



Port of Juneau

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From: *Carl J. Uchytel*
Port Director

To: City & Borough Assembly

Via: (1) Docks & Harbors Board
(2) City Manager

Date: August 4th, 2022

Re: CBJ DOCK ELECTRIFICATION

1. Docks & Harbors has completed a thorough review of the design efforts necessary to electrify the two CBJ owned cruise ship docks. The enclosed report revalidates the 2016 Shore Tie Power Feasibility Study, advances design options and provides cost estimates to add electrical service to the Cruise Ship Terminal (CT) Dock and the Alaska Steamship (AS) Dock. Significant consultation with the local electrical utility company (AELP) along with other Juneau partners, stakeholders and community members have provided input leading to a proposed way forward included in this memo.
2. At its May 16th, 2022 meeting, the Assembly provided direction to pursue an initiative referred to as the Alaska, British Columbia, and Washington Maritime Green Corridor. This collaborative effort, led by ports, industry, governments, and non-governmental organizations, will explore a maritime green corridor aimed at accelerating the deployment of zero emission ships and operations in the Pacific Northwest. Advancing the CBJ plans to expand shore power to visiting cruise ships would segue appropriately into the Green Corridor stated goal of net-zero emissions by 2050.
3. In providing context to years of efforts to develop the waterfront including community planning goals and milestones, the following is offered:
 - 2001 Franklin Street Dock commissioning of electrical shore-side power
 - 2004 Adoption of the Long Range Waterfront Plan (LRWP)
 - 2010 Adoption of Resolution 2542 approving CBJ Cruise Ship Design Concept (aka 16B)
 - 2011 Adoption of Resolution 2593 approving Juneau Climate Action & Implementation Plan
 - 2013 Adoption of Ordinance 2013-26 Comprehensive Plan of the City & Borough of Juneau
 - 2015 Award of \$54M Cruise Ship Docks Improvement Project
 - 2016 Completion & commissioning of Cruise Ship Terminal Dock
 - 2016 Cruise Ship Berths Shore Tie Power Study Feasibility Report
 - 2017 Completion & commissioning of Alaska Steamship Dock
 - 2018 Adoption of Resolution 2808 approving Juneau Renewable Energy Strategy
 - 2022 Completion of Juneau Cruise Ship Dock Electrification Study

With the exception of the 2004 LRWP, which is silent on cruise ship shore power, numerous sustainability plans noted above have identified a community priority to reduce cruise ship emissions. The iterative process in planning, designing and construction of the new CBJ owned cruise ship docks resulted in the installation of conduit under Franklin Street and electrical vaults pierside. These elements were purposely deployed to facilitate future construction without impacting the street and to ease the installation of copper conductors from proposed hillside locations. Since construction at the CT and AS Docks, the execution of dock electrification has been limited by local funding, concurrence of sufficient power from the power utility, and vessel limitations to receiving shore power. In conducting enclosed study, it appears there is an alignment of commitment from CBJ, AELP and CLIA-Alaska with investing in electrical shore-power infrastructure in the Port of Juneau.

4. One significant revelation from the study includes (page 43):

Based upon historical precipitation existing hydroelectric generating capacity, and electrical demand, AEL&P projects they will be capable of offering electrical energy to the CBJ cruise ship docks only 25% of the time it is requested. It is expected this will improve over time as the firm load increases, requiring the construction of additional hydroelectric power plants. Such construction will likely facilitate additional capacity for interruptible loads.

This information is flagged not to dissuade moving forward with dock electrification but only to manage expectations that shore power connections for cruise vessels is reliant upon several systems working together to successfully execute. As an aside, in consulting with AELP, the reservoir water levels have been sufficient that they could provide power to both AS and CT Docks for the 2022 season.

