

BEFORE THE GUAM PUBLIC UTILITIES COMMISSION



IN THE MATTER OF: ) GPA Docket 19-13
)
The Application of the Guam Power )
Authority to Approve the Energy ) ORDER
Conversion Agreement (ECA) with )
KEPCO for the 198MW Power Plant. )

INTRODUCTION

This matter comes before the Guam Public Utilities Commission ["PUC"] upon the Petition of the Guam Power Authority's ["GPA"] for Approval of the Energy Conversion Agreement (ECA) with Korean Electric Power Company ["KEPCO"] for the 198MW Power Plant.1 GPA asks PUC to approve the ECA and the award of the 198MW Power Plant project, including the construction, operation, and financing.

BACKGROUND

The PUC does not undertake its task to review the award to KEPCO for the 198MW Power Plant and the Energy Conversion Agreement "with a blank slate." For a period of over 10 years, the PUC has been intricately involved in reviewing GPA's plans for generation capacity and a New Power Plant. The Power Plant Plan was jointly formed by GPA and the PUC. PUC has worked with GPA in the development of the Power Plant Plan, the procurement process, the procurement forms, the technical specifications for the Plant, the land siting of the Plant, pipeline improvements, and numerous other aspects.

The Administrative Law Judge filed his Report herein dated October 28, 2019.2 Therein he provides a review of docket proceedings since 2008 in which the PUC has been involved in reviewing GPA's plans for a New Power Plant. The PUC adopts the ALJ Report, including the Background Section, and the conclusions in the Report. In its October 27, 2016, Order approving GPA's procurement for a new 180MW Power Plant, the PUC made a number of determinations which guide its decision in this matter: (1) GPA justified the need to procure new generation capacity; Cabras No. 3 & 4 were unavailable, resulting in the loss of 78MW. (2) GPA's current plan to retire the Cabras No. 1 & 2 plants upon the commissioning of the New Power Plant was approved; (3)

1 GPA Petition for Approval of the Energy Conversion Agreement (ECA) with KEPCO for the 198MW Power Plant, GPA Docket 19-13, filed September 5, 2019.

2 ALJ Report, GPA Docket 19-13, dated October 28, 2019.

Based upon the increased need for baseload capacity, GPA had offered sufficient justification to procure a new generation combined cycle plant of 180MW. (4) It was reasonable for GPA to request procurement of 180MW to replace the Cabras No. 1 & 2 plants (132MW) and to offset the loss of the Cabras No. 3 & 4 plants (78MW): (5) Renewable energy was not reliable or stable enough to provide firm baseload generation for Guam. It was “speculation to suggest when renewable energy would be a viable alternative to baseload fossil fuel generation” (emphasis added); (6) GPA was authorized to procure engineering, procurement and construction contractor support for the new combined cycle plant. (7) As to the rate impact of the New Power Plant, GPA was required to provide a fully updated and comprehensive rate impact study. (8) The plan for proceeding with LNG was disapproved, as GPA had not demonstrated that such plan was economically viable.<sup>3</sup>

On April 17, 2017, the PUC clarified its October 27, 2016 Order to provide that GPA could consider any LNG proposals for the procurement.<sup>4</sup> No specific plan or proposal for the use of LNG has ever been approved by the PUC to date.

The record establishes that the PUC has conducted an extensive review of GPA’s plans for a New Power Plant over the last 10 years. Given the extensive review by the PUC of the New Plant Power Project over a ten-year period, it would now be a complete reversal of position for PUC to reject the award of the Energy Conversion Agreement to KEPCO. The ten-year process between GPA and PUC of developing and refining the power plant proposal would be discarded. The resources expended over the years by GPA (as well as those of PUC), including purchase of the plant site, would be wasted. Where would a PUC rejection of the New Power Plant, or a delay of decision, leave the ratepayers of Guam? The procurement process would have to be commenced from scratch and could take many more years to complete. No New Power Plant could be built until this new procurement process was completed. The urgent environmental compliance issues of USEPA would go unaddressed. The likely result would be load-shedding, substantial fines for GPA, a degraded and insufficient power system with potential for blackouts, and a possible federal receivership.<sup>5</sup>

**KEPCO’S SELECTION AS MOST QUALIFIED PROPONENT,  
IT’S PROPOSAL FOR THE NEW GENERATION PLANT,  
AND THE ENERGY CONVERSION AGREEMENT**

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<sup>3</sup> Id.

<sup>4</sup> PUC Supplemental Order, GPA Docket 15-05, dated April 27, 2017.

<sup>5</sup> These issues will be addressed in detail in the “ANALYSIS” Section of this Report.

KEPCO was selected by GPA as a result of a three-step bidding process (GPA's Multi-Step Invitation for Bid (MS IFB) for Build, Operate & Transfer Contract for 120-180MW of New Generation Capacity). In the Request for Qualifications, Step 1, seven of the original 18 proponents were qualified to proceed to Step 2, submission of technical specifications. At step 3, three proponents submitted price proposals. On June 10, 2019, GPA determined that KEPCO was the lowest responsive and responsible proponent.<sup>6</sup>

Along with its Petition, GPA has submitted a proposed Energy Conversion Agreement "ECA" between GPA and KEPCO to Build, Operate, and Transfer (BOT) a 198MW power generation plant. The Agreement provides for the construction, operation and maintenance of the facility over a 25-year term. In accordance with KEPCO's proposal, the Power Plant will include a Combined Cycle Unit: three (3) 44MW Siemens SGT-800 combustion turbine units with heat recovery steam generators (HRSG); one (1) 68MW Siemens steam turbine; one (1) 25MW battery energy storage system, providing up to 15MW output for 30 minutes; and 64.5MW of reserve capacity from high-speed diesel generators.<sup>7</sup> The cost to build the plant has been estimated in the range of \$600M. KEPCO was the lowest qualified bidder, with a 25-year Net Present Value cost of \$3,121,230,000.<sup>8</sup> The economic evaluation of KEPCO's bid was based upon net present value, incorporating all costs over the 25-year period. These include: Fixed Capacity Cost, Fixed Operation and Maintenance Cost, Variable Operation and Maintenance Cost, and Fuel Cost.<sup>9</sup> The estimated annual first-year cost based upon the power plant capacity and production at the 81% capacity factor is \$69,440,216, with a charge to GPA for energy produced at \$0.049/kWh.<sup>10</sup>

The draft Energy Conversion Agreement presented by GPA is a document of 298 pages. The document is comprehensive and covers every aspect of the building, construction, financing, and operation of the New Power Plant. The ALJ has reviewed the contract in

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<sup>6</sup> Testimony of General Manager John Benavente for Legislative Oversight Hearing on September 10, 2019, dated September 10, 2019, at p. 3; see also GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p.16.

