costs Sales Tax Operating Scenario Proposal Evaluate Proposals Over Fixed I 1st Year of Fixed Period Last Year of Fixed Period QF Contract Begins QF Term Respondent Technology Description Location Capacity		6.75% 2021 ECC 2021 6.0% 1 1 2025 2070 2024 7 NREL SCCT SB SCCT (220 MW) Greenfield 220		3	c	; F 1	7R I	ECC	₽V I	FCR							
Cost Item		<u>2021</u>	2022	<u>2023</u>	<u>2024</u>	2025	2026	2027	2028	2029	2030	2031	2032	2033	<u>2034</u>	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 10 Annual Fuel Burn		0 0	0	0	0 0	5,280,395 0	5,386,002 0	5,493,723 0	5,603,597 0	5,715,669 0	5,829,982 0	5,946,582 0	6,065,514 0	6,186,824 0	6,310,560 0	6,436,772 0	6,565,507 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	0
14 Start Fuel		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Hourly Operating Cost		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
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 Levelized Cost of Energy (\$/MW	/h)	96,792 \$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		5,127	10,692	16,724	23,258	30,328		1	CF 25.96%	2022 2.26	2023 4.70	2024 7.36	2025 10.23	2026 13.34			
37.2% Solar: Single-Axis Tracking 28.8% Solar: Fixed Tilt		3,968	8,273	16,724 12,941	23,258 17,997	23,468		1	25.96%	2.26	4.70	8.85	10.23	13.34			
28.7% Wind		3,948	8,232	12,941	17,997	23,468		1	25.3%	1.78	3.00	5.80	8.07	10.04			
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 100% Other		0	0	0	0 0	0		2	25%	0.00	0.00	0.00	0.00	0.00			
100% Other		0	U	U	U	U		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			

2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
20,139,844	20,473,724	20,813,140	21,158,182	21,508,945	21,865,522	22,228,011	22,596,509	22,971,117	23,351,934	23,739,065	24,132,614	24,532,687	24,939,392	25,352,840	25,773,142	26,200,412	26,634,765	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	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
3,652,045	3,725,086	3,799,588	3,875,580	3,953,091	4,032,153	4,112,796	4,195,052	4,278,953	4,364,532	4,451,823	4,540,859	4,631,676	4,724,310	4,818,796	4,915,172	5,013,476	5,113,745	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
6,696,817	6,830,753	6,967,369	7,106,716	7,248,850	7,393,827	7,541,704	7,692,538	7,846,389	8,003,316	8,163,383	8,326,650	8,493,183	8,663,047	8,836,308	9,013,034	9,193,295	9,377,161	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	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>																	
30,488,706	31,029,564	31,580,096	32,140,478	32,710,886	33,291,502	33,882,511	34,484,099	35,096,458	35,719,783	36,354,271	37,000,123	37,657,547	38,326,749	39,007,944	39,701,349	40,407,183	41,125,671	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	289,080	289,080	289,080	289,080	289,080	289,080	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138,585	141,043	143,546	146,093	148,686	151,325	154,011	156,746	159,529	162,363	165,247	168,182	171,171	174,212	177,309	180,461	183,669	186,935	0	0	0

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070
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	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	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	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
<u>0</u>												
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	0	0	0	0	0

Year

	Gen Al Roc XYP Resoundent 1 1 NRES 0 0 0	NY Records In SCIT (220 MW)	Club Tanis Dist/r Dist/r Dist/r 1 Gan Absolutive Dewright Cluptat Capate	BaseW 101 Value Unit: Car 1 207/01/0985 1 0 5 1 0 5 1 0 5 1 0 5	Dur Naminal Spen an Si Rat Prafas 0 0 0 0	d Capital KK Bushkai Perfe SCCT_Capital ON_SCCT d d d d	MK LU LU Year Non Ec 20 NK Tax 2225 0 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 41 3221 3222 0 0 0 0 0 0 0 0 0 0	3233 3234 0 0 0 0 0 0 0 0	2225 237 0 221,844,278 0 0 0 0 0 0 0 0		0 16,511,512,6 0 16,511,516,516,7 0 0 0 0 0 0 0 0	2027 2128 27,682 17,086,822 17,0 0 0 0 0 0 0	2029 2 68,580 17,657,585 1 0 0 0 0 0 0	110 2011 17,850,244 18,247,845 0 0 0 0 0 0 0 0 0	2012 2011 18,550,860 18,87,80 0 1 0 1 0 1	2031 2735 0 10,170,128 10,088 0 0 0 0 0 0	2036 2117 828 19,811,458 20,19 0 0 0 0 0 0 0 0	2018 2019 844 20,879,724 20, 0 0 0 0 0 0 0 0	2040 18,140 21,158,182 0 0 0 0 0 0 0 0	0 21,508,845 21,84 0 0 0 0	2341 2046 6,522 22,228,011 22, 0 0 0 0 0 0 0 0	2211 3 186,509 32,873,117 0 0 0 0 0 0 0 0	20,001,004 20,700, 0 0 0 0 0 0	1048 25 0 0 0 0 0 0 0 0 0 0	029 2210 24,582,687 24,888,0 0 0 0	2001 2013 92 28,852,860 28,7 0 0 0 0 0 0 0 0	78,543 0 0 0
	0 0 0 1 1 NWS 0 0 0	SB SCCT (220 MW)	1 Gen Attentione Dewright Capital Gapati 1 Gen Attentione Capital (*174/bits Gapati	1 0 5 0 5 1 0 5 1 0 5 5 1 0 5 5 5 1 0 5 5 5 1 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 22235 0 0 0 0	d d d SCCT_Capital d d 0	a a b a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a	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 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			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0
· ·	1 10005	38 SCT (220 MW)	1 Gest Alterative Capital ATrollin Capital ATrolin Capital ATrollin	1 0 \$ \$ 1 0 0 \$	0 0 0 2223 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 3225 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 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		0 0 0 0 0 0 0 0 0		0000000000
1 No. 2	1 NWL	38 SCT[220MB]	1 Genillenidae Editoria Egida Egida Genillenidae Editoria Martineria Guda 1 Genillenidae Martineria Martineria 1 Genillenidae Martineria Guda Egida 1 Genillenidae Martineria Guda Egida 1 Genillenidae Ordenid Gudat Egida 1 Genillenidae Ordenid Gudat Egida 1 Genillenidae Ordenid Gudat Egidat 1 Genillenidae Ordenid Gudat Egidat 1 Genillenidae Ordenid Gudat Egidat 1 Genillenidae Ordenid Gudat Egidat	1 0 5 1	0 0 0 2023 1 80 2023 1 80 0 1 0 1 0 1 0 1 0 1 0 1 0 1	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 0 0 0			000000000000000000000000000000000000000			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000000000000000000000000000000000000000		
A A	1 NWR.	38 SCCT [235 MW]	1 Gen Albertan Or Grang Capital Tr. Capital	1 0 \$\frac{1}{2} 0 \$\	0 1 0 1 2223 1 0	0 0 50 50 50 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 23235 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 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 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	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		
- -	3 1995	te soct (zzemiej	1 Gen Attenuitive De-Gang Opail/ED Opail/ 1 Gen Attenuitive De-Gang Obk/ET Obk/En	1 0 5/m 1 0 5/m 1 0 5/m 1 0 5/m 1 3,066,513 5/m 1 0 5/m 1 0 5/m 1 0 5/m 1 0 5/m 1 0 5/m	0 1 0 1 0 1 2223 1 82 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	0 0 0 0 0 0 0 0 0 0 0	a a b b a a b b b a a b b b a a b b a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a a b a a a b b a a a b b a a b b b b a	6 6 6 0 6 0 6 0 6 0 6 0 6 0 6 0 6 0 6 0		0 0 0 0 0 2,37%,613 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 2,879,818 2,9 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 17,225 2,999,949 8,0 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 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 1 0 1 0 1 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 0 0 0 0 0	0 0 0 0 0 0 0,140 3,475,580 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1,998,095 4,01 0 0 0 0	0 0 0 0 4 0 0,153 4,122,796 4, 0 0 0 0 0 0 0 0	6 0 6 0 6 0 6 0 6 0 6 0 6 0 6 0 6 0 6 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 10 0 10 0 10 0 10 0 0 0 0 0 0 0	0 0 4,483,479 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 20 4,818,796 4,90 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
<	1 MME	SE SCET (220 MIR)			v 1 0 1 2223 1 80 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0		a a b a a a b a a a a b a a a a b a a a a b b a a a b b a a a b b a a a b b a a a b b a a a b a a a b b a a a b b a a a b b a a	• • • • • •					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			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		0 0 0 0 0 0		
	1 1998	SR SCCT [220 MW]	Construction Constended Constended Construction Construction Const	- v A/W 0 5/W 1 0 5/W	- 4 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	0	U U U 0 0 0 0 0 0 0 0 0 0 0 2000 0 16 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	- V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													000000000000000000000000000000000000000			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		0 0 0 0 0 0 0 0		
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	2 1985	SB SCCT (220 MW)	1 Ges Alterative Dev Gessgi 1977 GBM 1 Ges Alterative De-Gessgi 1977 GBM 1 Ges Alterative Alterative Alterative GBM 1 Ges Alterative Alterative Alterative GBM 1 Ges Alterative Alterative GBM 1 Ges Alterative Alterative GBM 1 Ges Alterative Alterative GBM 1 Ges Alterative Alterative GBM 1 Ges Alterative Alterative GBM	0 5/W 0 5/W 1 0 0 5/W 1 0 0 motifs/W	0 1 0 1 2223 1 33 NG_128 0 1 0 1 0 1 0 1 0 1 0 1		a a b a a a b a 3225 2 b a a a b a a a a a a						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 0 0 0
	1 NRL	за soct (220 мм)	1 Gen Albertaler Anwahrteitere CARA 1 Gen Albertaler Anwahrteitere CARA 1 Gen Albertaler Anwahrteitere CARA 1 Gen Albertaler Eregy Fran CARA	1 0 smallbay/tv 1 0 smallbay/tv 1 0 smallbay/tv 1 0 S/tr	0 1 0 1 2223 1 82 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	0 0 8.000 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 2225 0 3 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 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 0 0 0 0 0 0 0 0			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		0 0 0 0 0 0 0 0 0		0000000000
1 Name Nam Name Name Nam	1 NWB.	38 SCT[220MB]	1 Gen.Markalow Energy Files Calue 1 Gen.Markalow Energy Files Calue 1 Gen.Markalow Energy Files Calue 1 Gen.Markalow Vanialistic GAM Calue	1 0 5/m 1 0 5/m		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 2018 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										8		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		000000000000000000000000000000000000000			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		0 0 0 0 0 0		
1 0	3 NWIE	38 SCT [222 MW]	devices and the second se	- v 1/m 0 1/m 1 0 1/m		- 0 SCCT_D&M 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U D D D 0 0 0 0 0 0 0 0 0 0 2223 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 0 0 0							0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5		
1 Norm No	1 1995.	SE SCET (220 MW)	1 Gen American Most Carl Cabbit 1 Gen American Most Carl Cabbit 1 Gen American Most Teal Cabbit		0 1 0 2223 1 22 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	0 8000,0844 0 0 0 0 0 0 0 0 0 0 0 0 0	- - - 0 0 0 0 0 0 2225 2 3 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				000000000000000000000000000000000000000			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		0 0 0 0 0 0 0		0 0 0 0 0 0 0 0
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Na 197 San 29 Sa	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SH SCCT (220 MW)	Ore Admittate Extended Sensitive Ore Admittate Ore Ad	Constant Section	0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1		a a b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b a a b b b b a b b b a b b b b b b b b b b b b b b			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																	
Normal Processing	5055	SN SCCT (220 MW)	em. Advances emerges emerges		0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1						- 0 0 0 0 0 0																	
N N <td>0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>Gen Advecture Bartery water Gen Advecture Bartery with Gen Advecture Bartery with</td> <td>5 5 500,1964 5 5 500,1964</td> <td>- 4 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1</td> <td></td>	0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Gen Advecture Bartery water Gen Advecture Bartery with	5 5 500,1964 5 5 500,1964	- 4 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1																							

