

## FISH PASSAGE and PROJECT OPERATIONS

### MEMORANDUM OF AGREEMENT

#### Eagle Creek RE Management and the U.S. Fish and Wildlife Service

##### **1.0 INTRODUCTION**

This Memorandum of Agreement (Agreement) is entered between the United States Fish and Wildlife Service (Service) and Eagle Creek RE Management, LLC (ECREM). ECREM is a Delaware limited liability company and is wholly owned by Eagle Creek Renewable Energy, LLC (ECRE). Individually, the above may be referred to as a "Party," collectively "Parties."

##### **1.1 Term of the Agreement**

This Agreement will remain in full force and effect for a period of five years from the date of the Agreement. After that time the parties can, by mutual agreement, extend the term of the contract for one or more subsequent five-year periods. Either party may also terminate this Agreement at the end of each five-year term without liability to any other party or any further obligations hereunder.

##### **1.2 Purpose**

This Agreement establishes a plan and schedule for addressing fish passage and minimum flow issues at ECREM's hydroelectric projects in New Hampshire that will facilitate receiving certification as a low-impact hydroelectric project by the Low Impact Hydroelectric Institute (LIHI). Upon the execution of the Agreement, the Service will provide a supporting letter for the ECRE application to LIHI within three weeks of signing.

##### **1.3 Agency Appropriations**

Nothing in this Agreement shall be construed as obligating the Service to expend in any fiscal year any sum in excess of appropriations made by Congress to state or local legislatures or administratively allocated for the purpose of this Agreement for the fiscal year or to involve the Service in any contract or obligation for the future expenditure of money in excess of such appropriations or allocations.

##### **1.4 Establishes No Precedents**

The Parties have entered into the negotiations and discussions leading to this Agreement with the explicit understanding that all discussions relating thereto are privileged, shall not prejudice the position of any Party or entity that took part in such discussions, and are not to be otherwise used in any manner in connection with these or any other proceedings. The Parties understand and agree that this Agreement establishes no principles or precedents with regard to any issue which is not addressed herein or with regard to any Party's participation in future

relicensing proceedings unrelated to the agreements set forth herein and that none of the Parties to this Agreement will cite this as establishing any principles or precedents except with respect to the matters to which the Parties have herein agreed.

### **1.5 Binding Effect**

This Agreement shall be binding on the Parties and on their successors and assigns.

### **1.6 Multiple Counterparts**

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

## **2.0 BACKGROUND**

Various wholly owned subsidiary companies of ECRE have acquired the ownership interests in several of the hydroelectric generation projects located in the State of New Hampshire which were previously owned or leased by Algonquin Power Systems. These projects are Mine Falls Project (FERC No. 3442) on the Nashua River; Gregg Falls Project (FERC No. 3180) on the Piscataquog River; Webster-Pembroke Project (FERC No. 3185) on the Suncook River; and the Lakeport Project (FERC No. 6440), Lochmere Project (FERC No. 3128) and Stevens Mills Project (FERC No. 3760) (which includes both Stevens Mills and Riverbend facilities projects on the Winnepesaukee River [each a "Project" or "Facility" and collectively "Projects" or "Facilities"]). These purchases were consummated on June 29, 2013. ECRE is also in the process of evaluating the acquisition of the Clement Project (FERC No. 2966), also located on the Winnepesaukee River.

The Projects acquired by ECRE have either a License or an Exemption from Licensing issued by the Federal Energy Regulatory Commission (FERC). Those licenses and exemptions include various requirements for Project operations, including bypass flow releases, and for providing fish passage when needed. The Service has identified fish passage needs at many of the subject projects. In addition, in order to address low impact hydropower certification criteria established by LIHI, ECRE needs to consult with the Service on project operations and flow releases in addition to fish passage.

ECREM is the entity within the Eagle Creek group of companies that manages the operations on behalf of and as agent for various project companies owned by ECRE. Since the acquisition of these assets, ECREM has worked in cooperation with the Service and other agencies to improve fish passage and prevent fish kills at several of its hydro projects in New Hampshire and elsewhere.

ECREM leadership has had a long history of cooperation with the Service and other agencies regarding fish passage and is keenly aware of the benefits provided to the public from such enhancements. ECREM seeks to maintain a cooperative relationship with the Service, and therefore is entering into this Agreement in support of the program goals established by the Service and other resource agencies.