<sup>7</sup> Testimony of General Manager John Benavente for Legislative Oversight Hearing on September 10, 2019, dated September 10, 2019, at p. 3; see also GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p.29.

<sup>8</sup> GPA Application to approve the Energy Conversion Agreement (ECA) with KEPCO for the 198MW Power Plant, GPA Docket 19-13, dated September 5, 2019, at p. 1.

<sup>9</sup> Testimony of General Manager John Benavente for Legislative Oversight Hearing on September 10, 2019, dated September 10, 2019, at p. 3; see also GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p. 20.

<sup>10</sup> Testimony of General Manager John Benavente for Legislative Oversight Hearing on September 10, 2019, dated September 10, 2019, at p. 3; see also GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p. 3.

its entirety and recommends approval by the PUC. The ECA includes the Technical Specifications that were previously approved by the PUC. The Agreement was drafted by GPA with the assistance of its Consultants Stanley and K&M. GPA GM John Benavente has outlined the specific protections for GPA ratepayers and the government of Guam included in the Agreement<sup>11</sup>:

“The ECA contains specific protections for GPA ratepayers and the government of Guam:

1. Funding: The generation plant is wholly funded by the proponent and the proponent is required to maintain 20% equity in the project.
2. Bid Guarantee & Construction Security<sup>12</sup>: GPA retains the \$3 million bid guarantee until the proponent reaches financial close, approximately eight (8) months after contract execution. Upon financial close, the proponent is required to provide and maintain \$63.8 million in security for the duration of the construction period, estimated at 28 months.
3. Liquidated Damages<sup>13</sup>: Delay in commissioning is subject to \$2,000 per day for the initial 60 days. Thereafter, the liquidated damages shall be \$240,000 per day for each additional day delayed.
4. Performance Guarantees: The proponent is subject to penalties for excessive forced outages<sup>14</sup>
5. Dependable Capacity Tests<sup>15</sup>: Calculation of monthly fixed charges are confirmed through capacity tests scheduled prior to commercial operation date and annually thereafter.
6. Transfer of Security at Contract Year 21<sup>16</sup>: The proponent must transfer \$15 million as security to ensure plant maintenance is continued until the end of the contract term.
7. Default: The proponent’s lender shall have step-in rights to address and/or correct the proponent’s default.<sup>17</sup> Additionally, upon default of the proponent, GPA may exercise its termination right to purchase the plant at the amount of the outstanding debt.<sup>18</sup>”

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<sup>11</sup> Testimony of General Manager John Benavente for Legislative Oversight Hearing on September 10, 2019, dated September 10, 2019, at pgs. 3-4.

<sup>12</sup> Energy Conversion Agreement, Article 8.5(d).

<sup>13</sup> Energy Conversion Agreement, Article 8.1.

<sup>14</sup> Energy Conversion Agreement, Article 8.3(a).

<sup>15</sup> Energy Conversion Agreement, Article 7.

<sup>16</sup> Energy Conversion Agreement, Article 17.4.

<sup>17</sup> Energy Conversion Agreement, Article 4.5; and Lender’s Direct Agreement.

<sup>18</sup> Energy Conversion Agreement, Article 4.5(e); and Schedule 8.

The PUC Consultant Concentric Energy Advisors [“CEA”] has submitted its Report, “High Level Review of 198MW Combined Cycle Energy Conversion Agreement,” dated October 16, 2019<sup>19</sup>. The Report contains a thorough assessment of the reasonableness of the Energy Conversion Agreement between GPA and KEPCO. CEA concludes that, “when benchmarked against best practices, the ECA proves to be reasonable.” The interests of both parties are balanced, and the pricing components are in line with other documents that Concentric has reviewed or assisted in negotiating. CEA further finds that the ECA and the project are “well-conceived.” They comply with USEPA Regulations, replace the aged Cabras Steam Plants, meet load growth, and increase renewable integration.<sup>20</sup> Citing standards for agreements such as the ECA, prepared by the World Bank and the Edison Electric Institute, CEA concludes that the ECA includes the required provisions that are necessary for such an Agreement.<sup>21</sup> Based upon the testimony submitted by GPA GM Benavente and CEA, and the ALJ Report, the PUC finds that the ECA adequately protects the interests of GPA and its ratepayers, and is a reasonable, well-conceived agreement.

### RATE IMPACT

In GPA Docket 15-05, PUC ordered that GPA conduct a “rate impact study” indicating what impact the proposed New Power Plant would have on customer rates. GPA retained Mark Beauchamp, President of Utility Financial Solutions, LLC, to conduct a review of New Generating Rate Impacts. Mr. Beauchamp conducted a presentation to the ALJ and the Commissioner on August 18, 2019. Mr. Beauchamp found that there would be no rate impact until fiscal year 2023, when the New Power Plant would already have been constructed and would be in operation.<sup>22</sup> Mr. Beauchamp indicated that fuel costs were expected to decrease by \$50 to \$60 million between 2023-2025. At the same time, due to operational cost increases, there would be a base rate increase of 11.8% in fiscal year 2023. For the average customer this would result in a monthly dollar increase of approximately \$10.80. However, due to a reduction in fuel usage by the new plant (which is more efficient than the Cabras plants), the net residential

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<sup>19</sup> Concentric Energy Advisors Inc., High Level Review of 198MW Combined Cycle Energy Conversion Agreement, GPA Docket 19-13, dated October 16, 2019.

<sup>20</sup> Id. at p. 4.

<sup>21</sup> Id. at p. 3 and Table 1.

<sup>22</sup> Mark Beauchamp, Guam Power Authority Review of New Generating Rate Impacts, Presentation, dated August 18, 2019.

rate will decrease by 7.95% in FY2023. Similarly, there would be a decrease in net residential rates for 2024 and 2025 of 11.84% and 12.37% respectively.<sup>23</sup> Throughout the entire process for development and consideration of the new generation plant, GPA committed to undertaking all possible efforts to avoid any rate impact from the new plant. At the Public Hearings on the new plant procurement in 2016, GPA indicated that there are numerous cost-cutting and savings initiatives which will result from the addition of the new plant that minimize any rate impact upon GPA customers. GPA has promised to minimize such rate impact by any means available.<sup>24</sup>

### **PUBLIC HEARINGS**

The PUC caused a Public Notice for Public Hearings on GPA's request for approval of the KEPCO Energy Conversion Agreement to be published in the Pacific Daily News on September 13, September 20, and September 27, 2019.

