



# **LOW IMPACT HYDROPOWER CERTIFICATION HANDBOOK**

## **2nd Edition**

*Revision 2.06  
March 1, 2025*

© 2016 Low Impact Hydropower Institute. All Rights Reserved.

[www.lowimpacthydro.org](http://www.lowimpacthydro.org)

*(this page blank)*

# TABLE OF CONTENTS

|   |            |
|---|------------|
| <b>LIST OF FIGURES .....</b>  | <b>iv</b>  |
| <b>LIST OF TABLES .....</b>   | <b>iv</b>  |
| <b>DEDICATION.....</b>  | <b>v</b>   |
| <b>ACKNOWLEDGEMENTS.....</b>  | <b>v</b>   |
| <b>REVISION HISTORY .....</b>   | <b>vi</b>  |
| <b>PREFACE.....</b>   | <b>vii</b> |
| <b>1. INTRODUCTION .....</b>  | <b>1</b>   |
| <b>1.1 Purpose of this Handbook .....</b>   | <b>1</b>   |
| <b>1.2 Organization of the Handbook.....</b>  | <b>2</b>   |
| <b>2. ELIGIBILITY REQUIREMENTS .....</b>  | <b>3</b>   |
| <b>2.1 Facilities Eligible for LIHI Certification .....</b>                                     | <b>3</b>   |
| 2.1.1 Existing and New Facilities.....  | 3          |
| 2.1.2 Pre-operational Facilities .....  | 3          |
| <b>2.2 Facilities Not Eligible for LIHI Certification.....</b>                                  | <b>4</b>   |
| <b>3. CERTIFICATION CRITERIA .....</b>  | <b>5</b>   |
| <b>3.1 Structure of Criteria, Goals, and Standards.....</b>                                     | <b>5</b>   |
| <b>3.2 Definition of Criteria, Goals, and Standards.....</b>                                    | <b>6</b>   |
| 3.2.1 Criterion A - Flow Regimes.....   | 7          |
| 3.2.2 Criterion B - Water Quality .....   | 8          |
| 3.2.3 Criterion C - Upstream Fish Passage .....   | 9          |
| 3.2.4 Criterion D - Downstream Fish Passage .....   | 10         |
| 3.2.5 Criterion E - Shorelines and Watershed.....   | 11         |
| 3.2.6 Criterion F - Threatened and Endangered Species .....                                     | 12         |
| 3.2.7 Criterion G - Cultural and Historic Resources .....                                       | 12         |
| 3.2.8 Criterion H – Recreational, Public, and Traditional Cultural Access .....                 | 13         |
| <b>4. APPLICATION PROCESS .....</b>   | <b>15</b>  |
| <b>4.1 Contents of an Application Package .....</b>   | <b>15</b>  |
| Figure 4.1. Generalized Flow Chart of the Primary Steps in the LIHI Certification Process ..... | 16         |
| 4.1.1 Facility Description.....   | 17         |
| Figure 4.2. Conceptual Examples of Zones of Effect for a Typical Hydropower Facility. ....      | 18         |
| Figure 4.3. Conceptual Example of Zones of Effect for a Typical Diversion Project.....          | 19         |
| 4.1.2 Standards Matrix.....   | 20         |
| Figure 4.4. Example of a Completed Standards Matrix for one ZoE .....                           | 20         |
| Figure 4.5. Example of a Completed Standards Matrix for Multiple ZoEs. ....                     | 21         |

|   |           |
|---|-----------|
| Figure 4.6. Example of a Completed Standards Matrix for Multiple ZoEs .....     | 23        |
| 4.1.3 Supporting Information .....  | 25        |
| 4.1.4 Attestation and Waiver of Liability .....                                 | 25        |
| 4.1.5 Contacts Forms .....  | 25        |
| <b>4.2 Processing Steps.....</b>  | <b>25</b> |
| 4.2.1 Pre-Application Consultation .....  | 26        |
| 4.2.2 Intake Review .....   | 26        |
| 4.2.3 Certification Review .....  | 26        |
| 4.2.4 Public Comment Period .....   | 28        |
| 4.2.5 Certification Decision and Announcement .....                             | 28        |
| <b>4.3 Appeals of Certification Decisions .....</b>                             | <b>29</b> |
| 4.3.1 Appeal of Decision Granting Certification.....                            | 29        |
| 4.3.2 Appeal of Decision Denying Certification .....                            | 29        |
| 4.3.3 Appeal of Conditions Placed on a Certificate.....                         | 30        |
| 4.3.4 Appeal Review.....  | 30        |
| <b>4.4 Program Fees .....</b>   | <b>31</b> |
| 4.4.1 Application Review Fees .....   | 31        |
| 4.4.2 Certification Maintenance Fees .....                                      | 32        |
| 4.4.3 Refund Policy .....   | 32        |
| <b>4.5 Special Situations .....</b>   | <b>32</b> |
| 4.5.1 Facilities Undergoing FERC Licensing .....                                | 32        |
| 4.5.2 Multi-Facility Applications.....  | 33        |
| 4.5.3 Pre-operational Applications .....  | 33        |
| 4.5.4 Withdrawal of an Application .....  | 33        |
| <b>5. MARKETING GUIDELINES AND COMPLIANCE .....</b>                             | <b>35</b> |
| <b>5.1 Certification Mark and Marketing Guidelines .....</b>                    | <b>35</b> |
| <b>5.2 Withdrawal of Certification .....</b>                                    | <b>35</b> |
| <b>5.3 Compliance Requirements.....</b>   | <b>36</b> |
| 5.3.1 Notification of Potential Non-Compliance or Changes in the Facility ..... | 36        |
| 5.3.2 Review of Potential Non-Compliance or Changes in the Facility .....       | 36        |
| 5.3.3 Annual Compliance Review.....   | 36        |
| 5.3.4 Mid-Term Reviews .....  | 37        |
| 5.3.5 Consequences of Non-Compliance .....                                      | 39        |
| 5.3.6 Notification of Ownership Changes .....                                   | 39        |
| <b>6. RECERTIFICATION .....</b>   | <b>41</b> |
| <b>6.1 Facilities Undergoing FERC Relicensing.....</b>                          | <b>41</b> |
| <b>6.2 Recertification Process .....</b>  | <b>41</b> |
| <b>6.3 Recertification Decisions and Appeals.....</b>                           | <b>42</b> |
| <b>6.4 Withdrawal of Recertification Application .....</b>                      | <b>43</b> |
| <b>7. LITERATURE CITED .....</b>  | <b>44</b> |
| <b>APPENDIX A - DEFINED TERMS AND ACRONYMS USED.....</b>                        | <b>45</b> |

|   |           |
|---|-----------|
| <b>APPENDIX B - APPLICATION MATERIALS .....</b>   | <b>55</b> |
| <b>General Instructions .....</b>   | <b>55</b> |
| <b>B.1 Facility Information Table.....</b>  | <b>59</b> |
| Table 1.a Facility Information.....   | 59        |
| <b>B.2 Supporting Information.....</b>  | <b>64</b> |
| Table 2.a. Standards Matrix Template for One ZoE. ....  | 64        |
| Table 2.b. Standards Matrix Template for Multiple ZoEs. ....                                      | 65        |
| Table 2.c. Standards Matrix Template for Multiple ZoEs.....                                       | 67        |
| <b>B.2.1 Flow Regime Standards .....</b>  | <b>71</b> |
| Table 3. Flow Regime Standards .....  | 71        |
| <b>B.2.2 Water Quality Standards.....</b>   | <b>73</b> |
| Table 4. Water Quality Standards .....  | 73        |
| <b>B.2.3 Upstream Fish Passage Standards.....</b>   | <b>75</b> |
| Table 5. Upstream Fish Passage Standards .....  | 75        |
| <b>B.2.4 Downstream Fish Passage Standards.....</b>   | <b>77</b> |
| Table 6. Downstream Fish Passage Standards .....  | 77        |
| <b>B.2.5 Shorelines and Watershed Standards .....</b>   | <b>79</b> |
| Table 7. Shorelines and Watershed Standards .....   | 79        |
| <b>B.2.6 Threatened and Endangered Species Standards .....</b>                                    | <b>81</b> |
| Table 8. Threatened and Endangered Species Standards .....  | 81        |
| <b>B.2.7 Cultural and Historic Resources Standards .....</b>                                      | <b>83</b> |
| Table 9. Cultural and Historic Resources Standards.....   | 83        |
| <b>B.2.8 Recreational, Public, and Traditional Cultural Access Standards .....</b>                | <b>85</b> |
| Table 10. Recreation, Public, and Traditional Cultural Access Standards .....                     | 85        |
| <b>B.3 Attestation and Waiver Form .....</b>  | <b>87</b> |
| <b>B.4 Contacts Forms .....</b>   | <b>88</b> |
| Table 11. Applicant-related contacts .....  | 88        |
| Table 12. Federal, state, and local resource agency contacts with knowledge of the facility... .. | 89        |
| Table 13. Tribal government and tribal agency contacts.....                                       | 90        |
| Table 14. Currently engaged external interested party contacts.....                               | 91        |
| <b>APPENDIX C - FEE SCHEDULE.....</b>   | <b>93</b> |
| Table C-1. Program Fee Schedule.....  | 93        |
| <b>C.1 Application Review Fees.....</b>   | <b>94</b> |
| C.1.1 Intake Review Fee .....   | 94        |
| C.1.2 Application Review Fee .....  | 94        |
| <b>C.2 Certification Maintenance Fees .....</b>   | <b>95</b> |
| C.2.1 Annual Certificate Fees .....   | 95        |
| C.2.2 Active Condition Fees.....  | 96        |
| <b>C.3 Recertification Application and Mid-Term Review Fees .....</b>                             | <b>96</b> |
| <b>C.4 Reduced Fees for Very Low Impact Facilities .....</b>                                      | <b>96</b> |
| <b>C.5 Refund Policy.....</b>   | <b>96</b> |

