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## MEMORANDUM TO UNALASKA CITY COUNCIL

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To: Mayor and City Council Members  
From: David Matthews, Program Manager for the Makushin Geothermal Project  
Date: February 27, 2024  
Ref: Makushin Geothermal Project – Power Purchase Agreement (PPA)

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**SUMMARY:** OCCP has reviewed the 2/23/24 council packet (prepared for the 2/27/24 council meeting) and provides this memorandum to City council as an alternative.

OCCP objects to the City manager’s recommendation to “not enter into negotiations for 4<sup>th</sup> amendment, and allow the Power Purchase Agreement to expire”. After review of this memo, and allowing further discussion, we hope you will agree the prudent action will be to continue with PPA Amendment 4 per OCCP’s recommendation below.

First, we acknowledge the frustration that all parties have and are experiencing due to the project delivery timelines. As the developers of the project, we own the delivery timelines and recognize the difficulty caused to the City for planning purposes. It is important, however, to keep in mind that OCCP’s investments, commitments and actions have resulted in benchmarks that are closer than ever in providing Unalaska a world class project with an affordable sustainable supply of energy.

The City manager has been sent OCCP monthly progress reports each month beginning in April 2022 (23 months in total) that provides a chronology of construction, permitting, engineering and financing progress. Review of these reports will show there has been an incredible amount of progress and milestones accomplished, short of a commitment for a full project financing package. [see Attachment 1 for a re-cap of accomplishments achieved and planned]. Up until a few weeks ago we were led to believe a full project financing package was in sight, as we successfully completed phase 1 and 2 of the DOE loan commitment process and in September 2023 are invited to due diligence and term sheet negotiations. Advanced due diligence with DOE has not been straightforward as it was indicated it would be by our DOE handlers. We are still trying to reconcile, what we believe to be previously undisclosed demands to insert costs by way of their insistence we borrow significantly more money and hire hugely expensive companies to add a level of bureaucracy and costs. We believe this a complete disservice to the residents of Unalaska. To that end, we continue to progress with that process while simultaneously reviewing other options.

The City manager’s memo states the following PPA milestones, the deadlines for which having been previously extended, have not been achieved and are reasons the PPA may be terminated.

1. Project Financing – December 10, 2023 (Amendment 3)

2. Commercial Operations Deadline – May 31, 2027 (Amendment 3)
3. Completion of Interconnection / Integration Plan – January 1, 2024 (Amendment 3)

Assuming arguendo the City has the right for PPA termination, there are mitigating circumstances that should be considered to not allow the PPA to lapse, some listed below. There is much momentum in the project execution.

OCCP does have financing and is proceeding with project development. However, we recognize the financing we have today is not enough to complete the project. We have never stopped, instead continued to progress the project in meaningful ways which has taken years of focused work.

OCCP has not avoided resource testing, it has a project pre-development and development budget with sources and uses clearly identified based on estimates and timelines. We have design criteria, design standards, a fixed result EPC contract Ormat Technologies with specifications for power delivery, we have written RFP's and have selected subcontractors and vendors for the entire project. Additionally, we have coordinated most issues with integration of the power with the City. Timelines have changed only due to difficulty securing long term financing not because of any of the above.

Attachment 2 contains specific topics OCCP wishes to address in review of the City manager's memo to the council. These topics are critical to the discussion and impending decision and we are open to more clarification as required.

Since November 2023, there has been no substantive communication from the City regarding our reports, emails, status, PPA negotiations, financing efforts, etc. Meantime, OCCP has continued to report to the city via monthly status reports and independent efforts with a desired outcome for open communication and full transparency.

### **OCCP RECOMMENDATION**

OCCP has provided the City manager information on other financing initiatives currently underway with the SOA and our congressional delegation. We are open to discuss at the meeting. In a perfect outcome, we could keep our current PPA rate and have no need to negotiate a PPA rate increase, depending on the financing outcome. It would be prudent for the City to allow these initiatives to play out over next few months.

Therefore, we cannot emphasize enough the importance to have a valid and relevant PPA. Our current PPA for \$0.163 / kWh may be adequate, but does not cover all options for financing. To cover all financing options, we request a negotiated price increase via Amendment 4 along the lines of that requested in our draft request, i.e., \$0.22/kWh. That increase will still result in electrical rates lower than the City can self-generate with diesel (see Attachment 2 for some numbers)

Therefore, we encourage proceeding with PPA Amendment 4 negotiations as soon as possible, then give OCCP an additional 6 months to secure the remaining financing. If OCCP does not have a secure path to financing by then, we can then agree to cease our mutual efforts. (Option to cease

can be included in the Amendment 4) (Option to negotiate a downward rate should a large grant be received, could also be included in Amendment 4).