The PUC conducted three public hearings on the 198MW Power Plant project: On October 1, 2019, at 6:30p.m., at the PUC Conference Room, Hagatna; on October 2, 2019, at 6:30p.m., at the Dededo Senior Citizens Center; and on October 3, 2019, 6:30p.m., at the Agat Community Center. In his Report, the ALJ has fully set forth the numbers of attendees at the public hearings, testifying witnesses, written testimonies, and the principal arguments of both witnesses testifying for and against the 198MW Power Plant. The PUC adopts the Report of the ALJ on the Public Hearings and incorporates the same herein by reference.

### **DETERMINATIONS**

Having reviewed the arguments of the testifying witnesses, and the Reports of Concentric Energy Advisors and the ALJ, the PUC hereby makes the following determinations:

1. **THE PUC SHOULD NOT FURTHER DELAY DECISION ON GPA'S PROPOSAL FOR THE 198MW POWER PLANT.**

There is no justifiable reason for the PUC to further delay decision on GPA's proposal for the 198MW Power Plant. Both GPA and the PUC have been in a continual process of vetting and considering New Power Plant alternatives for the

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<sup>23</sup> Id.

<sup>24</sup> PUC Order, GPA Docket 15-05, dated October 27, 2016.

island wide power system for over ten years. It is unnecessary to conduct further study on “the feasibility of other alternative power solutions.” In the past 15 years, GPA has conducted over 57 studies relating to integration of renewables into the IWPS, battery storage, and system performance/reliability. See Attachment 4 to ALJ Report.<sup>25</sup> GPA has over five years of practical experience in assessing the Dandan 25MW Solar Plant. In numerous dockets, as well as at the Public Hearings herein, GPA has presented evidence that solar power is not presently firm or stable enough to support the baseload generation needs of the power system (GPA NEW COMBINED CYCLE POWER PLANT PRESENTATION). There has been no testimony or evidence submitted by solar proponents establishing that solar energy can provide the type of baseload generation now needed by GPA. GPA has demonstrated that it will not be possible to further integrate solar generation into the island wide power system without constructing the new baseload plant.

The record before the PUC justifies approval of GPA’s plan for the 198MW Power Plant. The prior Lummus Report was issued *before* GPA lost 78MW with the Cabras No. 3 & 4 explosion. The recent Report of Concentric Energy Advisors states as follows: “**It would not be reasonable to replace the Cabras units only with renewable resources. The renewable technology is not mature enough to provide the level of reliability to support baseload needs.**”<sup>26</sup> (emphasis added). Delay in the construction of this plant will also delay fuel savings which will benefit ratepayers and lower power rates. There is simply no reason for further delay on this decision.

2. THE AUTHORITY TO DECIDE WHAT POWER PLANT WILL BE APPROVED, AND THE TIMETABLE FOR CONSTRUCTION, IS FIRMLY VESTED BY LAW IN GPA, SUBJECT TO PUC APPROVAL, NOT IN OTHER THIRD PARTIES. THE PUC SHOULD DETERMINE THAT GPA HAS JUSTIFIED APPROVAL FOR THE 198MW PLANT AND THE ENERGY CONVERSION AGREEMENT.

Guam law vests decisions concerning the type of power plants that will be built, and the fuel sources for the plants, in the Guam Power Authority. In accordance with 12 GCA § 8104(k), it is the Guam Power Authority that exercises the power to “**control, operate, improve, equip, maintain, repair, renew, replace, reconstruct, alter and insure the electric system...**”<sup>27</sup> The Guam Legislature reinforced the control of GPA

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<sup>25</sup> Listing of GPA Planning Studies, submitted to PUC ALJ Fred Horecky on October 14, 2019, by John Cruz, Assistant General Manager, Engineering & Technical Services, GPA (Attachment 4 to ALJ Report).

<sup>26</sup> Concentric Energy Advisors Inc., High Level Review of 198 MW Combined Cycle Energy Conversion Agreement, GPA Docket 19-13, dated October 16, 2019, at p. 5.

<sup>27</sup> 12 GCA § 8104(k).

over the power system by creating a Consolidated Commission on Utilities, an elected body, which exercises “all powers vested in the Authority.”<sup>28</sup> The Legislature created an elected Consolidated Commission on Utilities whose purpose “is to exercise powers vested in them by the laws establishing the Guam Power Authority (“GPA”) and the Guam Waterworks Authority (“GWA”).<sup>29</sup> The Legislative intent was to vest control over the power system in GPA and the CCU. With regard to review of GPA decisions, the Organic Act of Guam created the Public Utilities Commission as an “independent rate-making authority.”<sup>30</sup> The Legislature established the Guam PUC and vested it with responsibility for review of GPA contracts and rate decisions. PUC is obligated under law to review any GPA contracts which could increase rates (“the utilities shall not, however, enter into any contractual agreements or obligations which could increase rates and charges prior to the written approval of the Commission.”).<sup>31</sup>

By virtue of the Contract Review Protocol between GPA and the PUC, PUC is required to review the Energy Conversion Agreement. With the deteriorating condition of the aged Cabras No. 1 & 2 plants, and with only a likely 5-year further life span for those plants (loss of another 132MW), it became increasingly apparent that GPA needed a new plant with at least 180MW of generation capacity. GPA filed an Update with the PUC on its Integrated Resource Plan on May 24, 2016.<sup>32</sup> The key implementation recommendation of the IRP was to procure up to 180MW combined cycle units, to retire the Cabras plants, and to convert MEC No. 8 & 9 to ULSD under the IPP capitalization model.<sup>33</sup> Based upon GPA’s justification for a New Power Plant, on October 27, 2016, the PUC approved GPA’s procurement for a 180MW power plant.<sup>34</sup> Decisions as to what power plant should be approved, and the type of fuels used, should be determined by the CCU, GPA and its staff of Engineers, and the PUC and its Consultants. GPA has a staff of forty professional engineers to make decisions concerning the electric power system. However, contrary to testimony at the public hearing (Testimony of Barry Mead), GPA did not rely only upon its internal staff but over the years retained a substantial number of

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<sup>28</sup> 12 GCA § 8107.