## LIST OF FIGURES

|  |    |
|--|----|
| Figure 4.1. Generalized Flow Chart of the Primary Steps in the LIHI Certification Process..... | 16 |
| Figure 4.2. Conceptual Examples of Zones of Effect for a Typical Hydropower Facility.....      | 18 |
| Figure 4.3. Conceptual Example of Zones of Effect for a Typical Diversion Project.....         | 19 |
| Figure 4.4. Example of a Completed Standards Matrix for one ZoE .....                          | 20 |
| Figure 4.5. Example of a Completed Standards Matrix for Multiple ZoEs.....                     | 21 |
| Figure 4.6. Example of a Completed Standards Matrix for Multiple ZoEs.....                     | 23 |

## LIST OF TABLES

|   |    |
|---|----|
| Table 1.a Facility Information. ....  | 59 |
| Table 2.a. Standards Matrix Template for One ZoE.....   | 64 |
| Table 2.b. Standards Matrix Template for Multiple ZoEs. ....                                      | 65 |
| Table 2.c. Standards Matrix Template for Multiple ZoEs.....                                       | 67 |
| Table 3. Flow Regime Standards.....   | 71 |
| Table 4. Water Quality Standards.....   | 73 |
| Table 5. Upstream Fish Passage Standards .....  | 75 |
| Table 6. Downstream Fish Passage Standards .....  | 77 |
| Table 7. Shorelines and Watershed Standards.....  | 79 |
| Table 8. Threatened and Endangered Species Standards .....  | 81 |
| Table 9. Cultural and Historic Resources Standards .....  | 83 |
| Table 10. Recreation, Public, and Traditional Cultural Access Standards .....                     | 85 |
| Table 11. Applicant-related contacts .....  | 88 |
| Table 12. Federal, state, and local resource agency contacts with knowledge of the facility. .... | 89 |
| Table 13. Tribal government and tribal agency contacts. ....                                      | 90 |
| Table 14. Currently engaged external interested party contacts. ....                              | 91 |
| Table C-1. Program Fee Schedule .....   | 93 |

## DEDICATION

This 2<sup>nd</sup> Edition of the LIHI Certification Handbook is dedicated to Julie Keil, who gave us her inspirational leadership for too short a time. To learn more about Julie's life and the Julie A. Keil Women in Hydro Scholarship Fund established in her honor, please visit <http://lowimpacthydro.org/julie-keil-scholarship-fund/>

## ACKNOWLEDGEMENTS

This 2<sup>nd</sup> Edition of the LIHI Certification Handbook was produced by Governing Board members, staff, and consultants to the Low Impact Hydropower Institute. The primary authors are Dr. Michael J. Sale, Executive Director; Ms. Dana Hall, Deputy Director; and Ms. Julie Keil, past LIHI Chair. Julie Keil and John Seebach were major contributors during the development of the revised criteria that are the core of this new Handbook. LIHI's Technical Committee (Kenneth Kimball, Tara Moberg, Glenn Cada, Shawn Seaman, and Elizabeth Ablow) provided critical guidance and review in the production stages of the Handbook. Executive management oversight was provided by a succession of Chairs of the LIHI Governing Board: Richard Roos Collins, Julie Keil, and John Seebach.

The final product benefited significantly from peer reviews from Jeffrey Cueto, Peter Drown, Gary Franc, Pat McIlvaine, Stephen Hickey, and Thomas Mark. Two members of LIHI's Industry Advisory Panel also provided peer review comments on an earlier draft of the Handbook.

This Handbook is reviewed annually in accordance with LIHI's bylaws. Subsequent revisions to this 2<sup>nd</sup> Edition since 2016 have benefited greatly from the suggestions of former and current members of the LIHI Governing Board, the Board's Technical Committee, LIHI's advisory panel, application reviewers, staff, applicants, and other interested parties. LIHI is grateful for the ongoing support and interest of all parties in continually improving the LIHI Certification Program.

***Recommended Reference:*** M.J. Sale, D. Hall, and J. Keil, 2016. *Low Impact Hydropower Institute Certification Handbook, 2<sup>nd</sup> Edition.* Low Impact Hydropower Institute, Lexington, MA.

## REVISION HISTORY

| <b><i>2<sup>nd</sup> Edition LIHI Handbook</i></b> | <b><i>Revision Date</i></b> |
|--|-----------------------------|
| Initial Issuance                                   | March 7, 2016               |
| Revision 2.01                                      | May 4, 2016                 |
| Revision 2.02                                      | July 7, 2016                |
| Revision 2.03                                      | December 20, 2018           |
| Revision 2.04                                      | April 1, 2020               |
| Revision 2.05                                      | January 1, 2022             |
| Revision 2.06                                      | March 1, 2025               |
|  |                             |
|  |                             |
|  |                             |
|  |                             |



## PREFACE

The Low Impact Hydropower Institute (LIHI) Certification Program requirements are determined by LIHI's Governing Board. LIHI reserves the right to modify the Certification criteria and other program elements as needed with reasonable notice to Certificate holders.

The 2<sup>nd</sup> Edition Handbook was first issued in 2016 and was the first major revision of the LIHI Certification Handbook since program inception.

The significant differences in the 2<sup>nd</sup> Edition Handbook are an expanded list of alternative standards by which each criterion can be satisfied, a new emphasis on the need for a scientific basis for agency recommendations and mitigation, and in new opportunities for longer terms of LIHI Certificates. These changes were responsive to feedback received from a wide range of interested parties during the development of the 2<sup>nd</sup> Edition Handbook. Additional information about the programmatic changes embodied in the 2<sup>nd</sup> Edition Handbook and its effects can be found in the [LIHI 20-Year Review Report](#).

Other non-programmatic changes are considered from time to time as part of annual reviews of the Handbook and are incorporated into subsequent revisions of the 2<sup>nd</sup> Edition Handbook.

This revision, 2.06, is the most current revision to the Handbook and is published on the LIHI website. In addition to minor editorial changes the key changes are:

- Additional defined terms including those related to indigenous knowledge, Tribal Nations, and various tribal interests and resources ([Appendix A](#))
- Modified and expanded the use and treatment of “science-based” and “indigenous knowledge based” information; and “resource agency and tribal government recommendations” ([Appendix A](#))
- Expanded and clarified the scope of tribal considerations, interests, and engagement (entire Handbook)
- Simplified criterion names (entire Handbook)
- Clarified eligibility language in cases where a dam has been recommended for removal or decommissioning ([Section 2.1.1](#), [Section 2.2](#))
- Clarified that a facility must satisfy both a numbered standard and the criterion goal in each Zone of Effect ([Section 3.1](#), [Section 3.2](#), [Appendix B](#)).
- Expanded measures eligible for PLUS consideration (Standard E-4) for the Shorelines and Watershed criterion ([Section 3.2.5](#), [Appendix B Table 7](#))
- Clarified that impoundments not owned or controlled by the applicant must still be included in the application as a Zone of Effect ([Section 4.1.1](#), [Appendix A](#), [Appendix B](#))
- Clarified LIHI fees for special circumstances ([Section 4.5](#), [Section 6.4](#))

*(this page blank)*

# 1. INTRODUCTION

The Low Impact Hydropower Institute (LIHI) is a nationally recognized, independent, 501(c)(3) nonprofit organization that sets criteria for characterizing hydropower facilities as being “Low Impact,” and operates a program (the “Certification Program”) to certify hydro facilities that meet these criteria as “LIHI Certified®.” LIHI’s Certification Program helps reduce the environmental and social impacts of hydropower generation by creating a credible and accepted standard for electricity consumers to use in evaluating sources of hydropower. Through the operation of the Certification Program, LIHI certifies hydropower facilities that demonstrate a commitment to minimize the impacts of their operations as compared to other hydropower facilities based on objective criteria.

