

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2024-03

A RESOLUTION OF THE UNALASKA CITY COUNCIL AUTHORIZING THE CITY MANAGER TO ENTER INTO A CONTRACT WITH ELECTRIC POWER SYSTEMS, INC. IN AN AMOUNT NOT TO EXCEED \$130,000

WHEREAS, the City needs information about electric power generation sources to address future demand; and

WHEREAS, the City's electric rate utility consultant, Electric Power Systems Inc. (EPS) is very familiar with our generation and distribution systems; and

WHEREAS, EPS submitted a proposal to prepare a study of Unalaska's power generation options, distribution system readiness, and a variety of work required to provide the City recommendations for meeting future electric demands; and

WHEREAS, EPS needs to subcontract with other vendors to acquire expertise about permitting with the Environmental Protection Agency and others to understand opportunities and constraints; and

WHEREAS, the study proposal will cost up to \$130,000 to be paid from the electric proprietary fund.

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council authorizes the City Manager to enter into an agreement with Electric Power Systems, Inc., for a cost not to exceed \$130,000, to be paid from the electric proprietary fund.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on February 13, 2024.

Vincent M. Tutiakoff, Sr.
Mayor

ATTEST:

Estkarlen P. Magdaong
City Clerk

MEMORANDUM TO COUNCIL

To: Mayor and City Council Members
From: William Homka, City Manager
Date: February 13, 2024
Re: Resolution 2024-03 Authorizing the City Manager to enter into a contract with Electric Power Solutions, Inc., in an amount not to exceed \$130,000

SUMMARY: The City of Unalaska needs a plan for power generation. The geothermal project timeline is delayed and the project is not scheduled to come online anytime soon. Trident Seafoods seeks 14MW of electric power for its new facility at the end of Captains Bay Road. We need an alternate plan to provide power.

PREVIOUS COUNCIL ACTION: None.

BACKGROUND: V3 Energy LLC completed a wind power study for Unalaska around the same time the OCCP geothermal power project began to take shape. V3's results indicated there is sufficient wind in Pyramid Valley to erect wind turbines that would each generate 1MW. We paused our interest in other sources of green energy after the geothermal project began to take shape.

Now we must evaluate our options for generating up to 15 MW of power in time to be a source for Trident Seafoods' new processing facility proposed at the end of Captains Bay Road. Even if geothermal was successful, the timeline does not line up with that for the facility's opening. We need a plan for the gap, or as the new generation source for Unalaska's future. We prefer green energy solutions, however we may need to pursue diesel generation too.

Electric Power Systems, Inc. (EPS) is the company who produced our past utility studies. EPS knows our generation and distribution systems and was contacted to provide assistance with analyzing how to move forward in light of Trident Seafoods' request for energy. The EPS proposal is for \$88,340. EPS needs to subcontract for additional services regarding air permit analysis. They propose to use HMS Consulting and the cost for their work is not included in the proposal, but they estimate the cost will be \$20,000 - \$30,000. I recommend the studies be paid from the Electric Proprietary Fund since it is about the electric grid and generation capabilities. The EPS proposal is attached.

DISCUSSION: The V3 study estimates the cost for wind turbines to range between \$9 million for one tower and \$40 million for five. There are a variety of system and construction variables. The City is eligible for carbon reduction credits worth about 40% of the total cost, or \$16 million. The credits would be a cash payment to the City. In effect we might be able to erect 5 MW of power for about \$24 million.

We do not know an estimated cost for the work to construct a new diesel generation plant. The proposed EPS study will offer options for conventional (fossil fuel) generation to existing resources at the Dutch Harbor Power Plant, in another location yet to be determined or a combination of the two.

In addition, a distribution load flow analysis will evaluate the suitability of the existing distribution system and determine if any upgrades may be required in conjunction with the proposed power source for the Trident load. This requires new air permits from the EPA, a load flow study to model Unalaska's existing electrical system, evaluation of energy storage systems, and site options among other study items.

City Council needs to authorize the City Manager to enter into a contract with EPS for an amount not to exceed \$130,000 to be paid from the electric proprietary fund. There are ample funds in the account.

ALTERNATIVES: Wind generation, combination of wind and diesel generation.

FINANCIAL IMPLICATIONS: The study may cost up to \$130,000 after EPS, HMM Consulting and other associated costs.

LEGAL: No legal review required.

CITY MANAGER RECOMMENDATION: Staff recommends approval of this resolution.

PROPOSED MOTION: I move to adopt Resolution 2024-03.

ATTACHMENT: EPS Proposal



January 17, 2024

Bil Homka
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**Subject: Proposal for Generation and Distribution Study for
Trident Seafoods Development**

Electric Power Systems (EPS) understands that Trident Seafoods intends to develop a new processing facility in Unalaska. This is a proposal to study options for adding 15MW of conventional (fossil fuel) generation to existing resources at the Dutch Harbor Power Plant (DHPP), in another location yet to be determined or a combination of the two. In addition, a distribution load flow analysis will evaluate the suitability of the existing distribution system and determine if any upgrades may be required in conjunction with the proposed power source for the Trident load.

Scope of Work

The final deliverable will be a report that covers the following topics.