<sup>29</sup> 12 GCA § 79100 at et seq.

<sup>30</sup> 48 USC § 1423a, as amended by P.L. 98-454, Title II, § 203, 98 Stat. 1733(1984).

<sup>31</sup> 12 GCA § 32105(e)(1).

<sup>32</sup> Consolidated Commission on Utilities UPDATE, Integrated Resource Plan and GPA Implementation Plan, GPA Docket 15-05, filed May 17, 2016.

<sup>33</sup> Id., at GPA Implementation Plan.

<sup>34</sup> PUC Order, GPA Docket 15-05, dated October 27, 2016.



qualified off-island consultants to assist it in arriving at the best proposal for a new generation plant (Attachment 4 to ALJ Report).<sup>35</sup>

3. CONTRARY TO PUBLIC TESTIMONY, GPA HAS FULLY CONSIDERED ALTERNATIVES TO THE 198MW COMBINED CYCLE PLANT, INCLUDING RENEWABLE ALTERNATIVES.

Since its submission of an Integrated Resource Plan in 2008, GPA has revised its power plant proposals and has thoroughly considered alternatives. It initially considered a plan to convert the existing plants, Cabras No. 1 & 2, and MEC No. 8 & 9, for compliance with environmental regulations (with low Sulfur RFO), with life extension plans and addition of scrubbers, etc.<sup>36</sup> However, subsequently GPA decided that a preferable investment would be to build a New Power Plant, with fuel-efficient compliant generators.<sup>37</sup> In GPA's 2016 update of its IRP, it agreed to build a 180MW combined cycle plant with fuel conversion to Ultra Low Sulfur Diesel.<sup>38</sup> GPA has fully considered the use of renewables as an alternative to the fossil fuel plant. In response to the PUC Order in GPA Docket 15-05 dated October 29, 2015, GPA provided a substantial amount of information to PUC concerning how it arrived at a projected plant size of 180MW, what fuels would be used, its procurement plans and what technology it would seek, whether it would use the IPP model, whether Cabras 3 or 4 were still operable, and what ratepayer impacts would result from the new plant.<sup>39</sup>

GPA addressed the Lummus concern that GPA must adequately incorporate the impact of renewable energy in its resource/compliance planning. GPA stated that it was continuing to investigate renewables as an alternate source of power which contributes to fuel diversity and could reduce fossil fuel generator capacity requirements. However, GPA submitted that both solar photovoltaic technology and wind technology are "intermittent resources or non-firm capacities that would only contribute to supporting peak demand if energy storage was implemented to store and shift energy from the renewable energy resources to discharge during GPA peak periods which occur at night."<sup>40</sup> It pointed out that it had increased the

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<sup>35</sup> See Attachment 4 to ALJ Report.

<sup>36</sup> GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p.3.

<sup>37</sup> Id.

<sup>38</sup> Consolidated Commission on Utilities UPDATE, Integrated Resource Plan and GPA Implementation Plan, GPA Docket 15-05, filed May 17, 2016.

<sup>39</sup> GPA Response to PUC Order in GPA Docket 15-05 dated October 29, 2017 (Attachment to GPA Revised Petition for Approval of New Generation Combined Cycle Units, GPA Docket 15-05, dated July 14, 2016).

<sup>40</sup> Id. at p. 14.

Phase II bid awards to 60MW of installed energy capacity and ultimately agreed upon 120MW of solar energy capacity. There was an additional 40MW plan with the Navy for additional renewable capacity.<sup>41</sup> GPA indicated that it had been working with its consultants and energy storage suppliers to evaluate cost for energy shifting. The problem with battery storage is its high cost. GPA's feasibility study indicated that battery-type energy storage for "on demand spinning reserve of 40MW for 15 minutes", an energy capacity of 10MWH, would cost nearly \$40 million. The cost of energy storage for the Dandan solar plant was more than \$320 million.<sup>42</sup>

GPA determined that other renewable forms of energy were not feasible: "Since 2008 GPA has evaluated other renewable opportunities that would provide the firm power and could lower thermal or fossil-fuel capacity reserve requirements. These include waste to energy, geothermal, bio fuels and even sea water air conditioning as a cooling cost offset. Our renewable bids since 2009 only confirmed that these options are not cost effective or require expensive studies to further confirm their potential."<sup>43</sup> GPA has also conducted Engineering Feasibility Studies to evaluate and determine additional Energy Storage System capability for its utility scale projects. In a May 17, 2016 GPA/CCU Presentation, GM Benavente stated that energy storage was not yet matured enough for baseload generation, but would be "a part of the future."<sup>44</sup> He also indicated that renewables do not significantly reduce peak load generation needs of GPA. CCU Chairman Joey Duenas stated that there was no proof that renewables could provide 24/7 firm power, or when battery storage technology would be sufficient to provide peak load power during the night time. GPA has recognized its obligation to keep the lights on for 24 hours per day.<sup>45</sup>

With regard to the procurement, PUC made it clear that Bidders were fully authorized to submit proposals other than combined cycle, which could also include LNG, LPG, or possible renewable solutions.<sup>46</sup> No facts or evidence presented to the PUC support a claim that no bidder submitted a renewable solution because of what was "known" about GPA's position. The fact that no bidder submitted a renewable solution is likely due to the conclusion that renewable solutions could not meet the 96% reliability standards which GPA sought for its power plant in the bid. Two

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<sup>41</sup> Id. at pgs. 14-15.

<sup>42</sup> Id. at p. 15.

<sup>43</sup> Id.

<sup>44</sup> GM Benavente's Presentation on Update of the Integrated Resource Plan, GPA Boardroom May 17, 2016; Notes of PUC ALJ Frederick J. Horecky.

<sup>45</sup> Id.

<sup>46</sup> Id.

bidders who have already secured contracts to build a total of 120MW solar plants, KEPCO and Hanwha, did not submit solar renewable bids for the 198MW New Power Plant proposal.

4. KOREAN ELECTRIC POWER COMPANY (KEPCO) WAS PROPERLY DETERMINED BY GPA TO BE THE MOST QUALIFIED, LOWEST COST PROPOSER FOR THE 198MW POWER PLANT. KEPCO IS FULLY CAPABLE OF CONSTRUCTING THE NEW POWER PLANT; THERE IS NO LEGAL BASIS FOR RETROACTIVELY DISQUALIFYING KEPCO FROM THE RFP AWARD.