***Our Vision:** We envision a world where hydropower puts people and the environment first.*

***Our Mission:** We recognize and support hydropower that prioritizes environmental, recreational, historical, and cultural resource protection.*

*We do this by defining and certifying Low Impact Hydropower using rigorous science-based criteria and public input; providing education and outreach; and structuring our organization to integrate and evolve with community, conservation, and hydropower interests.*

LIHI Certificates help define a hydropower facility’s eligibility in renewable energy markets. Certificates also provide positive recognition and economic reinforcement to hydropower owners who take steps to improve their facilities and invest in the local environment. A LIHI Certified® hydropower facility is one that is sited, designed, and operated in a manner that actively addresses its impacts on environmental and social resources. LIHI has been in operation since 2000, during which time it has certified nearly 300 individual hydropower facilities in 23 states. The founding of LIHI is described by [Grimm \(2002\)](#). A description of the governance of LIHI and other information about the organization can be found on the [LIHI website](#).

## 1.1 Purpose of this Handbook

This 2<sup>nd</sup> Edition Handbook is written for applicants for LIHI Certification and recertification, and others who want to understand how the Certification Program works. The Handbook describes the current process used by LIHI to certify hydropower facilities as “Low Impact.” It also provides guidance on how to apply for LIHI Certification.

To be recognized as Low Impact Certified, a hydropower facility must pass LIHI’s eligibility requirements and then satisfy eight criteria associated with environmental and social resources. A facility that satisfies program criteria will become a Low Impact Certified hydropower facility and will be offered a limited-time license to use the LIHI Certification mark according to LIHI’s terms and conditions which will enable the marketing of the facility’s energy output as “LIHI Certified®” to consumers and purchasers.

## 1.2 Organization of the Handbook

This Handbook is organized into five main sections:

[Section 2](#) -- LIHI Eligibility Requirements

[Section 3](#) -- LIHI Certification Criteria

[Section 4](#) -- Application Process

[Section 5](#) -- Certification Marketing Guidelines and Compliance

[Section 6](#) -- Recertification

Additional technical information is provided in the appendices which may be subject to more frequent updates than the main body of the Handbook.

[Appendix A](#) provides a comprehensive list of the definitions of terms and acronyms, as they are used in this Handbook. Throughout the Handbook, key terms that require definition and further explanation found in Appendix A are highlighted by underlining in the first instance of the term in a Major Section and/or subsection if additional clarity is needed. Applicants must familiarize themselves with all terms and acronyms in Appendix A while developing an application.

[Appendix B](#) provides instructions and a detailed explanation of necessary application materials, including supporting information that demonstrates compliance with the LIHI standards and criteria (current application tables and forms can be found on the "[How to Apply](#)" webpage). Applicants must follow the instructions in developing an application.

[Appendix C](#) contains the LIHI Fee Schedule, current at the time of Handbook publication. The most current Fee Schedule is published on the [LIHI Fee Structure](#) webpage.

## 2. ELIGIBILITY REQUIREMENTS

LIHI Certification is limited to certain types of hydropower facilities located in the United States. The following sections describe the current eligibility requirements for LIHI Certification.

### 2.1 Facilities Eligible for LIHI Certification

In general, conventional hydropower facilities located within the United States are eligible to apply for LIHI Certification if the facility did not involve construction of new dams or diversions after August 1998. Facilities that do not involve a dam or diversion are not subject to the August 1998 construction date limitation.

#### 2.1.1 Existing and New Facilities

“Existing” hydropower facilities located at existing dams or diversions that were generating electricity as of August 1998 are eligible to apply for LIHI Certification. “New” hydropower facilities that added a new powerhouse at a previously non-powered dam or that increased power generation capacity after August 1998 are also eligible for LIHI Certification, if the dam or diversion structure associated with the facility was in existence in August 1998.

Eligible “new” hydropower facilities at existing dams or diversions include those that have added generating equipment, made efficiency upgrades to existing equipment, or otherwise increased generation, provided that the added or increased generating capacity meets the following requirements:

- New capacity was created by modifications or additions to the existing facility (e.g., modifications or additions to the existing dam, intake structure, or powerhouse) and did not include any new dam or other diversion structure;
- New capacity did not result in a change in water flow through the facility that worsened conditions for resources assessed by LIHI criteria (for example, operations did not change from run-of-river to peaking); and
- New capacity did not occur at an existing dam that had been formally recommended for removal or decommissioning by jurisdictional resource agencies and/or federal or state-recognized Tribal Nations may be ineligible for new or continued LIHI certification. “Resource agency and tribal government recommendations” must comply with the requirements that are defined in [Appendix A](#) for that term. If such a recommendation has been made, the LIHI Governing Board’s Technical Committee will review the recommendation and make an eligibility determination.

Hydropower facilities at dams or diversions that have been reconstructed at the site of a previously existing dam may also be considered for Certification on a case-by-case basis.

#### 2.1.2 Pre-operational Facilities

“New” hydropower facilities that are not generating electricity at the time of their LIHI Certification application may be eligible for consideration, provided that the Federal Energy Regulatory Commission

(FERC) license or exemption, or similar authorization addressing environmental and social impacts, has been issued and that there are no pending appeals or litigation associated with that authorization. In such cases, the applicant must acknowledge that LIHI may modify, suspend, or revoke the Certification should the impacts of the facility, once operational, cause non-compliance with the certification criteria. For pre-operational certification, the LIHI Certification term will begin when the new facility begins generation; however annual compliance statements and related condition fees, if applicable, will be required during all years prior to commencement of operations as well as thereafter. Applicants may be charged a fee premium for pre-operational Certification (see [Appendix C](#)).

## **2.2 Facilities Not Eligible for LIHI Certification**

The following types of hydropower facilities are not currently eligible for LIHI Certification:

- Facilities associated with dams that have been formally recommended for removal or decommissioning by jurisdictional resource agencies and/or federal or state-recognized Tribal Nations may be ineligible for new or continued LIHI certification. “Resource agency and tribal government recommendations” must comply with the requirements that are defined in Appendix A for that term. If such a recommendation has been made, the LIHI Governing Board’s Technical Committee will review the recommendation and make an eligibility determination;
- Hydropower facilities that are located at a dam or diversion constructed after August 1998 or that would require construction of a new dam or diversion that does not currently exist;
- Pumped storage hydropower facilities;
- Hydropower facilities located outside of the United States; and
- Facilities located in marine environments or using hydrokinetic hydropower technologies.

## 3. CERTIFICATION CRITERIA

Applications for LIHI Certification are evaluated using a consistent, hierarchical set of criteria, goals, and standards. There are eight criteria and supporting goal statements, all of which must be met for a hydropower facility to qualify as Low Impact Certified:

1. Flow Regimes
2. Water Quality
3. Upstream Fish Passage
4. Downstream Fish Passage
5. Shorelines and Watershed
6. Threatened and Endangered Species
7. Cultural and Historic Resources
8. Recreation

All eight criteria and their respective goals must be satisfied, but alternative standards within each criterion are designed to be flexible enough to apply to the wide range of conditions that occur in river systems and at hydropower facilities. If any of the eight criteria are not satisfied, the facility cannot be granted LIHI Certification. In addition, the facility must demonstrate compliance, or actions to regain compliance, with its current regulatory requirements and formal commitments related to the LIHI criteria.

### 3.1 Structure of Criteria, Goals, and Standards

Each criterion has a goal statement that defines the purpose or objective that must be achieved. For each criterion and supporting goal statement, a set of alternative standards provides options for satisfying the criterion goal. The order of the alternative standards is consistent for all criteria, although the standards themselves are specific to each criterion.

The numbering and order of alternative standards is important. An applicant should attempt to satisfy a lower numbered standard before applying a higher numbered standard. Applying a higher numbered standard implies that the lower numbered standard is not possible or appropriate. Applicants should consult with LIHI staff early in the application process to determine which standards are most appropriate (see [Section 4.1](#)).

The first alternative standard for each criterion, Standard 1, is a “Not Applicable or De Minimis Effect” standard that recognizes that some facilities either do not impact a given LIHI criterion or have impacts so minimal that they would be difficult to quantify. This standard provides a streamlined way to satisfy a particular criterion where circumstances justify it. Facilities that satisfy Standard 1 for all eight criteria will be designated as Very Low Impact (VLI) facilities and rewarded in the form of a longer term (15-year) LIHI Certificate and reduced certification review and annual fees (see [Section 4.4](#) and [Appendix C](#)).

