

Budget Narrative – Dixon Diversion

7. Budget (45 points)

a. Budget Detail (20 points)

The Dixon Diversion project budget is grounded in a class 4/5 Opinion of Probable Construction Cost (OPCC) developed by a certified cost and constructability consultant, using Association for the Advancement of Cost Engineering (AACE) guidelines. The OPCC contains all project elements including the Intake and Diversion at Dixon Glacier, a 14-foot diameter / 4.7-mile-long tunnel, a ~1-mile-long new access road to the downstream portal, and high-voltage 3-phase electrical service from Bradley Hydro Station to the downstream access portal. Project funds will be expended within the 5-year period of performance, and a year-by-year breakdown can be found in the attached Budget Notebook. Subtotals and descriptions for individual budget categories are as follows.

Personnel - \$3,010,185

Direct personnel costs include all AEA staff time associated with managing and supporting this project over the 5-year period of performance. The AEA Infrastructure Engineer will be the primary project manager with a direct rate of \$67.37/hr, yearly salary of \$115,186, and fully dedicated to the project at 1950 hours per year or 1 Full Time Equivalent (FTE). This position will be supported by an additional Infrastructure Engineer at 0.5FTE and directly supervised by AEA Owned Assets Director (\$114.33/hr, \$182,656/yr, 0.5FTE)

This project will require extensive support from AEA's Procurement Department, and AEA has budgeted for 2 Contracting Officers each at 585 hrs/year, \$54.09/hr and \$91,280 yearly salary. AEA anticipates extensive communication with stakeholders, the public, Alaska Native Villages, and low-income and disadvantaged communities and as such has budgeted time for AEA's Communication Director to develop presentation materials and conduct outreach. This has been estimated at 585hrs/year at \$75.13/hr or \$126,789 yearly salary.

Additional AEA positions that will be involved with this project in supporting roles include AEA's Executive Director (\$127.84/hr, \$209,966 salary, .2FTE), Director of Planning (\$73.74/hr, \$124,449 salary, .25FTE), Legal Counsel (\$111.97/hr, \$183,922 salary, 0.2FTE), and a Geographic Information System (GIS) Program Manager (\$53.96/hr, \$91,062 salary, 0.1FTE).

All the above rates are from AEA's 2023 employee rate table with an annual escalation of 4% applied to account for cost-of-living increases and inflation.

Fringe Benefits - \$1,492,121

Fringe rates were provided by AEA's HR department and are calculated on a position-by-position basis. These fringe rates are specified on the attached Budget Table and range from 43.61% - 56.93% for the AEA positions that will be directly involved with this project and listed above. Benefits include Health Insurance (10%), Public Employees Retirement System (25.1%), Supplemental Benefits System (6.13%),

Medicare (1.45%), Workers Compensation (0.68%), and Unemployment (0.40%). The benefits including sick leave and vacation vary by position type and tier under which the staff person was hired.

Travel - \$245,360

Travel is budgeted under this category for AEA personnel to the jobsite during project development and construction. Travel will be conducted primarily by AEA Infrastructure Engineer / PM and support staff. Roundtrip flights to Homer are budgeted for \$600 and chartered flights from Anchorage to Bradley are budgeted for \$6000. AEA expects to perform site visits every ~6 weeks, adjusted seasonally with more flights occurring during summer months.

Equipment - \$80,000

AEA has budgeted \$80,000 for office setup costs necessary for additional staff to be brought on for this project.

Supplies - \$200,000

AEA has budgeted \$40,000/year for miscellaneous supplies and equipment, based off historical and previous experience.

Contractual - \$304,920,587

A majority of total direct project costs will be competitively bid contractual awards. These contracts may be awarded to a single entity, or multiple entities depending on the procurement method selected. Contract activities are estimated and described based off the following categories.

Mobilization - \$18,046,901 – Includes mobilization and demobilization costs at the remote Bradley Lake site for 3 construction seasons. Access to the jobsite is only by small aircraft or barge. Barges are only available to land during very high tides. Costs also include surveying and staking, contractor housing and temporary facilities.

Site Development and Access - \$1,639,477 – Includes improvements to existing roadways and airstrip at the Bradley Lake Project to handle the increase in traffic due to year-round construction operations. Cost category also includes clearing, grubbing, and establishing equipment staging areas.

