

**BATTLE CREEK HYDROELECTRIC PROJECT**

**FERC NO. 1121**

**LICENSE AMENDMENT APPLICATION**

**EXHIBIT D**

**STATEMENT OF COSTS AND FINANCING**

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**STATEMENT OF COSTS AND FINANCING**

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**EXHIBIT D**  
**STATEMENT OF COSTS AND FINANCING**

**D.1 ESTIMATED COST OF RESTORATION PROJECT**

The U.S. Department of the Interior, Bureau of Reclamation's (Reclamation's) estimate of the construction cost of Phase 1A of the Restoration Project modifications, plus other non-FERC jurisdictional actions intended to support the success of Phase 1A of the Restoration Project, totals about \$50 million. No additional water rights are needed to complete these modifications. Indirect construction costs are included in the total cost such as engineering, planning, contract administration, and contingency.

**D.2 AMOUNT PAYABLE IN THE EVENT OF HYDROELECTRIC PROJECT TAKEOVER**

The Licensee is not applying for a new license, and therefore this section does not apply.

**D.3 ANNUAL HYDROELECTRIC PROJECT COSTS**

**D.3.1 Hydroelectric Project Economics Methodology**

Long-term economics have been estimated through the remaining license term. FERC's current cost method of economics is used to derive the average annual cost of the total Hydroelectric Project. This method uses current electric power value conditions. Future inflation and escalation of prices are not considered.<sup>1</sup>

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<sup>1</sup> See Mead Corporation, Publishing Paper Division, 72 FERC Para. 61,027 (July 13, 1995)

The economics include the costs of owning and operating the Hydroelectric Project. Hydroelectric Project cost components include unrecovered past capital additions (e.g., the depreciated plant in service costs, or net book value), license amendment and EIS/EIR preparation costs, Restoration Project modification costs, future capital replacements, normal operations and maintenance, FERC fees, taxes, and insurance. A Fixed Charge Rate (FCR) of 14% will be used for capital improvements, (capital improvements are improvements that have a service life in excess of 1 year and are repaid over time); the FCR includes capital recovery with a cost of capital of about 8.8%, taxes, and insurance costs. This before-tax cost of capital is made up of the following components:

**Cost of Capital**

|                                  | <b>Capital Ratio (%)</b> | <b>Nominal Cost (%)</b> |
|----------------------------------|--------------------------|-------------------------|
| Debt                             | 48                       | 6.02                    |
| Equity                           | 52                       | 11.35                   |
| Weighted Average Cost of Capital |                          | 8.79                    |

The marginal income tax rate is:

**Income Tax Rates**

| <b>Income Tax</b>                   | <b>Tax Rate %</b> |
|-------------------------------------|-------------------|
| State                               | 8.84              |
| Federal $35.00 \times (1 - 0.0884)$ | <u>31.91</u>      |
| Combined Marginal Rate              | <b>40.75</b>      |

The remaining component included in the 14% FCR is the cost of insurance at 1.2%.

Expenses, such as payroll costs, are paid in the year the expenditure is made and do not include any tax or insurance component.

The net book value represents the cost of owning the facilities and reflects unrecovered past capital expenditures. All the other costs listed above represent estimated future costs. Table D-1 summarizes the Hydroelectric Project's average annual costs with the proposed Restoration Project modifications.

### **D.3.2 Hydroelectric Project Costs Incorporating Phase 1A of the Restoration Project**

The current net book value is estimated to be about \$34.6 million. The Licensee's estimated total cost of developing this FERC license amendment application, plus the associated EIS/EIR and during- and post-construction monitoring, is about \$4.8 million.

The annual operation and maintenance costs are estimated to increase from \$2.4 to about \$2.5 million per year after implementation of Phase 1A of the Restoration Project.