For all criteria except Threatened and Endangered Species and Cultural and Historic Resources, Standard 2 - Resource Agency and Tribal Government Recommendation requires meeting the most stringent, science-based recommendation(s) of the relevant local, state, and federal agencies whose mandates are

to protect the resources the criteria are designed to evaluate; and, if applicable, the science-based or indigenous knowledge-based recommendation(s) of Tribal Nations. To use this standard, the application must include specific descriptions of the methods, procedures, and/or studies that were used by resource agencies to develop their recommendations; and must submit sufficient information about the indigenous knowledge or scientific/technical basis provided by Tribal Nations to demonstrate that the recommendations are well-grounded. The applicant, resource agencies, and/or Tribal Nations should request that specific information remain confidential if needed. In that case, the information will be secured with access limited to LIHI staff, the application reviewer, and in some cases, the Technical Committee of the LIHI Governing Board, in accordance with LIHI's written information security program. At a Tribe's request, LIHI can provide confidential third-party tribal reviews of culturally sensitive or privileged Tribal information.

In circumstances where there are no such resource agency or tribal government recommendations, the applicant can use a higher numbered standard to satisfy the criterion.

In addition to the alternative standards, each criterion also includes an optional "PLUS" standard, which allows an extension of the LIHI Certificate term if the applicant can demonstrate significant additional effort to implement environmental and social mitigation, enhancement, and/or restoration measures that exceed the requirements of the numbered standards. Some examples include implementing advanced technologies, science-based or knowledge-based adaptive management measures, basin-scale redevelopment strategies, supporting a watershed enhancement fund (see [Appendix A](#) for definitions of these terms), or other meaningful voluntary measures that result in demonstrable improvements. In all cases, a numbered standard must be satisfied first for each criterion.

A facility will earn an additional three years of LIHI Certification for the first PLUS standard that is satisfied, and another two years for additional PLUS standards satisfied, up to a maximum of five years added onto the base term. An applicant should discuss application for PLUS standards with LIHI staff during the intake review. Acceptance of PLUS standards is made at the discretion of the LIHI Governing Board, or as applicable under Delegated Authority, to the Technical Committee or to the Executive Director.

### **3.2 Definition of Criteria, Goals, and Standards**

The alternative standards available for satisfying the criterion goals differ by criterion, as described below. The applicant is responsible for identifying which standard best applies to their facility in each criterion and each Zone of Effect (a specific waterbody or river segment, adjacent riparian lands, and other lands under the applicant's direct or indirect control, see [Section 4.1.1](#) and [Appendix A](#) for further information). The applicant must document the basis upon which the standard applies, and explain how the facility satisfies that standard, not just that it does satisfy the standard. The specific information required to justify use of each standard is explained in more detail in [Appendix B](#).

The application must also clearly explain how the goals of each criterion are satisfied everywhere that they are affected by facility operations, even though different standards may apply in different Zones of Effect.



### 3.2.1 Criterion A - Flow Regimes

**Goal:** The flow regimes in riverine reaches affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.

**Introduction to Standards:** The applicant shall define all river reaches where stream flows are altered by the facility - for example, impoundments, the tailwater/downstream reach below a powerhouse, bypassed reaches between a dam and tailrace confluence, and in riverine reaches immediately above the facility where flows are linked to facility operation such as in regulated upstream reaches subject to enforceable agreements with upstream facilities (see [Section 4.1.1](#) and [Figure 4.2](#)).

**In all locations, the applicant must demonstrate appropriate flow management by applying a science-based or indigenous knowledge-based approach that supports fish and wildlife resources by considering factors such as base flows, inflow, daily, seasonal, and inter-annual variability, high-flow pulses, and ramping rates.**

This criterion is related to riverine flows, therefore many impoundment Zones of Effect may be able to use Standard A-1, Not Applicable or De Minimis Effect, but refer to [Table 3](#) in [Appendix B](#) for required additional information needed to support that standard. In addition, to pass the Flow Regimes criterion, the applicant must demonstrate compliance with one of the following standards (Standards A-1 through A-4):

- **STANDARD A-1. Not Applicable/De Minimis Effect:** The facility operates in a true run-of-river operational mode and there are no bypassed reaches or water diversions associated with the applicable Zone of Effect, or the facility is located within an existing water conduit that does not discharge into natural waterways; or
- **STANDARD A-2. Resource Agency and Tribal Government Recommendations:** The flow regime was developed and is being implemented in accordance with science-based resource agency and, if applicable, science-based or indigenous knowledge-based tribal government recommendations; or
- **STANDARD A-3. Limited Storage:** In the absence of resource agency or tribal government recommendations for facilities with limited storage capacity, the flow regime complies with a well-documented, regionally accepted instream flow policy or methodology (sometimes referred to as a standard-setting or desktop technique); or
- **STANDARD A-4. Site-Specific Studies:** In the absence of resource agency or tribal government recommendations, the flow regime was developed on a site-specific basis, using a well-documented science-based or knowledge-based habitat evaluation technique or a flow-ecology model.
- **STANDARD A-PLUS:** In addition to satisfying one of the numbered standards above, the facility is operating an adaptive management program to regularly evaluate and adjust facility operations with respect to flows and habitat conditions; or has implemented significant, non-flow habitat enhancements (for example, structural improvements leading to river restoration) with demonstrated net benefits to fish and wildlife resources affected by the facility in the applicable Zone of Effect.

### 3.2.2 Criterion B - Water Quality

**Goal:** Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.

**Introduction to Standards:** The applicant shall define all waterbodies and reaches where water quality is directly affected by the facility, including those affected areas outside the facility boundary. The applicant must demonstrate compliance for each of these waterbodies with the appropriate jurisdictional resource agency and Tribal Nation's water quality standards.

In all cases, if any waterbody directly affected by the facility in the applicable Zone of Effect has been defined as being water quality limited (for example, included on a list of impaired waters that do not fully support designated uses), the applicant must demonstrate that the facility has not contributed to the impairment in that waterbody, or that action is being taken to minimize facility impacts on water quality. In addition, to pass the water quality criterion, the applicant must demonstrate compliance with one of the following standards (B-1 through B-3):

- **STANDARD B-1. Not Applicable/De Minimis Effect:** The facility does not alter the physical, chemical, or biotic water characteristics necessary to support fish and wildlife resources or human water uses (e.g., water supply or recreation) in the applicable Zone of Effect; or
- **STANDARD B-2. Resource Agency and Tribal Government Recommendations:** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or in compliance with facility-specific science-based resource agency and, if applicable, science-based or indigenous knowledge-based tribal government recommendations, that provide reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses, and recreation; or
- **STANDARD B-3. Site-Specific Studies:** In the absence of resource agency or tribal government recommendations that are specific to the facility, the facility owner demonstrates with monitoring data that the facility in the applicable Zone of Effect is in compliance with the quantitative water quality standards established by the state, Tribal Nation, or other regulatory body to support designated uses pursuant to the federal Clean Water Act or other applicable statute in the facility area and in the downstream reach.
- **STANDARD B-PLUS:** In addition to satisfying one of the numbered standards above, the facility has deployed advanced technology to enhance ambient water quality; or is operating an adaptive management program to regularly evaluate and adjust facility operations with respect to enhancing water quality.

### 3.2.3 Criterion C - Upstream Fish Passage

**Goal:** The facility allows for the safe, timely, and effective upstream passage of migratory fish to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.

**Introduction to Standards:** The applicant shall list all migratory fish species (anadromous, catadromous, and potamodromous species) that are present or historically occurred at the facility. To pass the upstream fish passage criterion, the applicant must demonstrate that upstream passage provisions are sufficient to support healthy populations of migratory species through compliance with one of the following standards (C-1 through C-4). Note that impoundments typically qualify for Standard C-1 unless there are additional facility-related barriers to upstream passage once fish have passed the dam.

- **STANDARD C-1. Not Applicable/De Minimis Effect:** The applicable Zone of Effect does not create a barrier to upstream passage, or there are no migratory fish in the vicinity of the facility. If such species were present historically, the facility did not contribute to the extirpation of such species; or
- **STANDARD C-2. Resource Agency and Tribal Government Recommendations:** The facility is in compliance with science-based resource agency and, if applicable, science-based or indigenous knowledge-based tribal government recommendations, for the applicable Zone of Effect and which may include provisions for appropriate monitoring and effectiveness determinations; or
- **STANDARD C-3. Best Practice/Best Available Technology:** In the absence of resource agency or tribal government recommendations, the facility in the applicable Zone of Effect includes well-designed, well-operated upstream fish passage methods or technologies that are appropriate for the species that occur in the area affected by the facility. These methods should enable safe, timely and effective passage at all barriers associated with the facility and should include provisions for appropriate monitoring and effectiveness determinations; or
- **STANDARD C-4. Acceptable Mitigation:** In the absence of resource agency or tribal government recommendations, and in lieu of upstream passage provisions at the facility, the facility employs approved alternative fish passage mitigation measures that support the species affected by the facility in the applicable Zone of Effect. These measures could be in-kind or out-of-kind mitigation. In all cases, resource agencies and Tribal Nations must approve the measures and must have determined that the total benefits provided by them equal or exceed the benefits of providing upstream passage provisions at the facility, measured in terms of such things as reproductive success (for example, numbers of fish produced) or area of suitable fish habitat provided.
- **STANDARD C-PLUS:** In addition to satisfying one of the numbered standards above, the facility has deployed an advanced technology, the primary purpose of which is to increase upstream passage; or is part of a basin-scale redevelopment strategy; or is operating an adaptive management program to regularly evaluate the effectiveness of the measures implemented. The program should include monitoring of the overall passage effectiveness and correction of deficiencies in effectiveness.