We do not see a downside to the city to do this, other than time (no more than 6 months after PPA Amendment 4 is negotiated). In the instance the six (6) months expire and the path forward not secured, there remains three and one-half (3.5) years on the schedule for the City to implement a "Plan B" of preparing for an integrated grid and/or capture of Tridents load by other means.

## **ATTACHMENT 1**

### **Milestones accomplished and planned**

Scheduled project commercial operation date (COD) date is 10/16/28

Accomplishments by construction season year are:

- 2019 – Screening studies for MGP feasibility. Initial funding established to proceed with project into Front End Engineering and Design (FEED) phase. Develop class 4 estimate.
- 2020 – Survey and environmental studies for permitting. UAC route selection. Negotiate PPA with city of Unalaska
- 2021 – Construct 2.5 miles of the utility access road and initial camp, subsea desk top survey and physical marine survey and cable design. Complete subsea cable(s) engineering. Receive permits from USACE and fish and game for the UAC. Development of project design criteria and power delivery scheme. Submit permit applications for the subsea power and communication cables.
- 2022 – Suspend work on UAC at mile 2.65 and focus on financing and advancing permits. Bid out major segments of work via RFP process, select vendors and subcontractors for the work. Improve project estimate to Class 2. Identify long lead items and work terms and conditions for release.
- 2023 – Execute fixed result EPC contract with Ormat Technologies. Construct UAC to mile 3.4 on completed section and mile 6.1 on pioneered section. Continue with due diligence with financing and permit advancement. Pass DOE part 1 and part 2 of the long-term loan application process and be invited to due diligence and term sheet negotiations.
- 2024 - Secure short term bridge financing. With an April 2024 start, construct final 3.4 miles of UAC so capable to mobilize drill rig (July 2024). Perform geotechnical surveys with Shannon & Wilson. Drilling of well field and verify test results by November 2024). Apply and secure AOGCC drilling permit and EPA injection well permit. Secure the subsea power and communication cable permit from USACE in consultation with NMF and USF&W.
- 2025 – Secure long-term financing. Release Powell Electric for the PDCM's (delivery 2026) Install the required project foundations. Harden UAC as required. Install required camp size at Power Plant site. Release Sumitomo for off shore cable (May 2027 delivery). Release Ormat Contract for the power plant.
- 2026 - Install terrestrial cables and PDCM's at East and West substations
- 2027 - Install subsea transmission line. Install BESS. Mobilize some of power plant equipment
- 2028 – Install and test/commission power plant

## ATTACHMENT 2

### OCCP discussion on points made in the City manager memo

- 1. PPA negotiation** – Initially OCCP submitted a request to the City for administrative changes to the PPA (change dates only), then after meeting with DOE on its timeline for funding (December 2024 versus March 2024) we withdrew the request and submitted a request on 11/6/23 for administrative *and* commercial changes and increased the schedule completion date by a year. OCCP never requested the PPA be cancelled but instead suggested that instead of having a stand-alone PPA Amendment 4 the PPA be conformed to include Amendments 1-4.
- 2. Cost increase** – OCCP has different numbers than those provided in the City memo. Based on numbers from our model for power sales (our base case) the cost to the City over term of the project would be:

At \$0.163/kWh and per PPA cost share:	\$855,144,921	30 years total cost
At rates proposed in Amendment 4 (0.22, etc)	\$1,237,654,572	30 years total cost
City cost for diesel assuming avg of \$5/gallon	\$2,298,622,614	30 years total cost if diesel at \$5 avg.
- 3. Total cost to the City** – the City memo states OCCP proposed terms do not consider the total cost to the City and provided an example of the City needing to keep the powerhouse available and staffed in a warm and ready condition in case MGP goes offline. Mike Hubbard’s evaluation model presented to the city council had assumed this condition, so it’s no change. In addition, Mike Hubbard’s model assumed that the city would save \$0.025 to .03/kWhr in reduced O&M since OCCP is Operating and maintaining the geothermal plant.
- 4. BESS** – The city is rightfully concerned that a Battery Energy Storage System (BESS) is necessary for grid stability and the MGP delays have made its installation time line uncertain. As reported in the monthly reports, OCCP has a grant still open with DOE OCED program for \$4.7M to provide most of the cost to install a BESS. OCCP was invited to submit a full application in September 2023, which we did. The advertised grant selection decision is in February 2024. Should we get this grant, we will need an active PPA and could possibly make this installation early.
- 5. Trident load** – Adding the Trident load to the MGP will greatly improve economics for both the City and MGP. It de-risks the project from lenders perspective. The MGP and Trident construction schedule can still be synced.
- 6. Other PPA Changes** – City memo mentions changing terms of PPA from 30 years to 26 years and highlights other wording that is meant to avoid potential IRS pitfalls for the city (not OCCP) as being considered the tax owner of the project since it would be a single customer. We can delete these suggestions if so desired by the City
- 7. Resource confirmation and testing** – The DOE changed it guidelines for well field confirmation during our negotiations. Now, (as in they would before but not now), the DOE will not finance well field development. Therefore, we have AEA lined up to help prove the resource and AIDEA ready as soon as DOE makes a commitment for back-end financing. Both entities are willing to