Air Permitting Coordination

We acknowledge that Unalaska wishes to avoid triggering a PSD study caused by exceeding approved emissions limits. Assessing how much capacity can be added to DHPP without triggering a PSD study will require coordinating with Unalaska's air permitting consultants. EPS contacted HMM Consulting (HMM) during development of this proposal and understands that HMM has performed recent modeling for the City that will be applicable to this study. It is necessary that HMM is directly involved in the study to assess technical solutions proposed by the EPS team. The cost for HMM's involvement is excluded from this proposal - it is assumed that the City would prefer to contract directly through the existing service agreement between the City and HMM. However, if that is not the case, EPS can include the cost of HMM in our Scope of Work.

Load Flow Study

EPS will perform electrical studies to evaluate the infrastructure needs and impacts to the system of the Trident load. We understand the impacts of the Makushin interconnection have previously been studied and a plan has been proposed by the developer's engineer. EPS will model the City of Unalaska's electrical



system using ETAP software. Power flow studies will be performed to evaluate voltage regulation along with the ability of the system to adequately supply all the projected loads. The results of the power flow study will be used to assist with the evaluation of the new plant, planning for required upgrades and recommended operating configurations. If necessary, we can include the modeling of the Makushin project in this scope after we evaluate the proposed interconnection method and equipment.

Energy Storage Systems

It is expected that some type of Energy Storage Systems (ESS) will be included in the final solution. This could be in the form of a BESS or Flywheel, depending on the needs identified as part of this study. The market availability, cost, and numerous advantages of energy storage will make some level of energy storage worthwhile regardless of whether additional renewables are added to the system. In addition, ESS solutions are often the subject of federally funded grant opportunities.

DHPP Capacity Analysis

The study will seek to understand how much capacity can be gained at DHPP by lowering NOX emissions through unit replacements or SCR retrofits on existing units. Offsetting the need for new installations through retrofit of existing units has obvious cost and operational advantages. In addition, it may be the only viable pathway to increasing output without development of a new site that is physically removed from the boundaries of the Title V permit.

New Generation Options

Conventional reciprocating generation additions will be based on proven medium speed solutions such as the CAT C280 or the EMD 12SE23B. In addition, the project team will review the newer Wabtec V250MDC that has fewer proven operating hours, but some technical advantages. All options proposed will be T4 or T4i certified to allow the maximum capacity and future growth under existing emissions limits.

Depending on load profile and siting, Brayton Cycle turbine options may be suitable. Turbine options are inefficient when operating in a single-cycle mode, but can be economically viable when paired with large heating loads.

Based on the forecast load profile for the Trident plant, EPS will determine if the base load of the plant can be absorbed with existing generation and determine the impact of supplying only the peaking load with augmented generation.

Alternate Site Options

Alternate sites for power generation will be considered based on the City's input and resources. During conversations with HMM, they noted that there is an available emissions cap at the Valley Power Module and that additional emissions sources nearby would not trigger a PSD review at DHPP. This study will review that site and others to determine if future development is possible.



Cost Estimate

No.	Item	Hours	Labor	Subcontract, Expenses	Cost
1	Air Permit Coordination*	16	\$3,304	\$0	\$3,304
2	Load Flow Study	106	\$19,244	\$0	\$19,244
3	ESS Options	40	\$7,800	\$0	\$7,800
4	DHPP Capacity Analysis	56	\$12,184	\$0	\$12,184
5	New Generation Options	88	\$17,592	\$0	\$17,592
6	Alternate Site Options	96	\$18,144	\$0	\$18,144
7	ROM Cost Estimates	48	\$10,072	\$0	\$10,072
	Total:	450	\$88,340	\$0	\$88,340

*A subcontract to HMM Consulting is not included in this estimate. A recommended budget for air permit consulting is \$20,000 to \$30,000.

Assumptions and Clarifications

Site Visit

It is assumed that a site visit will not be required at this phase of the project.

Site-Specific Studies

As a result of this feasibility level study, EPS may recommend further geotechnical, civil, right of way, and environmental studies to further define costs and final selection. Fees for site investigations are not included in this proposal. For example, if a new generation plant to serve either the base load or peaking load of Trident, is the preferred solution, EPS would recommend and coordinate additional studies as needed to site and coordinate the feasibility development of the proposed plant(s).

Study Coordination

This study will require extensive involvement from the City and HMM consulting. EPS will schedule and host weekly update meetings for an estimated 8-week duration of the initial study.

Information Required to Complete the Study

To allow efficient and timely completion of the study, the following information will be required.

- Load profile estimate from Trident Seafoods with weekly averages.
- Estimate peak load and a daily load profile at an operational peak from Trident.
- Any additional loads being considered (additional processors, etc)

Please contact me at (907) 388-9554 or jrowland@epsinc.com if you have any questions.



Electric Power Systems, Inc.

3305 Arctic Blvd Suite 201 ■ Anchorage, Alaska 99503 ■ Tel: (907) 552-1953

Sincerely,

A handwritten signature in blue ink that reads "Jason Rowland".

Jason Rowland, PE
Sr. Mechanical Engineer