Future capital replacements are estimated to average an additional \$690,000 to \$750,000 per year. Annual FERC fees total about \$150,000. The Phase 1A Restoration Project construction costs (including construction, permitting, mitigation costs, and replacement power during construction) total about \$50 million<sup>2</sup>. This cost is only an estimate based

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<sup>2</sup> Costs based on June 2008 estimates provided by Reclamation escalated to 2010 dollars. Escalation has been applied based on cost trends and projections from independent sources. A 7% inflation rate was applied to construction contract costs.

on completed design work. The costs will be better defined when bids are received for the Restoration Project.

**TABLE D-1 BATTLE CREEK HYDROELECTRIC PROJECT ECONOMICS JULY 2008—  
PHASE 1A**

|  | <b>Existing Condition:</b><br>Continue Interim Agreement | <b>No Action Alternative:</b><br>Resume Existing FERC License Conditions | <b>Proposed Action:</b><br>Phase 1A of the Battle Creek Salmon Restoration Project |
|--|--|--|--|
| <b>Average Annual Energy</b>   | <b>212.44 GWh</b>  | <b>231.4 GWh</b>   | <b>197.5 GWh</b>   |
| <b>One-Time and Annually Recurring Cost Descriptions (\$1,000s)</b>        |  |  |  |
| Unrecovered Sunk Costs (aka Net Book Value)                                | \$34,600   | \$34,600   | \$34,600   |
| Future Capital Additions   | \$690/yr   | \$690/yr   | \$750/yr   |
| Operation and Maintenance  | \$2,350/yr   | \$2,350/yr   | \$2,500/yr   |
| Construct Phase 1A   | \$0  | \$0  | \$49,250   |
| FERC License Amendment, EIS/EIR, and Monitoring                            | \$0  | \$0  | \$4,750  |
| 2008 Power Benefits  | \$19,695/yr  | \$21,453/yr  | \$18,310/yr  |
| <b>FERC Current Cost Method (Annual Cost in 2008 Dollars, \$1,000s/Yr)</b> |  |  |  |
| Unrecovered Sunk Costs   | \$4,844  | \$4,844  | \$4,844  |
| Future Capital Additions   | \$1,173  | \$1,173  | \$1,275  |
| Operation and Maintenance  | \$2,350  | \$2,350  | \$2,500  |
| Construct Phase 1A   | \$0  | \$0  | \$6,895  |
| FERC License Amendment, EIS/EIR, and Monitoring                            | \$0  | \$0  | \$665  |
| <b>Total Cost</b>  | <b>\$8,367/yr</b>  | <b>\$8,367/yr</b>  | <b>\$16,179/yr</b>   |

**TABLE D-1. Continued**

**Comparison of Project Economics Using FERC’s Current Cost Method  
\$ 1,000s (2008 \$)**

|  | <b>Existing Condition:</b> | <b>No Action Alternative:</b> | <b>Proposed Action</b> |
|--|----------------------------|-------------------------------|------------------------|
| <b>Dependable Capacity (MW)</b>              | 12.4                       | 13.5                          | 11.5                   |
| <b>Annual Generation (GWh)</b>               | 212.4                      | 231.4                         | 197.5                  |
| <b>Annual Power Value: Annual Generation</b> |                            |                               |                        |
| \$ thousands                                 | \$19,695/yr                | \$21,453/yr                   | \$18,310/yr            |
| mills/kWh                                    | 92.7                       | 92.7                          | 92.7                   |
| <b>Annual Cost:</b>                          |                            |                               |                        |
| \$ thousands                                 | \$8,367/yr                 | \$8,367/yr                    | \$16,179/yr            |
| mills/kWh                                    | 39.4                       | 36.2                          | 81.9                   |
| <b>Current Net Annual Benefits:</b>          |                            |                               |                        |
| \$ thousands                                 | \$11,328/yr                | \$13,086/yr                   | \$2,131/yr             |
| mills/kWh                                    | 53.3                       | 56.6                          | 10.8                   |

**D.3.3 Taxes**

Future taxes are estimated on the basis of yearly net book value. Property taxes for 2007 totaled about \$1.2 million. The Licensee paid about \$900,000 in Hydroelectric Project-related income taxes in 2007.