A principal argument of the opponents of the New Power Plant is that the awardee of the Energy Conversion Agreement, KEPCO, and its subsidiary KEWP, are improper and inappropriate parties to construct GPA's New Power Plant. There is a claim that a subsidiary of KEPCO, Korea East West Power (KEWP) "blew up" the Cabras No. 3 & 4 units when it was in charge of the maintenance, operations and overall management. To date, there is no factual evidence proving that KEWP was responsible for "blowing up" GPA's plant. There is a pending lawsuit in which insurance companies are seeking indemnification from KEWP, as they allege that it was responsible for the plant explosion. There has been no legal determination of "causation" or "responsibility" for the explosion. KEWP denies negligence and responsibility. The explosion could have occurred as the result of defective plant construction, equipment or materials, or even as the result of actions of GPA employees. These issues will be determined after years and years in a lawsuit, but it is impractical for GPA to delay proceeding with its new plant until the lawsuit is resolved. In reality, however, the Cabras 3 and 4 explosion is irrelevant to the current RFP award. To begin with, the awardee for the ECA is KEPCO, not KEWP. It is unknown whether KEPCO will utilize KEWP as its new plant operator. However, even if KEWP will be the operator, comparisons between the Cabras explosion and the new plant operation are inapposite. Cabras 3 and 4 were constructed and owned by the Guam Power Authority. Neither KEPCO nor KEWP had any role in the construction of the plants. KEWP was the Performance Management Contractor of Cabras 3 and 4 at the time of the explosion; however, as required by contract, KEWP was utilizing many GPA employees to operate and run the plant. Since the new plant will be operated by an Independent Power Producer, KEPCO, the IPP will be entirely responsible for the construction and operation of the plant. That is the whole purpose of an IPP—to remove the risk of construction and operation from GPA and shift it to the contractor, KEPCO. GPA's insulation from risk would be destroyed if GPA compelled KEPCO to hire a specific plant operator.

There are further claims that: (1) since KEPCO had over \$500 Million in operating losses in the first quarter of this year, it is somehow disqualified from bidding or being awarded the ECA; (2) KEPCO is the subject of bribery scandals and numerous of its officers and employees have been criminally charged; and (3) The U.S. Securities and Exchange Commission is investigating allegations that both KEPCO and KEWP have been involved in graft.<sup>47</sup> Much of KEPCO losses are due to the fact that it is a government owned utility and has also been required to implement expensive renewables: "KEPCO is poised to raise electricity rates as it continues to lose money amid the Moon Jae-in governments drive to phase out nuclear power and expand the use of expensive renewable energy...".<sup>48</sup> One would be hard-pressed to find large world-wide corporations that have no lawsuits against them. However, the existence of such suits is not a disqualifying factor which prevents corporations such as KEPCO from bidding on or being awarded contracts.

It is not possible for GPA to reverse its determination that KEPCO was a qualified bidder, and now find that KEPCO is disqualified from being awarded the ECA. Such a course of action is unauthorized by the Procurement Law of Guam and would likely result in a lawsuit by KEPCO that could prevent the people of Guam from obtaining a New Power Plant for many years into the future. Such action could lead to load shedding, the imposition of huge amounts of USEPA fines, and the possibility of a receivership for the entire GPA system. KEPCO is a competent company to build power plants and has the technical capability to do so. KEPCO is the national power company of South Korea, and supplies 94% of all power to South Korea.<sup>49</sup> South Korea is one of the most technologically advanced countries in the world. If KEPCO can supply the people of South Korea with power, it likely can construct a power plant on Guam. At the Public Hearing in Dededo, General Manager John Benavente testified that KEPCO has built similar power plants to the one envisioned in Guam in Malta and in Illinois in the United States.<sup>50</sup> KEPCO was properly selected by GPA as the lowest responsive bidder for the 198MW power project.

5. THE PUC HAS REJECTED THE ARGUMENT THAT THE 198MW POWER PLANT WILL BECOME A 'STRANDED ASSET.'

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<sup>47</sup> Testimony of Michelle Voacolo.

<sup>48</sup> The Korean Times, Biz & Tech, [http://www.koreatimes.co.kr/www/tech/2019/05/515\\_268836.html](http://www.koreatimes.co.kr/www/tech/2019/05/515_268836.html)

<sup>49</sup> Testimony of Simon A. Sanchez.

<sup>50</sup> Testimony of GPA General Manager John Benavente.

Opponents of the New Power Plant have argued that, in a few years, the fossil fuel power plant will become a “stranded asset” due to rapid improvement in renewable technologies and lowering in cost. When renewables become the technology of choice, the fossil fuel power plant will be useless and obsolete.<sup>51</sup> The PUC has previously rejected the argument that the 198MW Power Plant will become a “stranded asset”. In public hearings held in GPA Docket 15-05 regarding the procurement of the New Power Plant, Jeff Voacolo of Micronesia Renewable Energy Inc. indicated his belief that a smaller plant, perhaps 60MW or 100MW, would be sufficient. He argued that there could be substantial developments regarding renewable energy, such as advancements in battery storage that would make renewable energy a more viable alternative within the next few years. The fossil fuel plant would then become a “stranded asset”; it would be taken out of commission or seldom used, which would render the financial cost for the plant a waste.<sup>52</sup>

However, the PUC held that, even if renewable energy became reliable and available during the 30 year IPP Contract, GPA could still use the combined cycle units as peaking units and possibly retire the other peaking units.<sup>53</sup> When solar power and battery storage will be able to provide baseload generation capacity, or 24/7 availability, is speculation and unknown. As one solar company executive on Guam, Bill Hagen, testified at the September 10, 2019, Legislative Oversight Hearing on the future of solar renewables, it would be impossible for the General Manager of GPA to predict what the status or technology of solar renewables and batteries would be five years from now. Mr. Hagen sympathized with the need of GPA to make determinations as to the New Power Plant based upon its current knowledge and evaluation.<sup>54</sup> GPA is not required to speculate on when renewable energy will be viable alternative to baseload fossil fuel generation.

6. INSISTANCE UPON THE IMMEDIATE 100% IMPLEMENTATION OF RENEWABLES WILL JEOPARDIZE GPA’S COMPLIANCE WITH USEPA REQUIREMENTS, AND COULD RESULT IN HUNDREDS OF MILLIONS OF DOLLARS OF FINES TO GPA, AND EVEN RECEIVERSHIP.