### **3.0 GENERAL AGREEMENTS OF THE PARTIES**

#### **3.1 Reopeners**

The Parties agree that, except as provided herein, this Agreement is not intended to limit or restrict the ability of any Party to petition FERC pursuant to any reopener condition contained in any license, including any exercise by the Secretary of the Department of the Interior relating to her/his fishway prescription authority under §18 of the Federal Power Act. No such petition, including the exercise of §18 authority, may be filed without the filer's providing at least 60 days written notice of its intention to do so to all the other Parties and, promptly following the giving of notice, consulting with the other Parties regarding the need for and the purpose of the petition. In the event such a petition is filed, the filing Party shall include with its filing documentation of its consultation with the other Parties, a summary of their recommendations and of its response to those recommendations. The filing Party shall also serve a copy of its petition to all other Parties.

The Parties agree that nothing in this Agreement is intended to limit or restrict the ability of any Party to seek an amendment to this Agreement during the effective period of the license or as long as an exempted project is operated. Any Party proposing such an amendment to this Agreement shall provide all Parties with at least 60 days written notice of the proposed amendment using updated addresses as needed. If the amendment would require modification of the license or any other permit, the Licensee shall file all applications to amend any license or permits necessary to effectuate the agreed-upon changes, and the other Parties will support such efforts. An amendment to this Agreement shall be effective only upon the written consent of all Parties to this Agreement.

#### **3.2 Compliance with the Endangered Species Act**

As of July 1, 2014, the Service has determined that, based on the information available as of that date, except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under the Service jurisdiction are known to exist in the Projects' impact areas. In addition, no habitat in the Projects' impact areas is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). Therefore, no further

Endangered Species Act coordination or consultation with the Service is required at this time. Should Project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

#### **4.0 ENVIRONMENTAL ENHANCEMENT MEASURES**

##### **4.1 Bypass Flows**

ECREM shall, for the protection and enhancement of fish and aquatic habitat, provide continuous minimum flows to the bypass reaches of each Project as established in consultation with and approved by the Service, in accordance with the schedule in Appendix A. Once the Service has approved these flow regimes and the LIHI has formally approved Eagle Creek's LIHI application for the subject Facilities, ECREM will implement the agreed upon continuous minimum bypass flows. The flow requirements may be modified in the future as appropriate to address the effective operation of upstream fish passage facilities.

##### **4.2 Flow Monitoring**

ECREM shall, within six (6) months from the effective date of the Agreement, prepare and file for approval by the Service, an Operations and Flow Monitoring Plan for monitoring run-of-river operation and bypassed reach flow releases from the Projects. The Plan also should incorporate a description of the refill protocol that will be followed and how run-of-river operation and bypass flow releases will be provided during periods when the head pond is drawn down for dam maintenance. The Plan shall include a description and design of the mechanisms and structures that will be used, including any periodic maintenance and/or calibration necessary to ensure the devices work properly. In addition, a plan for recording data on Project operations to verify proper operations and minimum flow releases, and for maintaining such data for inspection by the Service and other resource agencies, also shall be filed. The operations and flow monitoring plan shall be developed in consultation with, and require approval by the Service.

##### **4.3 Fish Passage**

ECREM agrees to implement the activities related to fish passage at the Projects as described in Appendix A of this Agreement. The implementation of these activities will be performed in accordance with the schedule set forth in Appendix A or as mutually agreed upon between ECREM and the Service.

The proposed enhancements will consist of structural changes to provide for upstream passage at the Mines Falls Project, and exclusion and safe and effective downstream passage of river herring and/or American eel or seasonal Project shutdowns of the Project turbines, combined

with a safe egress route, or potentially a combination of both measures at all Projects. For some of the Projects, the fish passage measures have been agreed to, whereas in others, the passage measures have yet to be proposed by ECREM or reviewed by the Service. For these, Appendix A establishes a process timeline to determine the appropriate passage measures.

For all proposed structural fish passage measures, ECREM shall provide the Service with functional design drawings of proposed facilities for its review and approval.

A. Upstream Passage at Mines Falls

ECREM will develop design plans and a construction schedule for the rehabilitation of and improvements to the Mines Falls fish lift system for Service approval and filing with FERC. Appendix A identifies the schedule for submittal of the plans and a proposed construction completion date. The target construction date is April 1, 2015. However, based on the timing of design plan development, time for review and Service approval, and the complexity and extent of necessary construction, that date may need to be adjusted based on mutual agreement between ECREM and the Service.