3054 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0	0 0 0	2 23% 0 0	0 0 0	0 0 0	0 0 0		0 0 0	4 X 4 4	0 0 0						foku fox_	tar07, value d188, sumproduct(values, profiles)									
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pital Investment w/ Profile	0	0	0	0	0	0	0	0	
XM System Upgrades	0	0	0	0	0	0	0	0	
On-Going Capital #1	0	0	0	0	0	0	0	0	
On-Going Capital #2	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	3,116,9
On-Going O&M #2	0	0	0	0	0	0	0	0	
On-Going XM		0	0	0	0	0	0	0	
On-Going FGT	0	0	0	0	5,280,395	5,386,002	5,493,723	5,603,597	5,715,6
Annual Fuel Burn	0	0	0	0	0	0	0	0	
Energy Price		0	0	0	0	0	0	0	
Variable O&M		0	0	0	0	0	0	0	
Start Cost	0	0	0	0	0	0	0	0	
Start Fuel	0	0	0	0	0	0	0	0	
Hourly Operating Cost	0	0	0	0	0	0	0	0	
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Capital 4 | JR 1.74032 1.70689 1.67742 1.84061 1.50844 1.5769 J2 1.77584 1.74102 1.70689 1.67742 1.64061 1.60844 1.57 J0 1.81136 1.77584 1.74102 1.70689 1.67342 1.64061 1.60844 1.67 J1 1.81136 1.77584 1.74102 1.70689 1.67342 1.64051 1.6014 J1 1.84750 1.91136 1.77584 1.74102 1.70689 1.67342 1.64051 1.6014 | 598 1.51567 1.48595
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| Capital 4
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14 182058 1.92223 1.88454 1.84759 1.81136 1.77584 1.74 | 342 1.64061 1.60844
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| Capital 4
Capital 4
Capital 4 | 38 2.1223 2.08009 2.03989 1.99989 1.96068 1.92223 1.88 39 2.16474 2.1223 2.08069 2.03989 1.99989 1.96068 1.92 40 2.20804 2.16474 2.1223 2.08069 2.03989 1.99989 1.99989 | 454 1.84759 1.81136
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1.84759 1.81 | 4102 1.70689 1.6
7584 1.74102 1.7
1136 1.77584 1.7

 | 7342 1.64061 1
0689 1.67342 1
4102 1.70689 1 | 60844 1.576
64061 1.6084
67342 1.6408 | 9 1.54598
4 1.5769
1 1.60844 | 1.51567 1.
1.54598 1.
1.5769 1. | 48595 1.45
51567 1.48
54598 1.53 | 5681 1.428
1595 1.456
1567 1.485
 | 25 1.40024
81 1.42825
95 1.45681 | 1.37279 1
1.40024 1
1.42825 1 | L34587 1.
L37279 1.
L40024 1. | 31948 1.2938
34587 1.3194
37279 1.3458 | 1 1.26824
8 1.29361
7 1.31948
 | 1.24337
1.26824
1.29361 | 1.21899 1
1.24337 1
1.26824 1 | 19509 1.1
21899 1.1
24337 1.3 | 17166 1.148
19509 1.171
21899 1.195
 | 69 1.12616
66 1.14869
09 1.17166 | 1.10408
1.12616
1.14869 | 1.08243 1
1.10408 1
1.12616 1 | 1
1.02
1.0404 1
0.05121 1.0
0.05121 1.0
0.0243 1.06
1.0408 1.00
1.25616 1.10
1.25616 1.10
1.25616 1.10
1.2569 1.12
2.0399 1.19
2.0337 1.210
2.0337 1.210
2.0337 1.200
2.0331 1.260
1.3948 1.29 | 02 1
104 1.03
21 1.0402
105 1.05123
105 1.05123
105 1.05123
105 1.05124
105 1.05123
105 1.05124
105 1.0513
105 1.0513
105 1.05124
105 1.05124
105 1.05124
105 1.0512
105 1. | 1
1.02
1.0404 | 0
1
1.02 | 0 | 000 | 000 | 0
 | 0 0
0 0 | | 0 | |
| Capital 4
Capital 4
Capital 4 | 41 2.2522 2.20804 2.16474 2.1223 2.08069 2.03989 1.99
42 2.29724 2.2522 2.20804 2.16474 2.1223 2.08069 2.03
43 2.34319 2.29724 2.2522 2.20804 2.16474 2.1223 2.08 | 989 1.96068 1.92223
989 1.99989 1.96068
069 2.03989 1.99989

