



Dale K. Atkinson
Vice President, Employee Development/Corporate Services
P.O. Box 968, PE03
Richland, WA 99352-0968
Ph. 509.377.4302 | F. 509.377.4098
dkatkinson@energy-northwest.com

April 18, 2014
GO2-14-063

Ms. Karen Burgess
U.S. EPA Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Dear Ms. Burgess:

Subject: **COST ESTIMATE TO REPLACE INTAKE SCREENS AT THE COLUMBIA GENERATING STATION (COLUMBIA)**

References: 1) Letter, GI2-14-049, dated 3/24/14, MP Tehan (NMFS) to K Burgess (EPA), Re: Columbia Generating Station Cooling Water Intake Replacement Cost Estimate.

2) "Anadromous Salmonid Passage Facility Design," National Marine Fisheries Service, Northwest Region, July 2011.

3) Letter, GO2-14-054, dated 04/16/2014, DA Atkinson (EN) to J LaSpina (EFSEC), Re: Columbia Generating Station (Columbia) National Pollutant Discharge Elimination System (NPDES) Permit Reissue, Intake Structure Comments.

This letter provides Energy Northwest's response to the referenced letter addressed to the Environmental Protection Agency (EPA) from the National Marine Fisheries Service (NMFS) (Ref. 1). At EPA's apparent request, NMFS provided your office with a "ballpark estimate" to replace the Columbia Generating Station (Columbia) intake screens. Energy Northwest finds that this generalized cost estimate does not adequately account for the planning and approval process required to implement such a significant modification at a nuclear power plant.

The NMFS letter states that cost is not a relevant factor in compliance determination within the Section 7(a)(2) consultation process and cites our lack of adherence to the 2011 NMFS Intake Design Criteria. However, NMFS has yet to demonstrate that Columbia's intake structure is out of compliance with applicable regulatory

Page 2 of 5 COST ESTIMATE TO REPLACE INTAKE SCREENS AT THE COLUMBIA GENERATING STATION (COLUMBIA)

requirements. Repetitive reference to NMFS intake screen design criteria (Ref. 2) is not supported by the document itself, where:

“Existing facilities may not adhere to the criteria and guidelines listed in this document. However, that does not mean these facilities must be modified specifically for compliance with this document. The intention of these criteria and guidelines is to ensure future compliance in the context of major upgrades and new designs of fish passage facilities.”

Further, Section 7(a)(2) consultation activities that are initiated due to a federal action (e.g. license renewal) that evaluate the potential to entrain juvenile salmon, would in fact limit reasonable and prudent alternatives to include those that are economically and technologically feasible based on scientifically determined impacts.

While additional concerns related to NMFS claims of impacted species remain, the remainder of this letter is intended to clarify the realistic cost estimate of NMFS proposed screen intake modification.

City of Richland Municipal Water Intake

NMFS provides the City of Richland’s municipal water intake as one local example for cost determination. A budget estimate for the Richland project outlines potential costs of \$170,000 for construction (presumably fabrication) only. NMFS projects installation costs of \$400,000 by doubling the construction costs. While acknowledging that intake structure location, installation, engineering, planning, and safety considerations are significant variables that affect costs, without the understanding of our operating process NMFS is unable to account for these variables in their estimate. Energy Northwest asserts these are the variables which would most significantly influence the cost to plan, design and implement the proposed modification.

California Projects

In developing their estimate, NMFS compares the screen replacement costs of a nuclear power plant with that of a number of California agricultural operations withdrawing irrigation water on the cubic feet per second (cfs) basis. However, these irrigation screening systems bear little resemblance or relationship to the Columbia screens in form or placement location. Without additional design comparison information, Energy Northwest is unable to compare these costs to those of proposed modifications to Columbia.

Economic Burden

All costs to operate Columbia are paid by public power customers through electric rates established by the Bonneville Power Administration (BPA). Energy Northwest provides at-cost power to BPA and ultimately to over 1.5 million rate payers of the northwest at the least cost, while protecting the environment and ensuring the safety of our

Page 3 of 5 COST ESTIMATE TO REPLACE INTAKE SCREENS AT THE COLUMBIA GENERATING STATION (COLUMBIA)

employees and the public. As a joint operating agency of the State of Washington (not a for-profit investor owned utility), it is incumbent on Energy Northwest to keep costs as low as possible through well planned and communicated operating and capital budgets. To minimize impacts to rate-payers, capital modifications such as a redesign of the intake screens must be planned well in advance (via the Columbia Long Range Plan) and communicated to BPA for non-disapproval and subsequent capital bond financing requirements. All Columbia costs are included in the biennial BPA Integrated Program Review for assessment of impact on electric rates and subsequently to rate-payers.

NMFS implies that since Columbia generates larger revenues than nearby private agricultural enterprises who are modifying their screen design, it is feasible and affordable for Energy Northwest to do the same. This assessment underestimates the significance of the proposed modification, the significant differences in the design, location and amount of water withdrawn between these local intake structures and Columbia, and the economic impacts to rate payers.

Cost of Studies

Within the NMFS letter, reference to the Grant Public Utility District (GPUD) survival study is cited as an example of why additional studies may be inefficient and cost prohibitive as compared to replacing Columbia's intake screen.