5. With support provided by Juneau Commission on Sustainability (JCOS), Docks & Harbors has submitted several grant applications to secure federal funding for docks electrification. Each of the submitted grant applications was for \$25M with a commitment from the Assembly that \$4.9M would be local match. Those grants include:
- \$25M FY21 RAISE (Rebuilding American Infrastructure with Sustainability & Equity) – submitted in July 2021 was informed in January 2022 that we were unsuccessful;
 - \$25M FY22 RAISE (Rebuilding American Infrastructure with Sustainability & Equity) – submitted in April 2022 with an anticipation of notice of awards in October 2022;
 - \$25M FY22 PIDP (Port Infrastructure Development Program) – submitted in May 2022 with an anticipation of notice of awards in October 2022

As part of the IIJA (Infrastructure Investment & Jobs Acts), the Biden Administration has provided numerous, but highly, competitive federal grants. Docks & Harbors, working with our federal lobbyists, evaluates each grant as an opportunity to meet Juneau’s waterfront needs. It is important to note that federal grants are typically very prescriptive in what projects can be considered. For example, early versions of the FY22 PIDP Notice of Funding Opportunity (NOFO) only allowed “freight ports” to apply. Our Congressional Delegation was able to secure a language change enabling a “passenger port” to apply; however, most likely this variance will not be available for the Port of Juneau in future NOFOs. It is also plausible that the recently announced “Inflation Reduction Act” as part of the draft Senate’s Reconciliation bill would provide additional opportunities for port electrification funding but our success would still be speculative for planning purposes.

6. Resolution 2975(b), which includes the FY23 CIP priorities, provides \$2.64M for Dock Electrification leveraging State Marine Passenger Fees. Under this appropriation, we propose \$1.64M to fund a new transformer with an integral Load Tap Changer (LTC) at the South Franklin Dock (SFD) substation. The lack of an LTC on the transformer at the SFD substation will make it virtually impossible to successfully provide shore power at additional docks in Juneau. Refreshing the 20-year old equipment with current technology will significantly improve the flexibility of the SFD substation to meet the voltage levels required by the cruise ships and ultimately allow cruise ships which are currently connecting to be on shore power for a longer period of time. Unfortunately, LTC transformers are long lead items and the estimated timeline to procure is approximately three years.
7. Docks & Harbors recommends the Assembly adopt a plan to facilitate future dock electrification grant applications, but commit to moving forward using locally controlled passenger fees to fund one CBJ-owned dock. The analysis

of cruise vessel use and the historic review of available power from the utility would suggest that electrifying the AS Dock would support the short term goals of the community. Committing to local funding of one CBJ-owned dock will streamline the construction process, allow for fiscal planning while continuing to seek outside grants, provide for other waterfront priorities and incrementally encourage the cruise industry to transition all vessels to be capable of accepting shore power. The following schedule is proposed:

- a. November 2022 – Docks & Harbors executes contract agreement with AELP to secure new LTC transformer for South Franklin Street substation;
 - b. January 2023 - CBJ Finance Department secures \$20M in Revenue Bonds for Docks Electrification Phase I (dubbed AS+) which would provide two LTC transformers for each of the CBJ Docks but would only make ready the AS Dock for ship connection;
 - c. January 2024 – Award Alternative Procurement Method contract (i.e. Design-Build) to connect from the AELP provided uplands substation and installation of: conductors, new power deployment float at AS Dock, switchgear on the power deployment floats, submarine cable to the power deployment floats;
 - d. Fall 2025 – AELP receives new LTC transformer and installs for 2026 cruise season at the SFD;
 - e. January 2026 – CBJ receives two new LTC transformers for AELP installation
 - f. Summer 2026 – Alaska Steamship Dock on-line to provide shore power to available cruise vessels.
8. Throughout the above timeframe, Docks & Harbors will continue to seek grant funding for CT Dock electrification. If these efforts are unsuccessful other financing options will be considered once the AS Dock is complete. The existing bond debt which funded the new CBJ owned cruise ship docks, Seawalk expansion, the parking lot uplands is currently \$18.2M, with \$2.0M of dedicated Port Development Fee on an annual basis. The largest portion of this debt will be retired in 2035, and a remaining smaller portion will be retired in 2039. It is reasonable to assume the \$20M of new revenue bonds proposed in CY23 can be assumed in the existing fiscal environment. Fees associated with connecting cruise ships to the improved infrastructure will be addressed outside this memo.
9. Although there are many details to resolve in the near term, the consensus is that shore power connection at the City owned docks can proceed in appropriate manner with direction to pursue local funding from committed future passenger fees.

Recommendations:

- A. Direct purchase of Load Tap Changer Transformer for use by South Franklin Dock.
- B. Approve project scope and schedule.
- C. Request preparation of Revenue Bond.

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Encl: 2022 Juneau Cruise Ship Dock Electrification Study