 | 1.88454 1.84
1.92223 1.88
1.95068 1.93 | 4759 1.81136 1.7
8454 1.84759 1.8
2223 1.88454 1.8

 | 7584 1.74102 1
1136 1.77584 1
4759 1.81136 1 | 70589 1.6734
74102 1.7058
77584 1.7410 | 2 1.64051
9 1.67342
2 1.70689 | 1.60844 1
1.64061 1.
1.67342 1. | .5769 1.54
50844 1.5
54061 1.60 | 4598 1.515
5769 1.545
2844 1.57
 | 67 1.48595
98 1.51567
69 1.54598 | 1.45681 1
1.48595 1
1.51567 1 | L42825 1.
L45681 1.
L48595 1. | 40024 1.3723
42825 1.4003
45681 1.4283 | 9 1.34587
4 1.37279
5 1.40024
 | 1.31948
1.34587
1.37279 | 1.29361 1
1.31948 1
1.34587 1 | 26824 1.3
29361 1.3
31948 1.3 | N 337 1.218
N 327 1.218
N 327 1.218
N 327 1.218
N 327 1.218
 | 99 1.19509
37 1.21899
24 1.24337 | 1.17166
1.19509
1.21899 | 1.14869 1
1.17166 1
1.19509 1 | 12616 1.10
14869 1.12
17166 1.14 | 08 1.08243
15 1.10401
169 1.12610
 | 1
1.02
1.0404
1.06121
1.04243
1.10408
1.12616
1.14669
1.17166
1.19509
1.21899
1.21899 | 1
1.02
1.0404
1.05121
1.0408
1.12516
1.14859
1.17166
1.19509
1.21899 | 1
1.0404
1.0404
1.06121
1.0408
1.12616
1.14809
1.17166
1.19509 | 1
1.02
1.0404 | 0
1
1.02 | 0 | 0 0
0 0 | | 0 | |
| Capital 4
Capital 4
Capital 4 | 44 2.19005 2.34319 2.29724 2.2522 2.20804 2.16474 2.1
45 2.43785 2.39005 2.34319 2.29724 2.2522 2.20804 2.16
46 2.48661 2.43785 2.39005 2.34319 2.29724 2.2522 2.208 | 223 2.08069 2.03989
474 2.1223 2.08069
804 2.16474 2.1223

 | 1.99989 1.90
2.03989 1.90
2.08069 2.03 | 6068 1.92223 1.8
9389 1.96068 1.9
3989 1.99989 1.9

 | 0454 1.04759 1
2223 1.00454 1
6060 1.92223 1 | 81136 1.7758
84759 1.8113
88454 1.8475 | 4 1.74102
6 1.77584
9 1.81136 | 1.70689 1)
1.74102 1.
1.77584 1. | 57342 1.64
70689 1.63
74102 1.70 | 4061 1.608
7342 1.640
2689 1.673
 | 44 1.5769
61 1.60844
42 1.64061 | 1.54598 1
1.5769 1
1.60844 | .51567 1.
.54598 1.
1.5769 1. | .48595 1.4568
.51567 1.4859
.54598 1.5159 | 1 1.42825
5 1.45681
7 1.48595
 | 1.40024
1.42825
1.45681 | 1.37279 1
1.40024 1
1.42825 1 | .34587 1.3
.37279 1.3
.40024 1.3 | 11948 1.293
14587 1.319
17279 1.345
 | 61 1.26824
48 1.29361
87 1.31948 | 1.24137
1.26824
1.29361 | 1.21899 1
1.24337 1
1.26824 1 | 19509 1.17
21899 1.19
24337 1.21 | 65 1.14863
(29 1.1716)
(39 1.1950)
 | 1.12616
1.14869
1.17166 | 1.10408
1.12516
1.14859 | 1.08243 1.10408 1.12616 | 1.02
1.0404
1.0404
1.0404
1.0404
1.0408
1.0408
1.12616
1.14069
1.12
1.17166
1.14 | 1.02
D404 1
5121 1.0
8243 1.05
D408 1.08
2516 1.10
4859 1.12 | .02
404 1.0
121 1.040 | 1 0
12 1
14 1.02 | 0 | | 0 0 |
| Capital 4
Capital 4
Capital 4 | 47 2.580.44 2.48661 2.43785 2.39005 2.34319 2.29724 2.2
48 2.58707 2.53634 2.48661 2.43785 2.39005 2.34319 2.29
49 2.63881 2.58707 2.53634 2.48661 2.43785 2.39005 2.34
49 2.63881 2.58707 2.53634 2.48661 2.43785 2.39005 2.34 | 522 2.20804 2.15474
724 2.2522 2.20804
319 2.29724 2.2522

 | 2.1223 2.00
2.16474 2.1
2.20804 2.10 | 8059 2.03989 1.9
1223 2.08069 2.0
6474 2.1223 2.0

 | WWEW 1.96068 1
1989 1.99989 1
8069 2.03989 1 | 92223 1.884
96068 1.9222
99989 1.960 | 1.84759 1.88454 1.92223 1.00077 | 1.81136 1.
1.84759 1.
1.88454 1. | 7/584 1.74
81136 1.77
84759 1.83 | 4102 1.705
7584 1.741
1136 1.775
 | 89 1.67342
02 1.70689
84 1.74102 | 1.64061 1
1.67342 1
1.70689 1 | | 1.5769 1.5450
60844 1.570
64061 1.6084 | a 1.51567
9 1.54598
4 1.5769
1 1.60512
 | 1.48595
1.51567
1.54598 | 1.45681 1
1.48595 1
1.51567 1 | A2825 1.4
A5681 1.4
A8595 1.4 | 1372
12825 1.400
15681 1.428
 | 78 1.34587
24 1.37279
25 1.40024 | 1.31948 1.34587 1.37279 | 1.29361 1
1.31948 1
1.34587 1 | 29361 1.26
29361 1.26
31948 1.29 | 121895
124 1.24333
161 1.26824
 | 1.19509
1.21899
1.24337 | 1.17166 1.19509 1.21899 | 1.14869
1.17166
1.19509 | L12616 1.10
L14869 1.11
L17166 1.14 | 1
1.02
0404 1
6121 1.0
8243 1.08
2616 1.00
4869 1.120
7166 1.140 | .02
404 1.0
121 1.040
243 1.0512
408 1.0824
616 1.1040 | N 1.02
11 1.0404
13 1.05121
28 1.08243 | 1.02
1.0404
1.06121 | 1.02 | 1 0 |
| Capital 4
SolarDegrade 5
SolarDegrade 5 | bu 2.69159 2.63881 2.58707 2.53634 2.48661 2.43785 2.39 0 1 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