### 3.2.4 Criterion D - Downstream Fish Passage

**Goal:** The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, including resident potamodromous fish, the facility minimizes loss of fish from impoundments and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.

**Introduction to Standards:** The applicant shall list all fish species (riverine, anadromous, catadromous, and potamodromous) that occur now or have occurred historically in the area affected by the facility. To pass the downstream fish passage criterion, the applicant must demonstrate compliance with one of the following standards (D-1 through D-4). Note that the downstream reach (but not a bypassed reach) typically qualifies for Standard D-1 unless there are additional facility-related barriers to downstream passage once fish have passed below the dam and/or bypassed reach.

- **STANDARD D-1. Not Applicable/De Minimis Effect:** The applicable Zone of Effect does not create a barrier to downstream passage, or there are no fish present at the facility that require downstream passage to complete their life cycle. If such species were present historically, the facility did not contribute to the extirpation of them and the facility does not contribute adversely to riverine fish populations or to their access to habitat necessary for the completion of their life cycles, or
- **STANDARD D-2. Resource Agency and Tribal Government Recommendations:** The facility is in compliance with science-based resource agency and, if applicable, science-based or indigenous knowledge-based tribal government recommendations for downstream fish passage and/or fish protection in the applicable Zone of Effect and which may include provisions for appropriate monitoring and effectiveness determinations; or
- **STANDARD D-3. Best Practice/Best Available Technology:** In the absence of resource agency or tribal government recommendations for downstream fish passage or protection, the facility in the applicable Zone of Effect includes well-designed, well-operated downstream fish passage methods or technologies that are appropriate for the species that occur in the area affected by the facility, and technologies that minimize fish injury and mortality. These methods should enable safe, timely and effective passage at all barriers associated with the facility and should include provisions for appropriate monitoring and effectiveness determinations; or
- **STANDARD D-4. Acceptable Mitigation:** In the absence of resource agency or tribal government recommendations for downstream fish passage and in lieu of downstream passage and/or protection provisions at the facility, the facility employs approved alternative fish passage mitigation measures that support migratory and native non-migratory fish species affected by the facility in the applicable Zone of Effect. These measures might include in-kind or out-of-kind mitigation. In all cases, resource agencies and Tribal Nations must approve the measures and must have determined that the total benefits provided by them are likely to equal or exceed the benefits of installing and operating downstream passage and/or protection provisions, measured in terms of such things as reproductive success (for example numbers of fish produced) or areas of suitable fish habitat provided.

- **STANDARD D-PLUS:** In addition to satisfying one of the numbered standards above, the facility has deployed an advanced technology, the primary purpose of which is to increase downstream passage; or is part of a basin-scale redevelopment strategy; or is operating an adaptive management program to regularly evaluate the effectiveness of the measures implemented. The program should include monitoring of the overall passage effectiveness and correction of deficiencies in effectiveness.

### 3.2.5 Criterion E - Shorelines and Watershed

**Goal:** The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation, and ecosystem functions on shoreline and watershed lands associated with the facility.

**Introduction to Standards:** To pass the shorelines and watershed criterion, the applicant must demonstrate compliance with one of the following standards (E-1 through E-3):

- **STANDARD E-1. Not Applicable/De Minimis Effect:** There are no lands associated with the facility in the applicable Zone of Effect that are under the direct or indirect ownership or control of the facility owner and have been identified as having significant ecological value for protecting water quality, sensitive species or habitats, aesthetics, or low-impact recreation, and the facility is not subject to any Shoreline Management Plan or similar protection plan; or
- **STANDARD E-2. Resource Agency and Tribal Government Recommendations:** The facility is in compliance with all local, state and federal resource agency and, if applicable, tribal government recommendations in a license, exemption, water quality certificate, or other authorization, such as an approved Shoreline Management Plan or the equivalent for the protection, mitigation or enhancement of shoreline surrounding the facility; or
- **STANDARD E-3. Enforceable Protection:** The applicant demonstrates that, on lands abutting facility waters under its direct or indirect ownership or control in the applicable Zone of Effect, there is an approved and legally enforceable shoreline buffer or equivalent watershed protection plan (including enforceable local, state, federal, or tribal restrictions) for conservation purposes to protect water quality, sensitive species or habitats, aesthetics, or low-impact recreation. In the absence of an existing land protection plan, the applicant formally commits as a condition of its LIHI Certification to protect and not develop such properties for the term of its LIHI Certificate.
- **STANDARD E-PLUS:** In addition to satisfying one of the numbered standards above and to the extent the facility owner has direct or indirect ownership or control over lands surrounding the facility and its riverine zones, the facility has an approved and legally enforceable site-specific shoreline buffer or equivalent watershed land protection plan in which the buffer zone is dedicated for conservation purposes and vegetated similarly to adjacent natural lands. The buffer zone must include at least 50% of the undeveloped shoreline around the impoundment, or the equivalent of the impoundment shoreline along the facility's riverine zones, or a combination of both. Alternatively, the applicant has established a perpetual conservation easement on facility lands or has established a watershed enhancement fund with ongoing funding for land management within the facility's watershed in the applicable Zone of Effect that is designed to achieve the ecological

and recreational equivalent of land protection that would have been achieved by dedicating an ecologically effective buffer zone around more than 50% the impoundment and/or river corridors.

### **3.2.6 Criterion F - Threatened and Endangered Species**

**Goal:** The facility does not negatively impact federal or state listed species, or tribal trust species.

**Introduction to Standards:** To pass the threatened and endangered species criterion, the applicant must demonstrate compliance with one of the following standards (F-1 through F-4). Facilities shall not have caused or contributed in a demonstrable way to the extirpation of listed or tribal trust species. However, a facility that is making significant efforts to reintroduce an extirpated species may still pass this criterion.

- **STANDARD F-1. Not Applicable/De Minimis Effect:** There are no listed or tribal trust species documented to be present in the vicinity of the applicable Zone of Effect, and the facility was not responsible for the extirpation of such species that historically were present; or
- **STANDARD F-2. Finding of No Negative Effect:** Listed or tribal trust species are or may be present in the applicable Zone of Effect, but the facility has been found by the appropriate resource agencies and Tribal Nations to have no negative effect on them; or habitat for the species does not exist within the facility's affected area or is not impacted by facility operations; or
- **STANDARD F-3. Recovery Planning and Action.** The facility is in compliance with relevant conditions in a species recovery plan, a habitat conservation plan, conservation recommendations in a biological opinion, or in similar local, state, federal, or tribal documents that are designed to be a long-term solution for protection of the listed species; or
- **STANDARD F-4. Acceptable Mitigation:** If a proposed or newly listed federal, state, or tribal trust species or other rare or special status species has been determined to be present by an appropriate resource agency or Tribal Nation subsequent to the establishment of environmental requirements at the facility, and no recovery plan relevant to the facility exists, the facility is implementing significant resource agency and Tribal government recommended measures to avoid or minimize the facility-related impact on the species in the applicable Zone of Effect.
- **STANDARD F- PLUS:** In addition to satisfying one of the numbered standards above, the applicant has established a formal agreement with applicable resource agencies or Tribal Nations to operate the facility in support of unlisted but rare or special status species; is implementing proactive measures to substantively minimize impacts to at-risk species; or is a significant participant in a species recovery effort in the applicable Zone of Effect.

### **3.2.7 Criterion G - Cultural and Historic Resources**

**Goal:** The facility does not adversely impact cultural or historic resources associated with the facility's lands and waters, including archaeological sites, historic era sites, traditional cultural landscapes, traditional cultural properties, and other tribal trust resources.

**Introduction to Standards:** To pass the cultural and historic resources criterion, the applicant must demonstrate compliance with either the G-1 or G-2 standard:

- **STANDARD G-1. Not Applicable/De Minimis Effect:** There are no archaeological sites, historic traditional cultural landscapes, traditional cultural properties, tribal trust resources, or other historic properties or cultural or historic resources present on facility lands or within waters in the applicable Zone of Effect that can be potentially threatened by construction or operation of the facility, or facility operations have been shown to not adversely affect those that are or were historically present; or
- **STANDARD G-2. Approved Plan:** The facility is in compliance with approved local, state, federal, and recognized tribal historic preservation mandates as well as recognized tribal plans for protection, enhancement, or mitigation of impacts to tribal, cultural or historic resources affected by the facility.
- **STANDARD G-PLUS:** In addition to satisfying one of the numbered standards above, the applicant has made a substantial commitment to restoring one or more significant archaeological sites, traditional cultural properties, traditional cultural landscapes, tribal trust resources, or other historic properties or cultural or historical resources in the vicinity beyond what is required in existing plans (e.g., Historic Properties Management Plan, Cultural Resources Management Plan); or the applicant is collaborating with applicable Tribal Nations to develop and implement a comprehensive plan if none exists; or the facility owner has created a significant new educational opportunity about archaeological, traditional, cultural, or historical resources in the area, and formally commits as a condition of its LIHI Certification that this opportunity will exist for the for the term of its LIHI Certificate.