B. American Eel Silver Eel Passage

In general, the measures to protect adult silver eels during outmigration are either:

- (1) cessation of Project operation from dusk to dawn from August 15 through November 15, annually. Future refinement of the timing and other conditions (such as flow, weather conditions, etc.) that drive the downstream movement may be made by the Service, with concurrence by ECREM, as information on the behavior of migrants at the Projects is obtained. The nightly protocol at some Projects shall include closing or screening the headgates, as agreed upon with ECREM, to prevent eels from becoming trapped in the forebay. A downstream bypass sluice shall be opened to provide a minimum fish bypass flow (needed flows to be determined for each site); or
- (2) operation of a passage and protection system that meets the following criteria:
  - i. a full depth trashrack/screen system with ¾-inch-clear spacing and a desired approach velocity equal to or less than 1.5 feet per

second,<sup>1</sup> in conjunction with a bypass sluice or lower level gate of sufficient size and passing a sufficient flow (to be determined during the designing of the facilities); and

- ii. the downstream passage and protection system shall be designed in consultation with, and require approval by the Service and filed with FERC. The system shall operate annually from August 15 through November 15. Future refinement of the timing and other conditions (such as flow, weather conditions, etc.) that drive the downstream movement may be made by the Service, with concurrence by ECREM, as information on the behavior of migrants at the Projects is obtained.

C. River Herring Downstream Passage

ECREM shall construct, operate and maintain downstream fish bypass passage facilities for adult and juvenile river herring in all years when river herring have been stocked upstream of the Projects. The downstream fish passage measures for downstream river herring passage may be the same as measures implemented for American eels.

The downstream passage facilities shall consist of measures to protect downstream river herring from impingement and/or entrainment, as well as bypass facilities to assist fish in moving safely past the Projects. Final design and construction of the protection system shall occur in consultation with, and require approval by the Service and shall be filed with FERC.

If the downstream bypass facility is deemed ineffective based on evaluations by the Service and ECREM, ECREM shall be required to submit a proposal for amended designs or other measures for approval by the Service within six (6) months of the effectiveness determination.

D. Interim Passage Measures

In the interim periods between execution of the Agreement and the implementation of measures specified in the Agreement and Appendix A, interim passage measures for river herring and American eel will be implemented at the Projects as specified in Appendix A. Interim measures will consist of nighttime shutdowns on the day of and for three consecutive days after a rain event or river flow increase resultant from Lake Management activities by New Hampshire Department of Environmental Services. Initial operational shutdown periods will be from dusk to dawn during the passage season, but the Service and ECREM will cooperatively

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<sup>1</sup> Site configuration and Project works of individual Projects may preclude the attainment of this criteria. In that event, the Service will consider a variance to this criteria based on review of the overall Project passage plan.

work together to determine the extent of nighttime shutdowns, taking into account downstream migrant needs and Project operations.

#### **4.4 Fish Passage Facilities Operations and Maintenance Plans**

ECREM shall develop and implement a Fish Passage Facilities Operations and Maintenance Plan for each Project with fish passage provisions identified in Appendix A. The plans shall detail how and when the upstream and downstream fishways will be operated and describe routine maintenance activities that will occur both during and outside of the fish passage seasons. The Plan shall be developed in consultation with, and require approval by the Service. The approved Plan shall be in effect prior to the first passage facilities coming on-line, and shall be updated as needed as new passage facilities are placed into service and based on information obtained from operation of the facilities.

#### **4.5 Fish Passage Monitoring and Modifications**

ECREM agrees to cooperate with the Service on the evaluation of the effectiveness of the adopted fish passage measures, and agrees to implement reasonable modifications to the passage facilities and their operation in order to provide for safe, timely and effective passage of diadromous fish.

#### **5.0 SUPPORT OF LIHI CERTIFICATION**

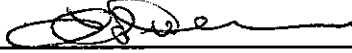
The Service agrees to support ECREM in its efforts to secure certification from LIHI for the Facilities. In the event that LIHI approval is not achieved for a specific site or sites, ECREM will be relieved of the non-fish passage Agreement obligations as they pertain to the specific site or sites. If ECREM fails to implement the provision of continuous bypass flows and/or fish passage enhancements for a specific site or sites to the satisfaction of the Service, the Service will notify ECREM of such failure, and ECREM will have 60 days to resolve the matter to the satisfaction of the Agencies. If the Service then determines that ECREM has not resolved the matter in question, the Service may terminate this Agreement, upon 10 days' notice to ECREM for the site that has failed to meet the approval of the Agencies. Upon such termination, no Party shall have any further obligation to any other Party with respect to the site in question.

The parties hereby indicate their agreement to the terms above:

Eagle Creek RE Management, LLC

United States Fish and Wildlife Service

By: \_\_\_\_\_

By:  \_\_\_\_\_

Title: \_\_\_\_\_

Title: Assistant Field Supervisor

Date: \_\_\_\_\_

Date: 8/14/14