There are two issues concerning conversion of GPA’s power system to solar renewables. The first is the timetable for such conversion; the second is whether immediate conversion of GPA’s power system to 100% renewable is practical or

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<sup>51</sup> Testimony of Michelle Voacolo.

<sup>52</sup> PUC Order, GPA Docket 15-05, dated October 27, 2016, at pgs. 4-6.

<sup>53</sup> Id. at p. 6.

<sup>54</sup> Testimony of Bill Hagen at the Legislative Oversight Hearing on September 10, 2019.

desirable. Since it is GPA's responsibility to maintain adequate and reliable power, it must also be responsible for determining the risk of converting to solar renewables system wide too quickly. Guam, unlike stateside jurisdictions, has no ability to buy power from other state or local grid jurisdictions, or to sell power to such jurisdictions. One of the most important purposes of the New Power Plant is to comply with USEPA RICE-MACT and EGU-MACT regulations which became effective in 2013 and 2015.<sup>55</sup> GPA's Cabras No. 1 & 2 base units are non-compliant with those regulations.<sup>56</sup> GPA has been engaging in negotiations with USEPA for agreement upon a Consent Decree since at least 2013. If a Consent Decree and Compliance Plan is not implemented soon, GPA will face significant penalties from USEPA. For non-compliance with USEPA regulations, GPA currently faces \$352,200,000 in penalties.<sup>57</sup> The plan that GPA has proposed for the new 198MW combined cycle power plant will comply with USEPA regulations and appears to be satisfactory to USEPA. The plan includes retirement of the Cabras No. 1 & 2 plants after construction of the New Power Plant, and conversion of the MEC No. 8 & 9 units to ULSD within one year after the commissioning of the 198MW combined cycle plant.<sup>58</sup>

The opponents of the New Power Plant have not proposed a plan for compliance with USEPA regulations other than to contend that conversion to 100% solar will comply with USEPA emission standards. There is no specific timetable for the building of new solar plants, addition of battery storage, or conversion of more roof top solar that would comply with the USEPA requirements. Without specific plans for compliance, GPA would again face the risk that USEPA will impose hundreds of millions of dollars of fines upon GPA. Even other drastic alternatives, such as receivership for GPA, could be considered. Given the immediate need of GPA to come into compliance USEPA regulations and enter a Consent Decree, it is too risky to rely upon an undefined, unplanned process concerning implementation of renewables.

The opponents allege that renewables will be sufficient to cover the loss of the Cabras 1 & 2 plants and render the 198MW power plant unnecessary.<sup>59</sup> Unless GPA proceeds with the construction of its new 198MW power plant, the 120MW pending solar projects in Phase II will not be able to function or be supported in the power

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<sup>55</sup> GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p.2.

<sup>56</sup> Id. at p. 3.

<sup>57</sup> Id. at p. 4.

<sup>58</sup> Id. at p. 5.

<sup>59</sup> Senator Clynton E. Ridgell, Letter All Members of the Public Utilities Commission, Testimony on GPA Docket 19-13, dated October 9, 2019, at pgs. 3-4.

system. Megawatts produced by solar plants are not the same as, or equivalent to megawatts produced by fossil fuel plants. To date, GPA does not include system solar production in its determination of total system load capacity. The reason is that solar power is not firm or reliable. The power produced by the Dandan plant has been extremely intermittent and is not reliable baseload power (See Attachments 5 and 6 to ALJ Report).<sup>60</sup> That plant, with 25MW nameplate capacity production, is actually estimated by GPA to produce about 5MW of solar power. GPA utilizes a 20% factor to determine the actual energy production of the Dandan plant. Furthermore, Inverter based generation does not provide the same value of synchronous generation as baseload generation. It does not provide voltage support or short circuit current.<sup>61</sup> Ruben Moreno, of Concentric Energy Advisors, PUC's Consultant, has represented to the ALJ that, in general, a solar plant only produces 30-32% of the power production of a fossil fuel plant of the same size. In other words, to replace a fossil fuel plant that produced 100MW of firm power, a solar plant replacement would need to have available capacity of 300MW.<sup>62</sup>

Solar power will not be a replacement for fossil fuel generations unless there is full time and sufficient battery storage. Although the KEPCO and Hanwha plants will have some amount of battery storage, it is not anticipated that those plants will produce baseload generation. Unless there is sufficient battery storage, it is unrealistic to expect that the 120MW of renewable energy that will be produced by the KEPCO and Hanwha projects will "cover" the 110MW that the Cabras No. 1 & 2 plants are presently producing. Battery storage is now too expensive and not sufficiently reliable to provide the needed power. GPA's Renewable Integration Study demonstrated that it will not even be possible to integrate more renewables into the system unless this power plant is constructed.<sup>63</sup> The new plant will provide faster response to the rapid and constant changes in renewable loads. It creates a flexible response to grid intermittency. The new plant will allow the addition of further renewables to the system.<sup>64</sup> But, without the stability of a fossil fuel plant, Guam will be incapable of creating a reliable solar renewable system.

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<sup>60</sup> Attachment 5 to ALJ Report, April 2019 Solar PV Production, GPA Work Session Presentation to the Consolidated Commission on Utilities, September 19, 2019; Attachment 6 to ALJ Report, August 1 – September 30, 2019, 25MW PV Production, submitted by Tricee P. Limtiaco, Assistant General Manager, Guam Power Authority, on October 16, 2019.

<sup>61</sup> Id.

<sup>62</sup> Phone Conversation between Ruben Moreno, Concentric Energy Advisors, and PUC ALJ Frederick J. Horecky, on October 18, 2019.

<sup>63</sup> Guam Power Authority System Improvement Plan for Renewables, Final Report and Presentation, dated July 23, 2018 (Electric Power Systems Inc. Consulting Engineers), at Slide 2.

<sup>64</sup> GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p.2. Id. at p. 13.

7. CONVERSION TO AN ENTIRELY RENEWABLE POWER SYSTEM AT PRESENT IS NOT A PRACTICAL OR FEASIBLE SOLUTION TO GUAM'S POWER NEEDS.