 | 2.2522 2.20
0
0 | 0 0
0 0
0 0

 | 0 0
0 0
0 0 | 0 0 0 | 9 1.96058
0 0
0 0 | 1.92223 1.
0
0 | 0
0
0 | 0
0
 | ab 1.77584
0 0
0 0 | 1.74102 1 | 0 | 6/342 1.6400
0
0 | 1 1.60844
0 0
0 0
 | 1.5769
0
0 | 1.54598 1
0
0 | -51567 1.4
0 | 0
0
0
 | 142825
0 0
0 0 | 1.40024
0 | 1.37279 1
0
0 | 0 0 0 | 0 0
0 0
 | 1.26824
0
0 | 1.24337 | 0 | 0 | /166 1.141
0
0 | 0 0 | 0 0
0 0 | 1.08243
0 0
0 0 | 1.06121 :
0
0 | 0 0 |
| SolarDegrade 5
SolarDegrade 5
SolarDegrade 5 | 0 | 0 0 0

 | 0 | 0 0

 | 0 0 | 0 | | 0 | 0 | 0
 | 000 | 0 | 0 | 0 |
 | 0 | 0 | 0 | 000
 | 0000 | 0 | 0 | 000 | 0000
 | 0 | 0 | 0 | 000 | 0000 | 0 | 0 0 | | 0 | 0 0 |
| SolarDegrade S
SolarDegrade S | 5 0.97375 0.98015 0.980507 0.99003 0.995
6 0.97037 0.97325 0.98015 0.98507 0.99003 0.995
7 0.96552 0.97037 0.97525 0.98015 0.98507 0.99003 0. | 1 0 0
995 1 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 |
| SolarDegrade S
SolarDegrade S
SolarDegrade S | 8 0.56059 0.96552 0.97037 0.97525 0.98015 0.98537 0.59
9 0.95589 0.96059 0.96552 0.97037 0.97525 0.98015 0.98
10 0.95111 0.95589 0.96069 0.96552 0.97037 0.97525 0.98 | 003 0.995 1
507 0.99003 0.995
015 0.98507 0.99003

 | 0 | 0 0 0 1 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 |
| SolarDegrade 5
SolarDegrade 5
SolarDegrade 5 | 10 011 01000 0100 0100 0 | 525 0.98015 0.98507
037 0.97525 0.98015
552 0.97037 0.97525

 | 0.98507 0.95 | 9003 0.995
8507 0.99003 0

 | 1 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 |
| SolarDegrade 5
SolarDegrade 5
SolarDegrade 5 | 14 0.93223 0.92691 0.94162 0.94635 0.95111 0.95589 0.96
15 0.92757 0.93223 0.93691 0.94162 0.94635 0.95111 0.95
16 0.92293 0.92757 0.93223 0.93691 0.94162 0.94635 0.95 | 069 0.96552 0.97037
589 0.96069 0.96552
111 0.95589 0.96069

 | 0.97525 0.90
0.97037 0.97
0.96552 0.97 | 8015 0.98507 0.9
7525 0.98015 0.9
7037 0.97525 0.9

 | 9003 0.995
8507 0.99003
8015 0.98507 0 | 1
0.995
99003 0.95 | 0 0
1 0
5 1 | 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 |
| SolarDegrade S
SolarDegrade S | 17 03182 03281 032757 031223 03801 03452 034
18 031372 03182 03233 032757 031223 03091 0.84
19 050956 051372 0.91822 03223 032757 031223 0.91
19 050956 051372 0.91822 03223 031 | 645 0.95111 0.95589
162 0.94635 0.95111
691 0.94162 0.94635

 | 0.95589 0.90 | 6059 0.96552 0.9
5589 0.96069 0.9

 | 7525 0.98015 0
7037 0.97525 0
6552 0.97037 0 | 98015 0.9850
97525 0.9800 | 7 0.99003
5 0.98507 | 0.995 | 0.995 | 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 |
| SolarDegrade S
SolarDegrade S
SolarDegrade S | 20 030461 030461 030516 03132 03182 03253 03253 032
21 030039 0.90461 030516 0.91372 0.91832 0.92293 0.92
22 039559 0.90039 0.90461 0.90916 0.91372 0.91832 0.92
23 039559 0.90039 0.90461 0.90916 0.91372 0.91832 0.92 | 223 0.93291 0.94162
757 0.93223 0.93691
293 0.92757 0.93223

 | 0.94162 0.94
0.93591 0.94 | 4635 0.95111 0.9
4635 0.95111 0.9
4162 0.94635 0.9

 | 5589 0.96069 0
5589 0.96069 0
5111 0.95589 0 | 96552 0.970 | 5 0.96015
7 0.97525
2 0.97037 | 0.98015 0.1 | 86507 0.95
86507 0.95
86015 0.95 | 1995
2003 0.9
1507 0.990
 | 95 1
03 0.995 | 0 | 0 | 0 |
 | 0 | 0 | 0 | 000
 | 0 0 | 0 | 0 | 0 | 0 0
 | 0 | 0 | 0 | 000 | 0 0 0 | 0 | 0 0 | | 000 | 0 0 |
| SolarDegrade S
SolarDegrade S | 24 0.8051 0.80539 0.9009 0.9009 0.90491 0.9077 0.91
24 0.8655 0.80111 0.85559 0.99009 0.99461 0.9015
25 0.8222 0.8665 0.80111 0.89559 0.99009 0.90491 0.90 | 916 0.91372 0.91832
916 0.91372 0.91832

 | 0.92757 0.93 | 3223 0.93691 0.9
3223 0.93691 0.9
2757 0.93223 0.9

 | 4635 0.94635 0
4162 0.94635 0
3691 0.94162 0 | 95111 0.9558
94635 0.9511 | 9 0.96059
9 0.96059
1 0.95589 | 0.96552 0.1 | 97037 0.91
96552 0.91 | 015 0.985
7525 0.980
7037 0.975
 | 07 0.96507
05 0.96507
25 0.96015 | 0.99003 | 0.995 | 1
0.995 | 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 |
| SolarDegrade S
SolarDegrade S | 27 0.87342 0.87781 0.88222 0.88645 0.89110 0.89559 0.80
28 0.89955 0.87342 0.87781 0.88222 0.88655 0.89111 0.8955
28 0.89955 0.87342 0.87781 0.88222 0.88655 0.89111 0.895 | 009 0.90461 0.90916
559 0.90009 0.90461

 | 0.91372 0.91
0.90916 0.91 | 1832 0.92293 0.9
1872 0.91832 0.9

 | 2757 0.93223 0
2293 0.92757 0 | 93691 0.9410
93223 0.9360 | 2 0.94635 | 0.95111 0.
0.94635 0. | 85589 0.90
85111 0.91 | 5069 0.965
5589 0.960
 | 52 0.97037
69 0.96552 | 0.97525 0 | 0.98015 0.
0.97525 0. | 98507 0.9900 | 3 0.995
7 0.99003
 | 0.995 | 0 | 0 | 000
 | 0000 | 0 | 0 | 000 | 000
 | 0 | 0 | 0 | 000 | 0 | 0 | 0 0 | 0 | 000 | 0 0 |
| SolarDegrade S
SolarDegrade S | 10 0.80218 0.86471 0.86655 0.87342 0.87342 0.88222 0.88
11 0.86238 0.86471 0.86471 0.86555 0.87342 0.87342 0.87341 0.88
11 0.85658 0.86038 0.86471 0.85655 0.87342 0.87341 0.88 | 665 0.89111 0.89559
222 0.88665 0.89111

 | 0.90009 0.90 | 0461 0.90916 0.9
0009 0.90461 0.9

 | 1372 0.91832 0
0916 0.91372 0 | 92293 0.9279
91832 0.9229 | 7 0.93223
3 0.92757 | 0.93691 0.
0.93223 0. | 94162 0.94
93691 0.94 | 4635 0.951
4162 0.946
 | 11 0.95589
35 0.95111 | 0.96069 0 | 0.96552 0.
0.96069 0. | 97037 0.9752
96552 0.970 | 5 0.98015
7 0.97525
 | 0.98507 | 0.99003 | 0.995 | 0.995
 | 0 0 | 0 | 0 | 000 | 000
 | 0 | 0 | 0 | 000 | 0 | 0 | 0 0 | 0 | 000 | 0 0 |
| SolarDegrade S
SolarDegrade S
SolarDegrade S | 13 0.84754 0.8518 0.85608 0.86038 0.86471 0.86905 0.87
14 0.84311 0.84754 0.8518 0.85608 0.86038 0.8671 0.86
15 0.83290 0.84734 0.8518 0.85608 0.86038 0.86047 0.86
15 0.83290 0.84331 0.84754 0.8518 0.85608 0.86038 | 142 0.87781 0.88222
905 0.87142 0.87781
471 0.85905 0.87142