put their money at risk proving the resource conditioned on DOE providing the back-end loan if the resource is proven. The following is from the AEA board resolution when approving our loan:

**Technical Feasibility:**

To provide an unbiased third-party technical review of the Project, AIDEA contracted with GeothermEx, a subsidiary of SLB (formerly known as Schlumberger) to conduct a thorough review of the technical specifications of the Project as provided by OCCP, LLC. GeothermEx, in its overall findings, has stated that “The characteristics of the geothermal resource appear to be compatible with the planned project, especially as regards the heat resource that is potentially available for exploitation. Because there is so far only one exploratory well (i.e. ST-1) that has directly investigated the geothermal reservoir (providing information on potential well capacities), some uncertainty remains as to what will be the typical characteristics of wells drilled over a broader area (which will be necessary to supply and sustain the project)”. In AEA’s review of those contractors selected by OCCP, LLC to assist, perform, and/or consult in the design, development, supply and/or construction of the project, AEA found no deficiencies in the ability of the selected vendors to perform those activities / tasks as stated. AEA has determined this Project, as proposed, to be technically feasible.

OCCP has hired Capuano Engineering to assist with our well field development plan. We have drill rig selected and well designs submitted to AOGCC for permit, which we expect to be issued next month. AEA and AIDEA due diligence (that includes the foremost recognized geothermal resource expert in world, GeothermEX) are comfortable the resource is available. We can line up experts to discuss if so desired.

- 8. Project not following a methodical process of completion** – The MGP does have a methodical process for completion, including Level 3 schedule, class 2 construction estimate, a full construction and logistic plan, and project management plan. We have been in due diligence with third parties for some time now and there hasn’t been critique of our execution plan.
- 9. Road** – the City memo states there are no construction documents or cost estimates that could be used to solicit grant funding. This is incorrect. We have construction drawings / design standards and have acquired extensive permitting for the Utility Access Corridor (UAC) that can be shared. We are not building a road, but an access corridor for maintenance and to locate the power and communication lines within a 200-foot-wide corridor. Most grant funding comes with “road” standards and requirements for public access. The UAC is on private property and OCCP is opposed to public access. Railroad flatcars are being utilized for bridges, which is common in many jurisdictions across the country. We have had agency inspections and OCCP is conforming to permit requirements. The UAC is a necessary pre-requisite for the well field development, and that is the prescribed methodology in our schedule and preliminary NEPA documents.
- 10. Other AEA findings from its due diligence** – From AEA to its loan committee “The Borrower-provided project costs state a total development cost of \$235.2 million, or \$203 million,

excluding a 16% contingency. Per research published by the National Renewable Energy Laboratory (“NREL”) from 2022, the estimated capex per kW of installed capacity for geothermal power facilities was \$6,652, which when applied to the Project (30,000 kW), yields a total Project cost of \$199,560,000, which is effectively comparable to the estimated cost as provided by OCCP, LLC, with an observed delta of 1.8%, supporting the reasonableness of the project cost estimates.

At the proposed, base-case rate of \$0.163 per kWh, the wholesale power sales rate to COU is 50% less than what COU can self-generate, assuming an average diesel fuel price of FY2022 reported \$3.08, if the diesel fuel price were to increase, the discount for MGP power also increase. The inclusion of additional off-takers such as Trident and Unisea, which have provided letters of intent to purchase, would reduce the Project’s nominal cost of power to COU. Effectively, the Project can generate and sell power to COU at a rate cheaper than COU can self- generate, even if COU only consumed only 50% of the COU’s proposed baseline power consumption of 100 MkWh. It is AEA’s determination that this is an economically viable Project and provides for substantial cost savings and long-term benefits to the community.”