The cited GPUD survival study is not an appropriate cost comparison with the Columbia intake because the scales and study objectives are different from what might be conducted at Columbia. The scale of the GPUD study is two large hydropower dams (Wanapum and Priest Rapids) passing several hundred thousand cfs of river discharge during fish migration season, rather than Columbia's water intake removing at most approximately 56 cfs from that river discharge. The GPUD study would quantify routes and survival for entrainment through the dams (passage of salmon smolts and parr through the dam via the turbine or other routes such as a spill). The Columbia objective would be to determine numbers of fish entrained by the water withdrawal (passage through the in-river screens). Several years are needed for the GPUD study to encompass a range of largely uncontrollable environmental conditions because passage route and survival are highly dependent on river discharge and operational factors at the dams (e.g., spill vs turbine operation). In contrast, a study of entrainment at the Columbia intake would involve a consistent route (the screens and inlet piping) and mostly controllable factors such as pumping rate. Furthermore, estimating survival in the GPUD study would involve extensive fish marking and detection plus complex calculations (pioneered in NMFS fish survival studies). An entrainment monitoring study at Columbia would involve enumerating the physical catch of salmon parr in the collection baskets located in the pump well, with control calibrations of capture efficiency of the baskets using catches of known numbers of artificially introduced parr (smolt-sized salmon would not be able to pass through the Columbia screens).

Page 4 of 5 COST ESTIMATE TO REPLACE INTAKE SCREENS AT THE COLUMBIA GENERATING STATION (COLUMBIA)

Energy Northwest does not believe that additional studies are necessary. However, based on our review of similar themed studies at cooling water intakes for thermal power stations for National Pollutant Discharge Elimination System (NPDES) permits, Energy Northwest is confident that studies could be performed to meet specific Columbia criteria for approximately \$100-\$250K annually, far less than the cited GPUD costs of \$1.6M annually.

Columbia's Cost Estimate

In an effort to outline the realistic cost expenditure to Energy Northwest to modify the intake screen, the following cost analysis was completed in late 2013. This effort included contacting vendors, shippers, contractors and manufacturers. It evaluated similar level-of-effort facility modifications, reviews required by the Nuclear Regulatory Commission (NRC), and engineering design review by our engineers. The results of this cost analysis are summarized below.

Activity	Duration	Cost
Project Planning/Design	Minimum 2 years	\$571K
<i>Plan Unscheduled Down power</i>		
<i>New Engineering Design</i>		
<i>Safety and Equipment Evaluation</i>		
<i>NRC Approval of Design</i>		
<i>Environmental Reviews and Permitting</i>		
<i>Construction Planning and Vendor Contracts</i>		
Project Installation/Construction	Fabrication--6 months Installation--10 to 14 Days	\$1.17M
<i>Field Engineering</i>		
<i>Fabrication</i>		
<i>Site Delivery</i>		
<i>Installation</i>		
<i>Vendor Costs</i>		
Columbia Generation Loss	16-20 Days	\$19-\$24M
<i>Loss of Generation for Implementation (above)</i>		
<i>Down power/bring back online</i>		
Total		\$21-\$26M

Please note that as a license holder from the NRC, the procedure to review, design, and gain approval for a plant modification from NRC is an extensive process that typically takes two years or more to complete. Our cost estimate does not include the cost of additional design or safety evaluations if the NRC were to take exception with the proposed modification. The combined estimated cost of \$1.7M to plan, design, and install new screens on the two existing intake structures also does not include costs if additional intake(s) structures were needed to be placed in the river to compensate for the reduced pore size and intake capacity of the two existing intake structures.

**Page 5 of 5 COST ESTIMATE TO REPLACE INTAKE SCREENS AT THE
COLUMBIA GENERATING STATION (COLUMBIA)**

The total cost, as reflected in the table includes the planning and implementation cost to modify the intake structures, as well as the loss of generation for every day that Columbia is not operating. Every day that Columbia is offline amounts to approximately \$1.2M of lost power generation (based on costs from July 2013). The 10-14 day installation period, which requires three days to safely downpower Columbia, and three days to bring Columbia back online, totals 16-20 days of lost operation. Energy Northwest assumes that construction would occur during approved low-flow work windows in the late summer, during a period of time that Columbia's power is in high demand. Combined with the screen replacement cost, the total project could cost \$21-\$26M, which we believe is a significant impact to our ratepayers.

As documented in the Energy Northwest Environmental Stewardship Policy, the foundation of the organization's ISO 14001 certified Environmental Management System, the organization commits to being a responsible steward of the environment. This policy also commits the organization to provide energy services in a manner that responsibly balances environmental and social factors and business needs. While Energy Northwest is committed to protecting the environment, we are also committed to ensuring our operation and maintenance costs are justified. In our letter to the Energy Facility Site Evaluation Council (EFSEC) (Ref 3), we provided additional information that challenges NMFS claim that Columbia's intake structure is impacting juvenile salmon. Technical and scientific data should be the determining factor for requiring changes to Columbia's intake screens. Energy Northwest is sensitive to the concerns and challenges of all agencies involved in Columbia's NPDES permit renewal process. We are committed to providing accurate information related to our operating practices including our financial cost burden as outlined in this letter. We hope EPA finds this information useful. If you have any questions, please contact Shannon Khounnala at (509) 377-8639.

Respectfully,



DK Atkinson
Vice President, Employee Development/Corporate Services

cc: Michael Tehan, NMFS
Rich Domingue, NMFS
Jim LaSpina, EFSEC
Fred Lyon, NRC
Bill Moore, Ecology
Dr. Charles Coutant
Mike Elsen, DOE