 | 0.88665 0.85
0.88222 0.85
0.87281 0.85 | 9111 0.89559 0.9
8665 0.89111 0.8
8772 0.88665 0.8

 | 0009 0.90461 0
9559 0.90009 0 | 90916 0.9133
90461 0.9093 | 2 0.91832
6 0.91372
1 0.90916 | 0.92293 0.9
0.91832 0.9 | 12757 0.91
12293 0.91
11832 0.93 | 1223 0.936
2757 0.932
2263 0.922
 | 91 0.94162
23 0.93691
57 0.93223 | 0.94635 0 | 0.95111 0.
0.94635 0.
0.94162 0 | 95589 0.960
95111 0.955 | 9 0.96552
9 0.96059
 | 0.97037
0.96552 | 0.97525 0 | 98015 0.9 | 88507 0.990
88015 0.985
87525 0.985
 | 03 0.995 | 0.995 | 0 | 0 | 0 0
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 0 | 0 | | 0 0 |
| SolarDegrade 5
SolarDegrade 5
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94635 0.95 | 195 1 103 0.992 105 0.9923 105 0.9853 107 0.9752 107 0.9752 109 0.9653 110 0.9553 111 0.9553 112 0.9553 113 0.9553 114 0.9553 115 0.9553 116 0.9553 117 0.95533 110 0.95533 111 0.95533 112 0.95533 113 0.95533 114 0.95533 115 0.94163 115 0.94163
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0.95589 | 1 0.995 199003 0 198507 0.9 198015 0.9 198015 0.9 197525 0.9 197037 0.9 196052 0.9 196059 0.9 | 1
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1003 0.1
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1015 0.981
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995 | 0 0 | | 0 | |
| SolarDegrade 5
SolarDegrade 5
SolarDegrade 5 | 45 0.79807 0.80208 0.80611 0.81016 0.81423 0.81832 0.82
46 0.79408 0.79807 0.80208 0.80611 0.81016 0.81423 0.81
47 0.7901 0.79408 0.79807 0.80208 0.80611 0.81016 0.81 | 243 0.82657 0.83072
832 0.82243 0.82657
423 0.81832 0.82243

 | 0.83489 0.83
0.83072 0.83
0.82657 0.83 | 1909 0.84331 0.8
3489 0.83909 0.8
3072 0.83489 0.8

 | 4754 0.8518 0
4331 0.84754
1909 0.84331 0 | 85608 0.8600
8518 0.8560
84754 0.855 | 8 0.86471
8 0.86038
8 0.85608 | 0.86905 0.0 | 17342 0.83
16905 0.83
16471 0.80 | 7781 0.882
7342 0.877
1905 0.873
 | 22 0.88665
81 0.88222
42 0.87781 | 0.89111 0
0.88665 0
0.88222 0 | 0.89559 0.
0.89111 0.
0.88665 0. | 90009 0.9040
89559 0.9000
89111 0.8955 | 1 0.90916
9 0.90461
9 0.90009
 | 0.91372
0.90916
0.90461 | 0.91832 0
0.91372 0
0.90916 0 | 92293 0.5
91832 0.5
91372 0.5 | 22757 0.932
2293 0.927
21832 0.922
 | 23 0.93691
57 0.93223
93 0.92757 | 0.94162
0.93691
0.93223 | 0.94635 0
0.94162 0
0.93691 0 | 95111 0.95
94635 0.95
94162 0.94 | a9 0.96065
11 0.95585
35 0.95111
 | 0.96552
0.96069
0.95589 | 0.97037
0.96552
0.96069 | 0.97525 | 0.98015 0.98
0.97525 0.98
0.97037 0.93 | 1.995
9003 0.1
8507 0.990
8015 0.981
7525 0.981
7037 0.971
8552 0.971 | 995
003 0.99
507 0.9900
015 0.9850
525 0.9801
037 0.9752 | 15 1
03 0.995
07 0.99003
15 0.98507
15 0.98015 | 0.995 | 0 | |
| SolarDegrade S
SolarDegrade S
SolarDegrade S | 48 0.78615 0.7901 0.79408 0.79807 0.80208 0.80611 0.81
49 0.78222 0.78615 0.7901 0.79408 0.79807 0.80208 0.80
50 0.77831 0.78222 0.78615 0.7901 0.79408 0.79807 0.80 | 016 0.81423 0.81832
611 0.81016 0.81423
208 0.80611 0.81016

 | 0.82243 0.83
0.81832 0.83
0.81423 0.83 | 2657 0.83072 0.8
2243 0.82657 0.8
1832 0.82243 0.8

 | 3489 0.83909 0
3072 0.83489 0
2657 0.83072 0 | 84331 0.847
82909 0.843
83489 0.8390 | 4 0.8518
1 0.84754
9 0.84331 | 0.85608 0.0 | 85038 0.80
85608 0.80
8518 0.83 | 5471 0.869
5038 0.864
5608 0.860
 | 05 0.87342
71 0.86905
38 0.86471 | 0.87781 0
0.87342 0
0.86905 0 | .88222 0.
.87781 0.
.87342 0. | 88565 0.8911
88222 0.8850
87781 0.8822 | 1 0.89559
5 0.89111
2 0.88665
 | 0.90009
0.89559
0.89111 | 0.90461 0
0.90009 0
0.89559 0 | 90916 0.5 | 0.91372 0.918
00916 0.913
00461 0.909
 | 32 0.92293
72 0.91832
16 0.91372 | 0.92757
0.92293
0.91832 | 0.93223 0
0.92757 0
0.92293 0 | 93691 0.94
93223 0.93
92757 0.93 | 62 0.94635
91 0.94163
23 0.93693
 | 0.95111
0.94635
0.94162 | 0.95589
0.95111
0.94635 | 0.96069 0.95589 0.95111 0 | 1.96552 0.93
1.96059 0.94
1.95589 0.94 | 7037 0.975
6552 0.975
6069 0.965 | 525 0.9801
037 0.9752
552 0.9703 | 15 0.98507
15 0.98015
17 0.97525 | 0.99003
0.98507
0.98015 | 0.995
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0.98507 0. | 1 0
0.995 1
99003 0.995 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 0 1 0 0 0 0 0 0
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2 0.9903 0.995 1 0 0 0 | 0 0 0
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| WindDegrade 6
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WindDegrade 6 | i 3 0.98537 0.99033 0.995 1 0 0
i 4 0.98025 0.98537 0.9903 0.995 1 0
i 5 0.97535 0.98135 0.98537 0.9903 0.995 1 |

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| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 6 0.97037 0.97525 0.98015 0.98507 0.98003 0.985
7 0.96552 0.97037 0.97525 0.98015 0.98507 0.99003 0:
8 0.96069 0.96552 0.97037 0.97525 0.98015 0.98507 0.99 | 1 0 0
995 1 0
003 0.995 1

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 | 0 | 0 | 0 | 0
 | 0 0 | 0 | 0 | 0 | 0 0
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 0 | | | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 9 0.55389 0.96089 0.96522 0.97037 0.97525 0.980
10 0.95111 0.95589 0.96069 0.96552 0.97037 0.97525 0.981
11 0.96635 0.95111 0.95589 0.96069 0.96552 0.97037 0.975
12 0.96032 0.96111 0.95589 0.96069 0.96552 0.97037 | 015 0.98507 0.99003
525 0.98515 0.98507