Electrical Upgrades - \$18,892,488 – Electrical upgrades associated with this project include running 3 phase power from the Bradley Lake Plant to the Bradley dam and entrance to the tunnel. The conduit will be underground and adjacent to the existing roadway. The tunnel boring machine can be powered from clean energy generated at Bradley or from diesel; however, it was determined that the environmental risks associated with transporting and storing those quantities of diesel were unacceptable. The 3 phase power will follow the TBM as it bores uphill from the tunnel exit to the diversion dam and intake structure. A new electrical conduit and conductor will be installed in the tunnel crown and be available to remotely operate gates at the diversion. This cost category also includes modification to the Bradley Lake substation to handle the increased power that will be generated at the facility.

Tunnel Construction - \$128,307,072 – Tunnel construction is the largest contractual cost for this project. The tunnel will be constructed with a 14-foot diameter Tunnel boring Machine (TBM) and will be 4.7 miles long. Selected contractor will purchase a refurbished TBM, ship to Alaska, and reassemble onsite. Before tunneling can occur, a ~1 mile spur road will be constructed from the Battle Creek access road to the tunnel outlet portal. A starter tunnel will be constructed using drill and blast methods for 300feet, and then the TBM will enter the tunnel and drill uphill to the location of the diversion dam and intake. Tunneling rates of penetration have been estimated based on previous tunneling operations in 1991 during the original Bradley Project construction and averaged 104 feet/day. Based on surface geology, similar rock types are expected in this region. Geologic investigative drilling will take place in the summer of 2024 to further refine the understanding of the geology along the proposed tunnel route.

Diversion Dam and Intake Structure - \$12,159,728 – The Diversion Dam and intake structure will be designed similarly to the Battle Creek diversion dam completed in 2020. The diversion dam location is extremely remote and only accessible by helicopter, driving up transportation costs. Upon completion, access to the diversion will also be available through the tunnel. Costs include site improvements at the toe of the Dixon Glacier, temporary diversion of the Martin River during construction, tunnel intake gates and water control, tunnel intake concrete, diversion dam gates and water control, diversion dam concrete, trash racks, and a support building at the diversion dam for project construction and long-term equipment storage.

Bradley Dam Raise - \$26,901,055 – A 14-foot dam raise is proposed through modifications to the existing Bradley Lake Dam. To accomplish this dam raise the existing crest and parapet wall will be demolished, additional rock fill will be added to the downstream shell, a new concrete face will be provided upstream of the raised embankment that will be structurally connected to the existing face, and a new concrete parapet wall and access road will be constructed across the crest similar to the existing arrangement. An Obermeyer gate will be added to the spillway crest to provide additional storage and operational flexibility. This will allow the reservoir full pool to raise 14 feet while still providing hydraulic control down to the fixed crest of the spillway. Concrete costs will be the main driver for the dam raise and have been estimated at \$3,062.50/CY to account for sourcing, transporting, and storing at a remote Alaskan jobsite.

SCADA and Instrumentation - \$359,720 – This category includes all the instrumentation, electrical, and controls for the diversion dam and new Obermeyer gate at the Bardley Lake dam.

Site Restoration - \$244,338 – Revegetation of staging and construction areas, post project completion.

Unlisted Items - \$14,458,555 – Unlisted items have been estimated at 7% of developed contractor Direct Costs, in accordance with the AACE Class 4/5 Engineer's Estimate Guidelines.

Bonds and Insurance - \$9,088,234 – Bonds and Insurance have been estimated at 4.1% of developed contractor Direct Costs.

Escalation - \$13,838,902 – Escalation from 2024 dollars to midpoint of construction.

Contingency - \$60,984,117 – A design and post-award contingency of 25% has been included in the OPCC

Other - \$36,890,571

Other costs include \$7.5MM for FERC licensing, \$5MM for geologic and hydrologic studies, \$12.2MM for Feasibility and Final Design, and \$12.2MM for Construction Administration.