### **3.2.8 Criterion H – Recreational, Public, and Traditional Cultural Access**

**Goal:** The facility accommodates recreational activities on lands and waters controlled by the facility; and provides recreational, public, and traditional cultural access to its associated lands and waters without fee or charge.

**Introduction to Standards:** To pass the recreational, public, and traditional cultural access criterion, the applicant must demonstrate compliance with one of the following standards (H-1 through H-3). In all cases, the applicant must demonstrate that flow-related recreational impacts are mitigated to a reasonable extent in all Zones of Effect where there is flow-related recreation. Where there is recognized, flow-related recreational use, the facility shall provide the public with relevant up-to-date information on impoundment levels and river flows.

It is understood that recreational, public and traditional cultural access and activities must be consistent with the assurance of reasonable safety of employees and the public, and with Critical Energy Infrastructure and/or other public safety protections dictated by local, state, federal, or tribal governments.

- **STANDARD H-1. Not Applicable/De Minimis Effect:** The facility in the applicable Zone of Effect does not occupy lands or waters to which the public or tribal members can be granted safe access and does not otherwise impact recreational opportunities in the vicinity; or
- **STANDARD H-2. Resource Agency and Tribal Government Recommendations:** The facility demonstrates compliance with resource agency and, if applicable, tribal government

recommendations for recreational, public, and traditional cultural access or accommodation (including recreational flow releases), or any enforceable recreation, public and traditional cultural access plans or agreements in place for the facility in the applicable Zone of Effect; or

- **STANDARD H-3. Assured Accessibility and Use:** In the absence of resource agency or tribal government recommendations and in the absence of a formal plan or agreement, the applicant demonstrates that they have, and formally commits as a condition of LIHI Certification to continue to be, responsive to reasonable requests from recreational interests, local community members, and Tribal Nations for public or tribal member access to lands and waters associated with the facility in the applicable Zone of Effect including appropriate recreational water flows and levels, without fees or charges.
- **STANDARD H-PLUS:** In addition to satisfying one of the numbered standards above, the applicant has created significant new recreational, public, and/or traditional cultural access opportunities in the vicinity of the applicable Zone of Effect that go beyond those required by resource agencies and Tribal Nations, or that are included in the facility's FERC license, exemption, water quality certificate, or other local, state, federal or tribal authorization. These opportunities must be compatible with, and not create unmitigated impacts to other resources.



## 4. APPLICATION PROCESS

The LIHI Certification application process is designed to evaluate the impacts of different types of hydropower facilities and operations. The process is intended to be consistent in approach and flexible enough to address the relative risks of environmental and social impacts from each unique facility. LIHI uses third-party independent application reviewers to evaluate applications. LIHI is also committed to broad involvement by interested parties and public participation. Although complexities and participation from third parties take time, LIHI is committed to processing applications as promptly as possible.

The application process for LIHI Certification (see [Section 6](#) for recertifications) involves the following basic steps:

1. Pre-application consultation between applicant and LIHI staff (optional and no cost)
2. Preparation and submittal of the application
3. Confidential intake review of the application
4. Preparation and submittal of an application supplement, or a revised application if needed
5. Full Certification review
6. Preliminary Certification decision, subject to appeal
7. Final decision and, if granted, Certificate issuance

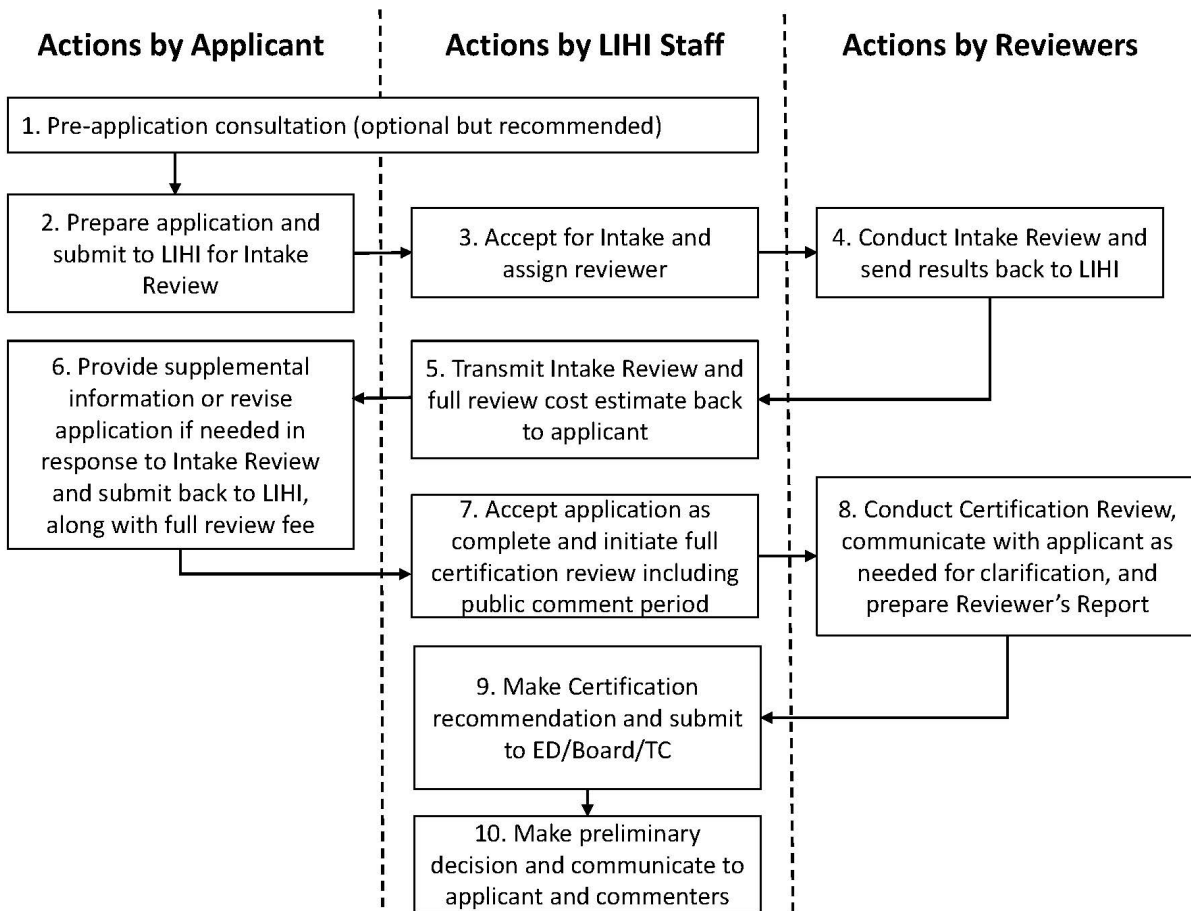
The relationship between the processing steps and the parties responsible for each are shown in [Figure 4.1](#). An application is not complete until it is accepted by LIHI staff at the beginning of the full certification review step, the signed Attestation and Waiver Form and completed contact forms have been received ([Appendix B, Section B.3](#) and [Appendix B, Section B.4](#)), and payment of the full application review fee has been received. Each application process step is described more fully in the sections below. A recommended outline for an application package, illustrating the preferred organization of an application document, is provided in [Appendix B](#).

### 4.1 Contents of an Application Package

An application package must contain the following components along with sufficiently detailed descriptions and supplemental information to support the application. Forms and tables should be downloaded from the LIHI website [How to Apply](#) page to ensure the most current version is used:

1. Facility description (Table 1.a or Table 1.b)
2. Standards matrices (Table 2.a repeated for each Zone of Effect or Table 2.b)
3. Supporting documentation to demonstrate that the facility meets standards for each criterion in each [Zone of Effect](#) (Tables 3 - 10)
4. Completed Attestation and Waiver of Liability Form
5. Completed contacts forms (Tables 11 – 14 – in Word or Excel format)
6. Payment of applicable fees

**Figure 4.1. Generalized Flow Chart of the Primary Steps in the LIHI Certification Process**



Materials provided to LIHI as part of a pre-application consultation and during the intake review stage will be kept confidential with access limited to LIHI staff and reviewers, unless and until a complete certification application is submitted and public notice of the application is made. Generally, all information submitted to LIHI as part of a complete certification application will be available for public review and public access unless designated as confidential by the applicant, resource agencies, or Tribal Nations (see [Appendix B](#) for additional details). In that case, the information will be secured with access limited to LIHI staff, the application reviewer, and, in some cases, the Technical Committee of the LIHI Governing Board in accordance with LIHI’s written information security program.