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| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 12 034052 034615 03511 035589 036059 036552 037
13 030591 0.94152 034635 0.95111 0.95589 0.96059 0.96
14 039223 0.93691 0.94162 0.94635 0.95111 0.95589 0.96 | 017 0.97525 0.98015
552 0.97037 0.97525
059 0.96552 0.97037

 | 0.98015 0.90 | 8507 0.99003 0
8507 0.99003 0
8015 0.98507 0.9

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1995 1
9003 0.995 | 0 | | 000 | 0 | 0
 | 000 | 000 | 0 | 0 |
 | 0 | 0 | 0 | 000
 | 0 0 | 0 | 0 | 0 | 0 0
 | 0 | 0 | 0 | 000 | 0 0 0 | 0 | 0 0 | | 000 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 15 0.92757 0.92223 0.90091 0.94162 0.94615 0.95111 0.95
16 0.92293 0.92757 0.93223 0.93691 0.94162 0.94655 0.95
17 0.91832 0.92293 0.92757 0.93223 0.93691 0.94162 0.94 | 589 0.96569 0.96552
111 0.95589 0.96569
635 0.95111 0.95589

 | 0.96552 0.97 | 7525 0.94015 0.9
7037 0.97525 0.9
6552 0.97037 0.9

 | 8015 0.98507 0
7525 0.98015 0 | 99003 0.90
98507 0.9900 | 5 1
1 0.995 | 0 | 0 | 0
 | 000 | 000 | 0 | 0 |
 | 0 | 0 | 0 | 000
 | 0 0 | 0 | 0 | 0 | 0 0
 | 0 | 0 | 0 | 000 | 0 0 0 | 0 | 0 0 | | 000 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 18 031172 031812 03233 032557 031223 030001 034
19 030046 0.91372 0.91832 0.92293 0.92757 0.93223 0.93
20 030461 0.90916 0.91372 0.91832 0.92293 0.92757 0.93
11 030461 0.90916 0.91372 0.91832 0.92293 0.92757 0.93 | 162 0.94635 0.95111
691 0.94162 0.94635
223 0.93691 0.94162

 | 0.95111 0.95
0.94635 0.95 | 5589 0.96552 0.9
5589 0.96669 0.9
5111 0.95589 0.9

 | 6552 0.97037 0
6552 0.97037 0
6069 0.96552 0 | 98015 0.9800
97525 0.9800
97037 0.9752 | 5 0.98507
5 0.98015 | 0.99003
0.98507 0.1 | 0.995
99003 0 | 1
 | 0 0 | 000 | 0 | 0 |
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 | 0 | 0 | 0 | 000 | 0 0 0 | 0 | 0 0 | | 000 | 0 0 |
| WindDegrade 6
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WindDegrade 6 | 21 0.00050 0.0000 0.00050 0.00157 0.00122 0.0228
22 0.00559 0.00009 0.00461 0.0016 0.01372 0.01832 0.022
23 0.00111 0.00559 0.00009 0.00461 0.00016 0.01372 0.011
24 0.00055 0.00111 0.00550 0.00000 0.00461 0.00016 0.01372 | 293 0.92757 0.93223
832 0.92293 0.92757
372 0.93832 0.92793

 | 0.93591 0.94
0.93223 0.91
0.92257 0.93 | 4162 0.94635 0.9
3691 0.94162 0.9
3723 0.93691 0.9

 | 5111 0.95589 0
4635 0.95111 0
4162 0.94635 0 | 96069 0.9655
95589 0.9656
95111 0.9556 | 2 0.97037
9 0.96552
9 0.96059 | 0.97525 0.
0.97037 0.
0.96552 0. | 80015 0.91
97525 0.91
97527 0.91 | 8507 0.990
8015 0.985
7535 0.985
 | 03 0.995
07 0.99003
15 0.98507 | 0.995 | 0 | 0 |
 | 0 | 0 | 0 | 000
 | 0 0 | 0 | 0 | 0 | 0 0
 | 0 | 0 | 000 | 000 | 000 | 0 | | | 0 | 0 0 |
| WindDegrade 6
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WindDegrade 6 | 26 0.80222 0.88655 0.89111 0.89559 0.90009 0.50461 0.89
25 0.88222 0.88655 0.89111 0.89559 0.90009 0.50461 0.89
26 0.87781 0.88222 0.88665 0.99111 0.89559 0.50009 0.50
27 0.87342 0.87281 0.88222 0.88665 0.99111 0.89559 0.50009 | 916 0.91372 0.91832
461 0.90916 0.91372
029 0.90916 0.92916

 | 0.92293 0.93
0.91832 0.93
0.91372 0.93 | 2757 0.93223 0.9
2293 0.92757 0.9
1832 0.92757 0.9

 | 1691 0.94162 0
1223 0.93691 0
1757 0.93223 0 | 94635 0.9511
94162 0.9463
93691 0.9416 | 0.95589
5 0.95111
7 0.94635 | 0.96069 0.1 | 96552 0.91
96069 0.96
95589 0.96 | 7037 0.975
5552 0.970
5552 0.970
 | 25 0.98015
25 0.97525
52 0.97037 | 0.98507 0
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0.98507 0.
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 | 0 0 | 0 | 0 | 0 | 0 0
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| WindDegrade 6
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WindDegrade 6 | 1 1 2 3 | Sec. Sec. <th< td=""><td>1 0.980 0 0.9807 0.8 0.9807 0.8 0.9807 0.8 0.9807 0.8 0.9807 0.8 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9907 0.9 0.9908 0.9 0.9909 0.9 0.9919 0.9 0.99197 0.9 0.99197 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9 0.99090 0.9</td><td>0 0 0 0</td><td>1 0 0
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| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 11 0.85608 0.86038 0.86471 0.86955 0.87342 0.87781 0.88
12 0.8518 0.85608 0.86038 0.86471 0.88955 0.87342 0.87
13 0.84754 0.8518 0.85608 0.86038 0.86471 0.88955 0.87
13 0.84754 0.8518 0.85608 0.86038 0.86471 0.86955 0.87
14 0.8518 0.85608 0.86038 0.86078 0.86471 0.86955 0.87
15 0.8518 0.85508 0.8508 0.86078 0.86471 0.85505 0.87342 0.87
15 0.8518 0.85508 0.8508 0.86078 0.85471 0.85505 0.87342 0.87
15 0.8518 0.85508 0.8508 0.8508 0.85471 0.85505 0.87342 0.87
15 0.8555 0.8558 0.85508 0.85508 0.855508 0.85471 0.85555 0.87342 0.87
15 0.8555 0.8558 0.85568 0.85508 0.85558 0.85555 0.87342 0.87
15 0.8555 0.8558 0.85568 0.85568 0.85558 0.8558 0.85558 0.85558 0.85558 0.85558 0.85558 0.85558 0.85558 0. | 222 0.88665 0.89111
781 0.88222 0.88665
342 0.87781 0.88777

 | 0.89559 0.90
0.89111 0.85
0.8865 0.85 | 0009 0.90461 0.9
9559 0.90009 0.9
9111 0.89559 0.9

 | 0916 0.91372 0
0461 0.90916 0
0009 0.90463 0 | 91832 0.9221
91372 0.9183
90916 0.913 | 1 0.92757
2 0.92293
2 0.91837 | 0.93223 0.
0.92757 0.
0.92293 0. | 13691 0.94
13223 0.93
12257 0.93 | 4162 0.945
3691 0.941
1223 0.914
 | 35 0.95111
62 0.94635
91 0.94143 | 0.95589 0
0.95111 0
0.94635 0 | 0.96069 0.
0.95589 0.
0.95111 0 | 96552 0.970
96069 0.965
95589 0.965 | 7 0.97525
2 0.97037
9 0.96553
 | 0.98015
0.97525
0.97037 | 1 0.995 0.99003 0.98017 0.98017 0.98017 0.97528 0.97528 0.97528 0.97528 0.97528 0.93552 0.93552 0.93552 0.93552 0.93552 0.93552 0.93552 0.93552 0.93552 0.93552 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.9352 0.935 0.9 | 0.990
99003 0.9
99052 0.5
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95520 0.5
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 | 0 | 000 | 000 | 0 0 | 0 | 0 | 000 | 000 | 000 | 0
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| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 14 0.84331 0.84754 0.8518 0.85608 0.86038 0.86471 0.86
35 0.83909 0.84331 0.84754 0.8518 0.85608 0.86038 0.86
36 0.83489 0.83909 0.84331 0.84754 0.8518 0.85508 0.8508 0.86 | 905 0.87342 0.87781
471 0.86905 0.87342
038 0.86471 0.86905