Total Direct Costs - \$346,838,825

Indirect Costs - \$1,576,326

AEA is currently in negotiations with the Department of Interior to develop a FY2024 Negotiated Indirect Cost Rate Agreement (NICRA) in accordance with 2 CFR, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. AEA will seek approval of the NICRA from AEA's cognizant agency and intends to utilize the FY2024 NICRA for all federal awards received in the current fiscal year. AEA's provisional NICRA is 31.86%. Indirect costs were determined using an indirect rate of 31.86% applied to AEA direct personnel costs, fringe costs, supplies, and travel. If the rate has not been finalized at the time of award, AEA will use the 10% de Minimis rule allowed under 2 Code of Federal Regulation (CFR) 200.41(f) until the NICRA has been finalized.

Total Funding - \$348,415,151

b. Expenditure of Awarded Funds (15 points)

AEA has developed a project budget and schedule that is reasonable and achievable within a 5-year period of performance. This plan is grounded in previous AEA and contractor experience through FERC license amendments processes, industry standard cost and schedule development, high quality preliminary engineering and design, and extensive site visits to characterize the project.

Most project funds will be spent through contracted work including environmental studies, engineering and design, tunnel construction, diversion dam construction, and the Bradley Dam raise. AEA has extensive experience in issuing and managing contracts to complete this type of work and successfully managed the Battle Creek Diversion project. AEA's procurement team will issue contracts that include specific deliverables with expenditures linked to milestones and associated completion dates. AEA will reimburse based on completion of specific deliverables and contracts will be written to ensure compliance with the CPRG objectives and timelines. AEA will regularly assess the contractor's performance against the timeline and milestones and adjust the plan accordingly to ensure timely completion.

AEA uses a financial management system that allows for tracking of expenditures and comparison to budgets and will meet regularly with the project team to assess progress. AEA has a lead accountant on staff responsible for the Bradley Lake project.

All contracts associated with this project will be competitively bid on and awarded to contractors that will deliver expected results within the schedule and budget proposed.

c. Reasonableness of Costs (10 points)

The Dixon Diversion Opinion of Probably Construction Cost (OPCC) estimate was developed by a certified Cost and Constructability consultant. The OPCC was developed using the project's current preliminary design for the Dixon Diversion to validate total project construction costs. The cost basis includes Alaska prevailing wage rates and equipment rates developed by the US Army Corps of Engineers and adjusted for site conditions, including rock engagement and current fuel cost. Construction quantities were developed by AEA's engineering contractor.

This OPCC is intended to predict cost within the range of probable bids for construction. A contractor's Indirect Costs of 15%, markup of 15%, and bond and insurance cost of 4.1% were added to developed contractor Direct Costs. A design and post-award construction contingency of 25% has been included in the OPCC. The developed expected construction cost includes the cost of FERC licensing, geologic and hydrologic studies, feasibility design, final design, and construction administration.

The cost estimate has been developed using the Association for the Advancement of Cost Engineering (AACE) Guidelines, Class 4/5 Cost Estimate, as is appropriate for a preliminary design. The cost estimate includes production detail or "bottom up" costing approach where sufficient detail is provided, while other costs are derived from bid results of the recent analog Battle Creek project that was completed in 2020 and adjusted for inflation.

This cost estimate reflects the preliminary design by AEA's engineering contractor. Costs are based on 2023 costs with escalation from NTP to the midpoint of construction.

Labor rates used in this cost estimate were based on prevailing wage rates for this region as currently established by the US Department of Labor. Additionally, a travel allowance was applied to each category to account for the remote nature of the work. While it is recognized that camp facilities will be provided for craft labor; the travel allowance would be an incentive for qualified workers and contractor's key individuals to work at this remote site and remain on the project throughout the season. Work hours and overtime factors reflect a 60-hour, 6-day workweek.

Equipment rates were derived from the established US Army Corps of Engineers hourly rates with an upwards adjustment to accommodate for rock (high wear) conditions for some machinery on this project, as well as increased fuel and maintenance costs associated with the remote location.

Contractor's site management and overhead expenses were calculated at 15% of other direct costs. A Contractor's general overhead and profit rate of 15% was used, as well as 4.1% for bonds and insurance. An allowance of 7% of construction costs was included for unlisted items to reflect project components that are not yet developed at this level of design.

The cost presented in this analysis anticipates all work being completed under a single construction contract. However, AEA has not ruled out awarding the various components under multiple contracts to attract more bidders and increase competition.