At the option of the applicant, an application package may also include additional materials which may serve to strengthen the applicant’s case for LIHI Certification. Such materials may include: ISO 14000 certification or documentation of any Environmental Management System in place for the facility; current letters of support from resource agencies or other interested parties and communities; documentation of other environmental certifications or awards pertinent to the facility; or information about, or summaries of, voluntary actions taken, resource management plans, habitat conservation plans, biological operating plans, memoranda of understanding, or other third party-agreements pertinent to the LIHI criteria.

#### **4.1.1 Facility Description**

Information required to describe the hydropower facility, its operation, and its environmental setting (Table [1.a](#) in Appendix B or alternate Excel format Table.1.b found at the [How to Apply](#) webpage). Such information includes:

- Name of the facility
- Reason for applying for certification
- Location
- Facility owner/operator
- Dam owner/operator if different
- Regulatory status
- Characteristics of the powerhouse and generating equipment
- Characteristics of the dam, diversion, or conduit system
- Characteristics of the impoundment and watershed
- Operating regime
- Hydrologic setting
- Designated Zones of Effect
- Photographs and maps of the facility, including demarcation of Zones of Effect

Most hydropower facilities are comprised of multiple parts or areas with different physical characteristics, such as impoundments, bypassed reaches, downstream regulated river segments, and sometimes upstream riverine segments where flows are regulated by agreement with upstream facilities. The environmental and social impacts of hydropower facilities can vary among these different parts of a facility. All the LIHI criteria must be satisfied in all areas of the facility, but different standards may apply to different areas.

The different facility areas are designated as “Zones of Effect” (“Zones” or “ZoEs”) which account for the differing types and level of impacts throughout the facility’s affected areas. Examples of facility designs and associated ZoEs are shown in [Figure 4.2](#) and [Figure 4.3](#) below.

For hydro facilities at dams not owned or controlled by the hydro owner/operator, the impoundment should still be included in the application as a ZoE and contact information for the impoundment/dam owner/operator included in the Facility Information Table 1.a or 1.b.

If a facility owner has an enforceable agreement in place that regulates water inflows to the facility, then a specific ZoE for the regulated riverine reach upstream of the facility’s impoundment should be designated and described (see panel (B) in [Figure 4.2](#)). Such upstream ZoEs are included to evaluate the potential impacts on the facility-affected area of regulated flows above the facility.

Figure 4.2. Conceptual Examples of Zones of Effect for a Typical Hydropower Facility.

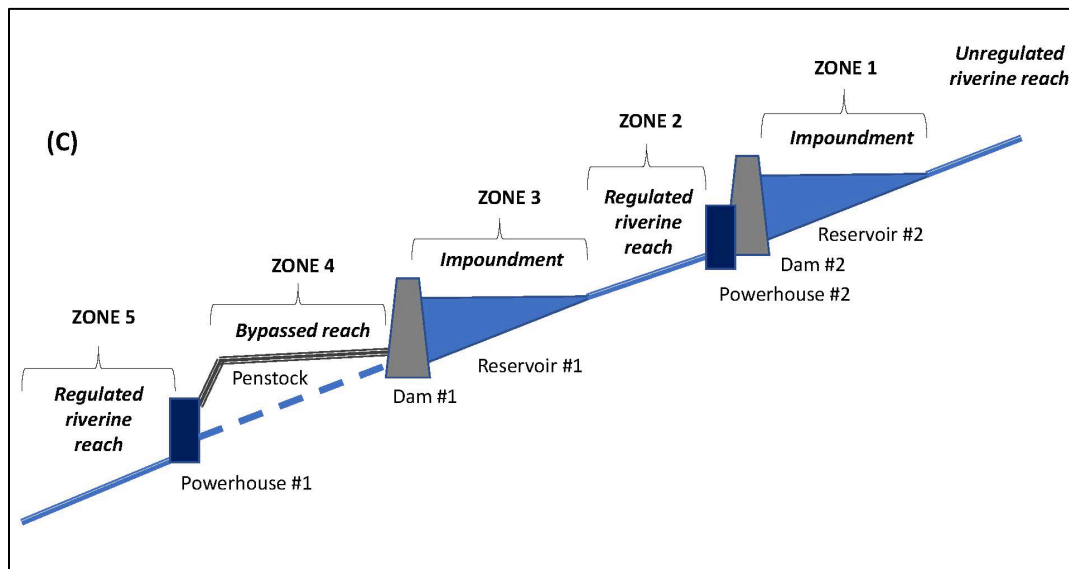
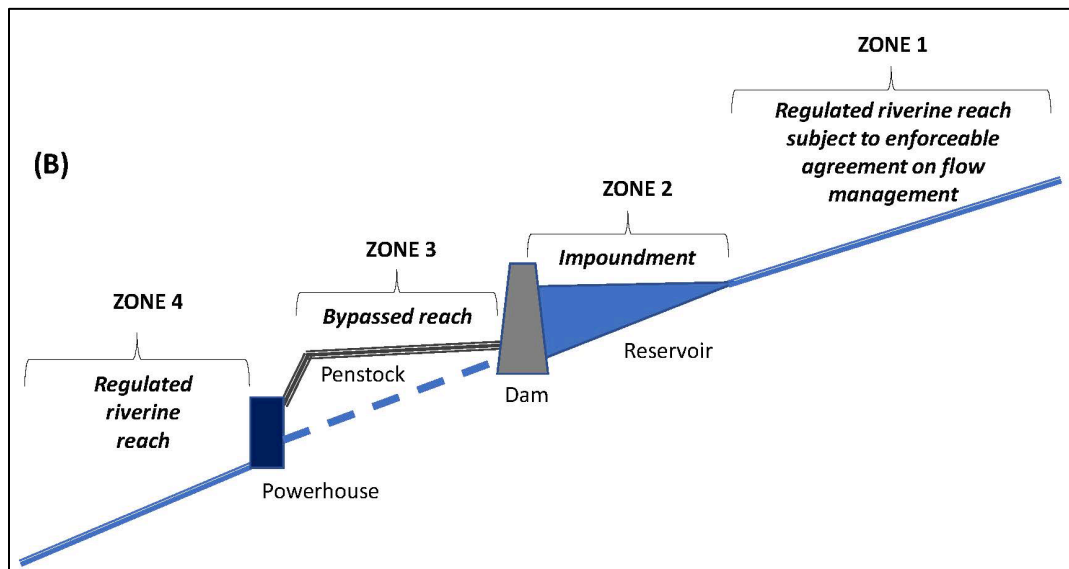
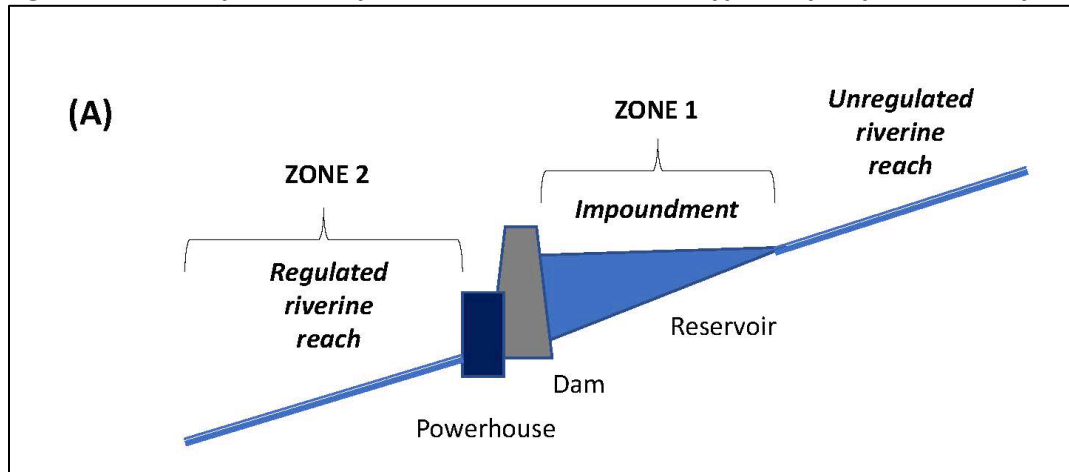
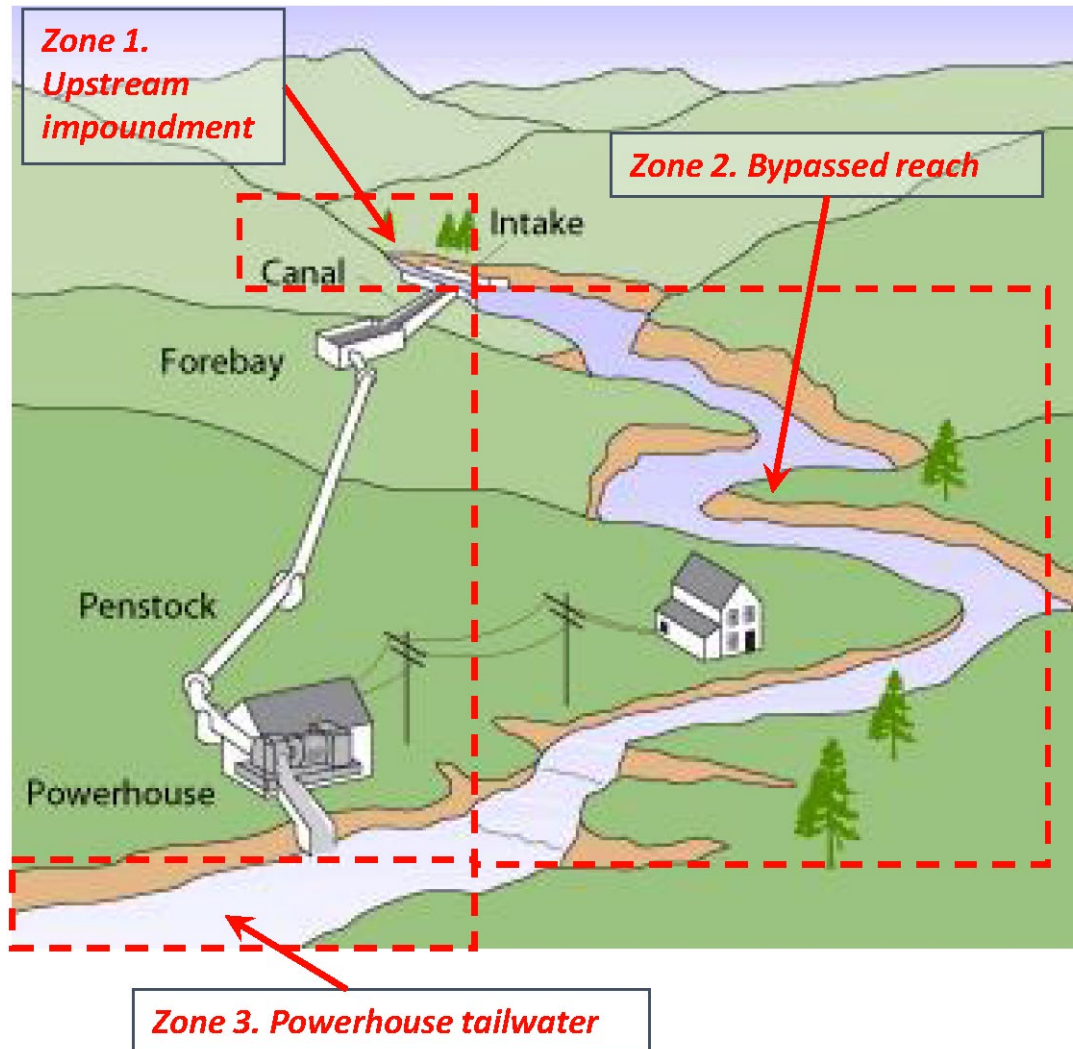