**D.4 ANNUAL VALUE OF HYDROELECTRIC PROJECT POWER**

The Licensee historically has had responsibility for generating, purchasing, transmitting, and distributing electricity to its customers. Beginning in 1998, the California Independent System Operator (ISO) took responsibility for operating the transmission system throughout California to provide reliable electricity service at minimum cost. The Hydroelectric Project is operated in conjunction with the Licensee’s other generating resources to help meet the electricity demands of its customers.

The alternative sources of power currently available to the Licensee are increased purchases and new generation developments. Because the Hydroelectric Project powerhouses are considered “renewable” small hydroelectric facilities under state law<sup>3</sup>, any reduced power production attributable to the Restoration Project would need to be replaced by another source of renewable electrical energy. The California Public Utilities Commission (CPUC) periodically publishes “Market Price Referents” (MPRs), which is an estimation of the long-term market price of electricity for baseload power products that will be used in evaluating bid products received during Renewable Portfolio Standard (RPS) power solicitations. The MPRs represent “the levelized price at which the proxy power plant revenues exactly equal the expected proxy power plant costs on a net-present value (NPV) basis.”<sup>4</sup> Table D-2 shows the current CPUC MPR adopted in October 2007. Table D-1 also incorporates the current MPR.

**TABLE D-2 EXCERPT OF CPUC MPR DATED OCTOBER 4, 2007**

| <b>Adopted 2007 Market Price Referents<sup>5</sup></b><br>(Nominal - dollars/kWh) |                |                |                |
|---|----------------|----------------|----------------|
| <b>Resource Type</b>  | <b>10-Year</b> | <b>15-Year</b> | <b>20-Year</b> |
| 2008 Baseload MPR   | 0.09271        | 0.09383        | 0.09572        |
| 2009 Baseload MPR   | 0.09302        | 0.09475        | 0.09696        |
| 2010 Baseload MPR   | 0.09357        | 0.09591        | 0.09840        |
| 2011 Baseload MPR   | 0.09412        | 0.09696        | 0.09969        |
| 2012 Baseload MPR   | 0.09518        | 0.09844        | 0.10139        |

<sup>3</sup> See California Public Utilities Code § 399.12(b)(1)(A).

<sup>4</sup> D.04-06-015, p.6.

<sup>5</sup> Note: Using 2008 as the base year, CPUC staff calculates MPRs for 2008–2020 that reflect different project online dates. Link to 2007 MPR Model: <http://www.ethree.com/MPR.html>

Implementing Phase 1A of the Restoration Project will reduce both the energy produced by the Hydroelectric Project and its dependable capacity. Dependable capacity is the load-carrying ability of a hydroelectric plant under adverse hydrologic conditions for a specified time interval and period of a particular electric system load. The dependable capacity for this Hydroelectric Project is based on its load-carrying ability during a critical hydrologic period (e.g., 1994) coincident with the Licensee's peak electric system load (e.g., during summer heat storms).

Under the state's RPS mandate, replacement energy would have to come from another eligible renewable energy resource, such as solar or wind, but dependable capacity could be replaced by any resource. Because solar and wind resources are not good candidates to replace the reduced dependable capacity of the Hydroelectric Project,<sup>6</sup> the dependable capacity likely would be replaced by a fossil-fuel resource.

## **D.5 SOURCES OF FINANCING**

The Licensee is financially able to operate and maintain the Hydroelectric Project. In support of this statement, the Licensee refers to its financial statements, which it has submitted annually to the Commission in FERC Form 1, and to its record in constructing, operating, and maintaining its Hydroelectric Projects.

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<sup>6</sup> Wind units are intermittent resources, with negligible capacity attained during the summer peak demand (based on historical output). Solar resources provide some replacement dependable capacity, but at a much higher cost.