There is also an assumption by opponents to the power plant that Guam can rely upon solar roof top net-metering power to provide the necessary generation capacity in the system.<sup>65</sup> However, GPA's planning model assumes that it is more feasible to rely upon utility scale solar renewable generation to add renewable power to the IWPS.<sup>66</sup> A Study by the Massachusetts Institute of Technology cites evidence that distributed solar generation costs utilities, and ratepayers, more than it saves.<sup>67</sup> Residential solar receives far higher subsidies per watt of deployed capacity than utility-scale solar. Utility-scale solar is viewed as a more advantageous solution.<sup>68</sup> GPA has also provided cost estimates for implementation of a 100% renewable power system. The initial costs for land and construction would be more than \$3.7 billion dollars (Attachment 7 to ALJ Report).<sup>69</sup> With full battery storage and supply redundancy, the cost could approach \$9 Billion.<sup>70</sup>

Opponents of the power plant reference different solar projects and claim that GPA can now implement 100% renewables. However, a review of the projects suggests that none of them can succeed in providing the firm, reliable power presently needed by GPA. A Scientific American Article is cited for the proposition that "utility-scale energy storage will enable a renewable grid."<sup>71</sup> When one reads the article, however, it becomes apparent that neither utility-scale energy storage nor a renewable grid are imminent or expected in the near future: "...**getting to the point where renewables and energy storage can handle the baseline load of electricity generation will take energy storage at longer timescales, which will mean moving beyond lithium-ion batteries....[I]t is uncertain whether and how much the costs of energy storage will continue to decline.**"<sup>72</sup> (emphasis added). Renewables and

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<sup>65</sup> Senator Clynton E. Ridgell, Letter All Members of the Public Utilities Commission, Testimony on GPA Docket 19-13, dated October 9, 2019, at p. 4.

<sup>66</sup> Guam Power Authority System Improvement Plan for Renewables, Final Report and Present, dated July 23, 2018 (Electric Power Systems Inc. Consulting Engineers), at Slides 14 and 15.

<sup>67</sup> <https://www.cleanenergyauthority.com/solar-energy-news/mit-study-favors-utility-scale-solar-over-rooftop-solar>

<sup>68</sup> Id.

<sup>69</sup> Testimony of Simon A. Sanchez; see also Attachment 7 to ALJ Report, Solar PV Cost for 1-day Supply, GPA Work Session Presentation to the Consolidated Commission on Utilities, September 19, 2019.

<sup>70</sup> Id.

<sup>71</sup> Andrea Thompson, the Scientific American, "Utility-Scale Energy Storage will Enable a Renewable Grid, July 1, 2019.

<sup>72</sup> Id. at p. 3.



battery storage are not currently capable of providing firm and reliable power to the GPA system. The PUC concurs with the ALJ determination that there is no present evidence that hydro storage or hydroelectric power is a plausible form of energy generation on Guam.

The PUC also adopts the ALJ conclusion at pages 30-33 of his Report that reliance upon other alternatives, such as more roof top solar (roof top solar systems on 20,000 Guam homes) or a “solar host program”, are not presently reliable solutions to produce 198MW of power.<sup>73</sup> In no manner do such proposed solutions supplant the need for the 198MW Power Plant.

8. THE 198MW POWER PLANT SHOULD SIGNIFICANTLY REDUCE PRESENT HARMFUL EMISSIONS, ADVERSE ENVIRONMENTAL IMPACTS, AND GREENHOUSE GASES.

Issues have been raised concerning the emissions and smoke from the proposed power plant that will impact Micronesia Mall, GRMC, and other locations. Similar concerns were raised before the Guam Legislature, but the Legislature refused to allow such concerns to dissuade it from approving the Ukudu site for the New Power Plant. The Legislature approved the New Power Plant Ukudu location in Public Law 34-102, enacted on May 16, 2018.<sup>74</sup> The Legislature was satisfied that the proposed site could appropriately be used for the construction and operation of a power generation plant on behalf of the Guam Power Authority. The Guam Legislature stated that the site was “suitable” “and the “best” site. Various witnesses at the public hearings testified that the proposed plant is “bad” for the world’s environment, as it adds “another carbon emitting component further exacerbating climate change.” The New Power Plant, utilizing ULSD, should reduce greenhouse gases by 36% (Attachment 9 to ALJ Report).<sup>75</sup> It should result in lower emissions, cleaner emissions, and exceed the National Ambient Air Quality Standards. It substantially reduces almost all levels of pollutants, including nitrogen oxides, sulfur dioxide, and particulate matter.<sup>76</sup> There are also beneficial environmental impacts from the New Power Plant. GPA’s annual fuel consumption will be reduced by about 35 million gallons annually.<sup>77</sup> This will result in less pollutants and greenhouse gases being released into the air. Furthermore, the new

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<sup>73</sup>ALJ Report, GPA Docket 19-13, dated October 28, 2019, at pgs. 10-33.

<sup>74</sup> Public Law 34-102, enacted on May 16, 2018.

<sup>75</sup> Attachment 9 to ALJ Report; GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 3, 2019, at p. 25.

<sup>76</sup> GPA PRESENTATION ON NEW COMBINED CYCLE POWER PLANT, dated October 1, 2019, at p. 24.

<sup>77</sup> Id. at p. 32.

plant will use tertiary-treated waste water for cooling, substantially reducing demand on the aquifer.<sup>78</sup> The use of seawater cooling, which is the case with the Cabras plants, will be eliminated, thereby protecting the ocean environment. Finally, the new plant complies with USEPA regulations by burning clean fuel and much less fuel thereby reducing the island's carbon footprint and its impact in climate change.<sup>79</sup> GPA's proposed solution is a move in the right direction to improve and ameliorate adverse environmental impacts that resulted from prior plants.

9. SOLAR POWER IS MORE EXPENSIVE THAN POWER PRODUCED BY THE NEW PLANT

The opponents of the New Power Plant contend that, since the cost of solar power to be produced by the KEPCO and Hanwha Solar Plants is between \$.06 and \$.08 per kWh, and power produced by the New Power Plant is approximately \$.15 per kWh, that a solar power solution for Guam is cheaper than fossil fuel. However, this contention misstates the true cost of solar plants. The prices of \$.06 and \$.08 referred to are the costs per kWh for the KEPCO and Hanwha solar plants to be constructed in Phase II of GPA's solar program. These plants were never intended to be baseload units. While they have some battery storage to avoid intermittency system faults, they will not have load shifting energy storage systems. Load shifting is only required for projects beyond Phase II, which does not include the KEPCO and Hanwha projects.<sup>80</sup> In accordance with GPA's plan, "Phase 111 and beyond systems should have energy storage included as an integral component of the project, in order to optimize the economics of the projects—this reduces the PV ramping effects due to intermittent solar irradiation."<sup>81</sup> To serve as baseload plants, the Hanwha and KEPCO solar plants would need to have substantial energy storage systems, which would likely increase the per kWh charge beyond that of the proposed new plant. GPA has submitted cost figures that for a 100% renewable system; the initial construction cost would be over \$3.7 billion, which is in excess of the New Power Plant cost over 30 years of operation.<sup>82</sup> The total cost for a 100% renewable system, which includes daily use, recharge capacity for 1 day recharging, and one day

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<sup>78</sup> Id.