 | 0.88222 0.88
0.87781 0.88
0.87342 0.83 | 8665 0.89111 0.8
8222 0.88665 0.8
7781 0.88222 0.8

 | 9559 0.90009 0
9111 0.89559 0
8665 0.89111 0 | 90461 0.9093
90009 0.9046
89559 0.9000 | 6 0.91372
1 0.90916
9 0.90461 | 0.91832 0.0 | 122293 0.92
11832 0.92
11832 0.92 | 2757 0.932
2293 0.927
1832 0.922
 | 23 0.93691
57 0.93223
93 0.92757 | 0.94162 0 | 0.94635 0.
0.94162 0.
0.93691 0. | 95111 0.955
94635 0.9511
94162 0.946 | 9 0.96059
1 0.95589
5 0.95111
 | 0.96552
0.96069
0.95589 | 0.97037 0
0.96552 0
0.96069 0 | 97525 0.5
97037 0.5
96552 0.5 | 0.995
99003 0.9
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0.995 | 0 0 | 0 | 0 | 000 | 000 | 000 | 0 | 0 0
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 | 0 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 37 0.83072 0.83489 0.83699 0.84331 0.84754 0.8518 0.85
38 0.82657 0.83072 0.83489 0.83509 0.84331 0.84754 0.8
39 0.82243 0.82657 0.83072 0.83489 0.83909 0.84331 0.84 | 608 0.86038 0.86471
518 0.85608 0.86038
754 0.8518 0.85608

 | 0.85905 0.87
0.85471 0.80
0.85038 0.80 | 7342 0.87781 0.8
6905 0.87342 0.8
6471 0.86905 0.8

 | 1222 0.88665 0
7781 0.88222 0
7342 0.87781 0 | 89111 0.8955
88665 0.8911
88222 0.8866 | 9 0.90009
1 0.89559
5 0.89111 | 0.90461 0.1 | 90916 0.91
90461 0.90
90009 0.90 | 1372 0.918
2916 0.913
2461 0.909
 | 32 0.92293
72 0.91832
16 0.91372 | 0.92757 0
0.92293 0
0.91832 0 | 0.93223 0.
0.92757 0.
0.92293 0. | 93691 0.9410
93223 0.9360
92757 0.9322 | 2 0.94635
1 0.94162
3 0.93691
 | 0.95111
0.94635
0.94162 | 0.95589 0
0.95111 0
0.94635 0 | 95069 0.5
95589 0.5
95111 0.5 | 06552 0.970
06069 0.965
05589 0.960
 | 37 0.97525
52 0.97037
69 0.96552 | 0.98015
0.97525
0.97037 | 1
0.9903
0.98507 0
0.98507 0
0.97535 0
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0.95511 0
0.94162 0
0.94162 0
0.94162 0
0.93223 0
0.93223 0 | 1 0.995 09003 0.1 99003 0.99 90015 0.99 90015 0.99 97037 0.97 96059 0.96 9511 0.95 9511 0.95 94152 0.94 94635 0.95 94152 0.94 93991 0.94 93991 0.94 93922 0.94 | 195 1
103 0.995
107 0.99003
 | 0 | 0 | 000 | 000 | 000 | 0 | 0 0
0 0 | | 0 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 40 0.81832 0.82243 0.82657 0.83072 0.83489 0.83909 0.84
41 0.81423 0.81832 0.82243 0.82657 0.83072 0.83489 0.83
42 0.81016 0.81423 0.81832 0.82243 0.82657 0.83072 0.83 | 331 0.84754 0.8518
909 0.84331 0.84754
489 0.83509 0.84331

 | 0.85508 0.85
0.8518 0.85
0.84754 0.8 | 6038 0.86471 0.8
5608 0.86038 0.8
8518 0.85608 0.8

 | 6905 0.87342 0
6471 0.86905 0
6038 0.86471 0 | 87781 0.8822
87342 0.8778
89905 0.8734 | 2 0.88665
1 0.88222
2 0.87781 | 0.89111 0.1 | 19559 0.90
19111 0.85
18665 0.85 | 0009 0.904
0559 0.900
0111 0.895
 | 61 0.90916
09 0.90661
59 0.90009 | 0.91372 0
0.90916 0
0.90461 0 | 0.91832 0.
0.91372 0.
0.90916 0. | 92293 0.9275
91832 0.9225
91372 0.9183 | 7 0.93223
3 0.92757
2 0.92293
 | 0.93691
0.93223
0.92757 | 0.94162 0
0.93691 0
0.93223 0 | 94635 0.5
94162 0.5
93691 0.5 | N635 0.951
N635 0.951
N162 0.966
 | 89 0.96069
11 0.95589
35 0.95111 | 0.96552
0.96069
0.95589 | 0.97037 0.
0.96552 0.
0.96069 0. | 97525 0.98
97037 0.97
96552 0.97 | 115 0.98503
125 0.98013
137 0.97523
 | 0.99003
0.98507
0.98015 | 0.995
0.99003
0.98507 | 0.995 | 0 | 0 | 0 | 0 0
0 0 | | 0 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 43 0.80511 0.81016 0.81423 0.81832 0.82243 0.82657 0.83
44 0.80208 0.80511 0.81016 0.81423 0.81832 0.82243 0.82
45 0.79807 0.80208 0.80511 0.81016 0.81423 0.81832 0.82 | 072 0.83489 0.83909
657 0.83072 0.83489
243 0.82657 0.83072

 | 0.84331 0.84
0.82909 0.84
0.83489 0.83 | 4754 0.8518 0.8
4331 0.84754 0.
3909 0.84331 0.8

 | 5608 0.86038 0
8518 0.85608 0
4754 0.8518 0 | 85471 0.8690
85038 0.8643
85608 0.8603 | 5 0.87342
1 0.86905
8 0.86471 | 0.87781 0.0.87342 0.0.86905 0.0. | 18222 0.81
17781 0.81
17342 0.83 | 8565 0.891
8222 0.885
7781 0.882
 | 11 0.89559
65 0.89111
22 0.88665 | 0.90009 0
0.89559 0
0.89111 0 | 0.90461 0.
0.90009 0.
0.89559 0. | 90916 0.913
90461 0.9090
90009 0.9046 | 2 0.91832
6 0.91372
1 0.90916
 | 0.92293
0.91832
0.91372 | 0.92757 0
0.92293 0
0.91832 0 | 93223 0.5
92757 0.5
92293 0.5 | 0.941
0.9223 0.936
02757 0.932
 | 62 0.94635
91 0.94162
23 0.93691 | 0.95111
0.94635
0.94162 | 0.95589 0.
0.95111 0.
0.94635 0. | 96069 0.96
95589 0.96
95111 0.95 | 152 0.97033
169 0.96553
189 0.96065
 | 0.97525
0.97037
0.96552 | 0.98015
0.97525
0.97037 | 0.98507 0.98005 0.97525 0 | 1.99003 0
1.98507 0.91
1.98015 0.91 | 1.995
9003 0.1
8507 0.991 | 1
995
003 0.99 | 0 0
1 0
15 1 | | 0 | 0 0 |
| WindDegrade 6
WindDegrade 6
WindDegrade 6 | 46 0.79408 0.79807 0.80208 0.80611 0.81016 0.81423 0.81
47 0.7901 0.79408 0.79807 0.80208 0.80611 0.81016 0.81
48 0.78615 0.7901 0.79408 0.79807 0.80208 0.80611 0.81 | 832 0.82243 0.82657
423 0.81832 0.82243
016 0.81423 0.81832

 | 0.83072 0.83
0.82657 0.83
0.82243 0.83 | 3489 0.83909 0.8
3072 0.83489 0.8
2657 0.83072 0.8

 | 4331 0.84754
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Source: 2020 NREL ATB