<sup>79</sup> Id.

<sup>80</sup> See Attachment 7 to ALJ Report.

<sup>81</sup> Guam Power Authority System Improvement Plan for Renewables, Final Report and Present, dated July 23, 2018 (Electric Power Systems Inc. Consulting Engineers), at Slide 96.

<sup>82</sup> See Cost discussion in Paragraph 3, Principal Arguments of the Witnesses testifying in favor of the 198MW Power Plant, which is incorporated herein by reference.

battery reserve capacity would be \$8,816,860, 731.<sup>83</sup> The estimated per kWh charge would be \$0.335.<sup>84</sup>

There is a further claim that the fossil fuel plant will be too expensive because of the volatility of fuel prices. Fuel prices could rise as high as \$123.55/barrel by 2030 and \$225.74/barrel by 2050.<sup>85</sup> However, as a general principle, oil prices are not predictable.<sup>86</sup> Another Article has a substantially different prediction of future fuel prices. According to it, Brent Crude oil price will be \$92.98bbl. by 2030 and \$107.94bbl. by 2050. Forecasting future fuel prices is inherently unreliable because only information available at the time of the forecast is relied upon.<sup>87</sup> Unanticipated events in Crude markets “leave the futures price barely more capable than a random walk.”<sup>88</sup>

### ORDERING PROVISIONS

Upon consideration of the record herein, the Petition of GPA for Approval of the Energy Conversion Agreement (ECA) with Korean Electric Power Company [“KEPCO”] for the 198MW Power Plant, the Concentric Energy Advisors Report, the ALJ Report, and for good cause shown, on motion duly made, seconded and carried by the affirmative vote of the undersigned Commissioners, the Commission hereby **ORDERS** that:

1. GPA’s award of the Energy Conversion Agreement to Korean Electric Power Company (KEPCO) in Multi-Step Bid GPA-034-18 for a Build, Own/Operate and Transfer Contract for 198MW is hereby approved. GPA has demonstrated that it needs the generation capacity provided by the New Plant to replace the generation capacity lost (78MW) through the Cabras 3 and 4 explosion and the loss of 132MW anticipated from the retirement of Cabras 1 and 2. Without the additional baseload capacity provided by the New Plant, GPA will be unable to sustain load growth.
2. The Energy Conversion Agreement between GPA and KEPCO is approved. Based upon the testimony submitted by GPA GM Benavente, the Concentric Energy Advisors Report, and the ALJ Report, the PUC finds that the ECA

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<sup>83</sup> Attachment 7 to ALJ Report, at p. 3.

<sup>84</sup> Id.

<sup>85</sup> Senator Clynton E. Ridgell, Letter All Members of the Public Utilities Commission, Testimony on GPA Docket 19-13, dated October 9, 2019, at p. 1.

<sup>86</sup> [www.vbalance.com/oil/price/forecast/3306219](http://www.vbalance.com/oil/price/forecast/3306219).

<sup>87</sup> [www.forbes.com/sites/uhenergy/2016/01/19/why-are-oil-prices-so-hard-to-forecast/](http://www.forbes.com/sites/uhenergy/2016/01/19/why-are-oil-prices-so-hard-to-forecast/).

<sup>88</sup> Id.; See also [www.brookings.edu/opinions/why-is-the-price-of-oil-so-hard-to-predict/](http://www.brookings.edu/opinions/why-is-the-price-of-oil-so-hard-to-predict/).

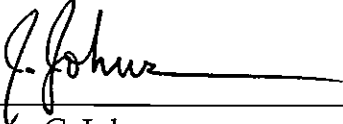
adequately protects the interests of GPA and its ratepayers, and is a reasonable, well-conceived agreement.

3. GPA shall file a copy of the final executed Energy Conversion Agreement with the PUC.
4. During the term of the ECA, GPA shall fully advise the PUC concerning the progress of the parties in carrying out their obligations under the ECA, including the construction and financing of the Plant, and any other significant developments. After the execution of the ECA, GPA shall file monthly reports with the PUC concerning developments and progress on the Plant. It shall provide the same level of reporting to the PUC as it does to the Consolidated Commission on Utilities. Copies of Reports required under the ECA shall also be provided to the PUC.
5. This Order does not authorize or approve any use of LNG as a fuel source for the New Plant. GPA shall seek prior authorization and approval from the PUC for any use of LNG as a fuel source for the New Plant.
6. PUC approval of the 198MW award to KEPCO does not authorize any rate increase. Should GPA at any point become aware of any potential rate impact resulting from the New Plant, it shall notify PUC and explain the nature of such impact. Should GPA seek any rate increase which in any manner results from the construction, financing, or operation of the New Plant, it shall file a petition with the PUC in accordance with all current rules, regulations, and statutes governing such public utility rate increases.
7. GPA is ordered to pay the Commission's regulatory fees and expenses, including, without limitation, consulting and counsel fees and the fees and expenses of conducting the hearing proceedings. Assessment of PUC's regulatory fees and expenses is authorized pursuant to 12 GCA §§12103(b) and 12125(b), and Rule 40 of the Rules of Practice and Procedure before the Public Utilities Commission.

Order  
Petition to Approve the ECA  
with KEPCO for 198MW Power Plant  
GPA Docket 19-13  
October 31, 2019

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Dated this 31st day of October, 2019.



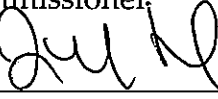
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Jeffrey C. Johnson  
Chairman



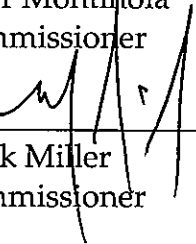
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Joseph M. McDonald  
Commissioner



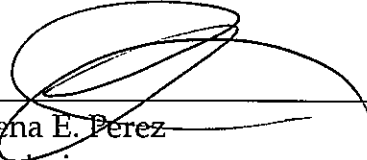
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Peter Montinola  
Commissioner



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Mark Miller  
Commissioner



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Rowena E. Perez  
Commissioner

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Michael A. Pangelinan  
Commissioner



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Filomena M. Cantoria  
Commissioner