	SCCT: Overnight		SCCT: Overnight	SCCT: Fixed		
	Capital (\$/kW;		Capital (\$/kW;			
Year	Real 2018\$)	Real 2018\$)	Nominal \$)	Nominal \$)	SCCT Capital Esc.	SCCT O&M Esc.
2018		11.39	943	11.39		
2019		11.39	958	11.62		
2020		11.39	972	11.86		
2021		11.39	987	12.09		
2022		11.39	1,002	12.33		
2023	915	11.39	1,010	12.58		
2024		11.39	1,012	12.83		
2025	887	11.39	1,019	13.09		
2026		11.39	1,032	13.35		
2027		11.39	1,044	13.62		
2028		11.39	1,059	13.89		
2029		11.39	1,077	14.17	1.6%	2.0%
2030		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%

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Operations of the second secon

Fixed-Time inputs																									
Forecast / Resource Item NG_LGZ CR3/TC NG Fost Open Open Open	Notes 2021 Base Gas CR7 INV															2052 4.70 4.									

Operating Scenario	1			2			3		
Technology	CF	Starts	Hours	CF	Starts	Hours	CF	Starts	Hours
NGCC	85%	50	7446	60%	100	5256	40%	250	3504
SCCT	15%	110	1314	10%	80	876	5%	50	438
Open									

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

	А	В	С	D	E	D*E	
				NPV*YR1			
	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	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

		Capital Cost -
	New Dist.	Capacity
Year	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

КU

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

<u>Inputs</u>

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	NPV of savings
		Discounted Value	\$ 178.29	\$ 72.92	\$ 105.37

<u>Inputs</u>

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	NPV of savings
		Discounted Value	\$ 188.94	\$ 77.28	\$ 111.66

<u>Inputs</u>

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		\$ 275.74	NPV of savings
		Discounted Value	\$ 131.70	\$ 53.87	\$ 77.83

			ownership											
		MW Net Capacity (2 LG&E	кU		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	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
Annual Capacity Factors	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
	Brown	409			84196740	77747628	91720704	88137864	82763604	70940232	65924256	0	0	0
Total Energy (MWh)	Ghent	1919			1003877604	963938136	996481536	938280972	959635224	940125828	927649836	902112684	872755296	887126076
Total Energy (WWW)	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
	Brown				23.5	21.7	25.6	24.6	23.1	19.8	18.4	0	0	0
Avg CF	Ghent				59.71750912	57.34163627	59.27754039	55.81537259	57.08566962	55.92511725	55.18295987	53.66383533	51.91745701	52.77232934
Ave Cl	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%	
	Brown	2027
Last Year Online	Ghent	2034
Last real Online	Mill Creek	2028
	Trimble County	2034
	Brown	\$6,736,567.04
2021 NPV (Capital)	Ghent	\$179,847,308.95
	Mill Creek	\$58,159,345.97
	Trimble County	\$52,902,565.84
	Brown	\$16,470.82
Cost per MW	Ghent	\$93,719.29
COSt per IVIV	Mill Creek	\$39,699.21
	Trimble County	\$57,565.36
	Brown	22%
Average CF	Ghent	50%
Average CF	Mill Creek	49%
	Trimble County	53%
Capital Recovery Factor		9.26%
	Brown	\$623,581.75
Annualized Cont	Ghent	\$16,647,871.10
Annualized Cost	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)	ки	\$3.97
Levelized Cost (\$/kWh)	ки	\$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 12	Coal-Fired	370	n/a	100%
Trimble County 23	Coal-Fired	549	81%	19%
Trimble County 5, 6	CT	318	71%	29%
Trimble County 7, 8, 9, 10	СТ	636	63%	37%
Zorn 1	CT	14	n/a	100%

 $Source: https://psc.ky.gov/pscecf/2020-00349/rick.lovekamp%40lge-ku.com/11252020084757/10-KU_Testimony_10f4\%28Thompson_Blake_Bellar_Sinclair_Wolfe_SaundStructures (Structures (Structur$

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		-	618201	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																	
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					,										
0	0	Total Ghent		72,536,872	, ,	, ,	, ,	70,423										
22.28258977	22.04363439	EW Brown	204,803,035	12,550,612	75,045,870	27,007,422	24,320,432	70,423										
22.20230377	22.04505455	CCR	6,528,902	6,477,352	12,313	13,079	13,079	13,079										
		ELG	710,416	72,800	637,616	,	13,075	13,075										
		Total EW Brown	7,239,318		,		13,079	12.070										
			7,239,318	6,550,152	649,929	13,079	13,079	13,079										
		Trimble County			c 050 000		25 250	~~										
		CCR	34,456,319		6,958,906		25,359	25,441										
		ELG	21,118,866	6,746,586	10,023,120			-										
		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		-	-							2,831,230					
		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		-								1,588,408					
		Total Trimble County	225,941,758	1,773,099	1,921,384	3,585,229							5,013,244					
		LG&E Capital Mill Creek	TOTAL	2021	2022	2023	2024	2025										
		CCR	6,083,502	5,841,051	57,918	61,511	61,511	61,511										
		ELG		15,770,067														
		Total Mill Creek	66,814,569	21,611,118	24,050,918		, ,	61,511										
		Trimble County	00,014,000	21,011,110	24,030,318	10,000,511	11,022,511	01,511										
		CCR	37,339,026	12 472 240	7 5 2 0 0 2 7	16,273,904	27,018	27,018										
		CCh	37,335,020	13,472,249	1,330,037	10,275,904	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 KU + LG&E Capital	725,145,925 394,711,908						32,514,568	33,164,857	29,042,391	29,623,238	30,215,703	30,820,017	31,436,417	32,065,146	****	****

		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								
Total cost (O&M +	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
Capital)	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	########	########

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2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059

 3,451,542
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6,675,801 <u>3,144,126</u> 9,819,926

2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	
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10,330,609 10,537,221 10,747,965 10,962,926 11,182,184 11,405,828

2060	2061	2062	2063	2064	2065
2000	2001	2002	2005	2004	2005

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

	3.706.977	3.781.117	3.856.739	3.933.874	4 012 552	4 092 803
	-, -,-	-, - ,	-,,	1,824,495	,. ,	,,
1				5,758,370		

2060	2061	2062	2063	2064	2065
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3,317,357	3,383,704	3,451,378	3,520,406	3,590,814	3,662,630	
1,587,012	1,618,752	1,651,127	1,684,150	1,717,833	1,752,189	
4,904,369	5,002,456	5,102,505	5,204,556	5,308,647	5,414,820	

2060	2061	2062	2063	2064	2065

Effective Date	ate 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%			
<u>Outputs</u>				
Avoided Transm (\$/kW)	\$442.50			
Avoided Transm (\$/kW-year)	\$37.12			
Avoided Transm (\$/kWh)	\$0.0254			
PV-Adj Avoided Transm (\$/kWh)	\$0.0073			

	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

\$/kW \$/kW-yr \$/kWh

NPV \$442.50 \$37.12 0.0254066

Case Nos. 2020-00349 and 2020-00350 Attachment to Response to PSC-8 Question No. 21 Page 14 of 15 Sinclair

	Existing and Expansion				
	2018IRP CO2	Units CO2 Emissions		Discour	t
	(\$/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	A-21.
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	

Case Nos. 2020-00349 and 2020-00350 Attachment to Response to PSC-8 Question No. 21 Page 15 of 15 Sinclair

NPV of 22-46	0.159481
life (years) Discount factor	25 6.75%
Capital Recovery Factor	0.083886912
avoided cost	0.013378

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