Figure 4.3. Conceptual Example of Zones of Effect for a Typical Diversion Project.



#### 4.1.2 Standards Matrix

The Standards Matrix is a summary of which single numbered alternative standard is being used to satisfy each criterion in each ZoE. [Figure 4.4](#) illustrates an example of a completed matrix for a single ZoE. Applicants must indicate the selected standard inside each cell that applies to the ZoE. Only one numbered standard should be indicated in each row of the matrix. If a PLUS standard is also selected that should be noted in the applicable criteria and ZoE(s) as shown below. An application must contain one matrix for each designated ZoE as in [Figure 4.4](#) or a consolidated matrix as shown in [Figure 4.5](#) or [Figure 4.6](#). The alphabetic and numeric values correspond to the narrative and supplemental information required to demonstrate that the standard is met (see [Section 4.1.3](#) and [Appendix B](#)).

All criteria must be evaluated in each ZoE. This approach ensures that a comprehensive examination of facility impacts is conducted (e.g., water quality is evaluated separately in riverine and impoundment zones or recreational access is examined in all zones individually).

**Figure 4.4. Example of a Completed Standards Matrix for one ZoE**

Facility Name: ABC Hydro Zone of Effect: #1 - Impoundment

| Criterion |                                   | Alternative Standards Applied |   |   |   |      |
|-----------|-----------------------------------|-------------------------------|---|---|---|------|
|           |                                   | 1                             | 2 | 3 | 4 | Plus |
| A         | Flow Regimes                      | X                             |   |   |   | X    |
| B         | Water Quality                     |                               |   | X |   |      |
| C         | Upstream Fish Passage             | X                             |   |   |   |      |
| D         | Downstream Fish Passage           |                               |   |   | X | X    |
| E         | Shorelines and Watershed          | X                             |   |   |   |      |
| F         | Threatened and Endangered Species | X                             |   |   |   |      |
| G         | Cultural and Historic Resources   |                               | X |   |   |      |
| H         | Recreation                        |                               |   | X |   |      |

Figure 4.5. Example of a Completed Standards Matrix for Multiple ZoEs.

Facility Name: XYZ Hydro

| Zone:   |                                   | 1: Impoundment    | 2: Bypassed Reach | 3. Downstream Reach |
|---|-----------------------------------|-------------------|-------------------|---------------------|
| River Mile at upper and lower extent of Zone: |                                   | RM 1.5 – 1.0      | RM 1.0 – 0.3      | RM 0.3 – 0.0        |
| Criterion                                     |                                   | Standard Selected |                   |                     |
| A   | Flow Regimes                      | 2                 | 2, PLUS           | 2, PLUS             |
| B   | Water Quality                     | 3                 | 3                 | 3                   |
| C   | Upstream Fish Passage             | 1                 | 2                 | 2                   |
| D   | Downstream Fish Passage           | 2                 | 2                 | 1                   |
| E   | Shorelines and Watershed          | 1                 | 1                 | 1                   |
| F   | Threatened and Endangered Species | 3                 | 3                 | 3                   |
| G   | Cultural and Historic Resources   | 1                 | 1                 | 1                   |
| H   | Recreation                        | 2                 | 2                 | 2                   |

*(this page blank)*



**Figure 4.6. Example of a Completed Standards Matrix for Multiple ZoEs.**

Facility Name: XYZ Hydro

|  |  | CRITERION and STANDARD SELECTED |               |                       |                         |                          |                                   |                                 |            |
|--|--|---------------------------------|---------------|-----------------------|-------------------------|--------------------------|-----------------------------------|---------------------------------|------------|
| Zone No. and Name                      | River Mile at upper and lower extent of Zone | A                               | B             | C                     | D                       | E                        | F                                 | G                               | H          |
|  |  | Flow Regimes                    | Water Quality | Upstream Fish Passage | Downstream Fish Passage | Shorelines and Watershed | Threatened and Endangered Species | Cultural and Historic Resources | Recreation |
| 1: Upper dam impoundment               | 97.3 – 95.0                                  | 1                               | 3             | 1                     | 2                       | 1                        | 2                                 | 2                               | 3, PLUS    |
| 2: Upper dam bypassed reach            | 95.0 – 94.1                                  | 4                               | 3             | 2                     | 2, PLUS                 | 1                        | 2                                 | 2                               | 3          |
| 3: Upper dam tailrace                  | 95.0 – 92.0                                  | 4                               | 3             | 2                     | 1                       | 1                        | 2                                 | 2                               | 3          |
| 4: Lower dam impoundment               | 92.0 – 91.0                                  | 1                               | 3             | 1                     | 2                       | 1                        | 2                                 | 2                               | 3, PLUS    |
| 5: Lower dam tailrace/downstream reach | 91.0 – 87.5                                  | 4                               | 3             | 2                     | 1                       | 1                        | 2                                 | 2                               | 3          |

*(this page blank)*

### **4.1.3 Supporting Information**

The supporting information provided in an application should justify the standard selected for each criterion in each ZoE and include sufficient narrative and supplemental documentation to demonstrate exactly how the facility satisfies (beyond simply that it does satisfy) each criterion in each ZoE. [Appendix B](#) contains additional instructions, a recommended application outline, and tables for each criterion that list the types of information required for each alternative standard.

In all cases, the applicant must identify the efforts made and resources used during preparation of the application to identify all Tribal Nations that are or may be directly or indirectly affected by the facility. It is not sufficient to rely solely on such information from past FERC licensing or Water Quality Certification processes.

In all cases, the applicant must demonstrate that the facility is in compliance with, or has taken action to regain compliance with, its current regulatory and legal requirements relevant to the LIHI criteria contained in FERC license or exemption articles, natural and cultural resource management plans, water quality certification conditions, terms and conditions of resource agencies, tribal government conditions and requirements, and other authorizations, permits, and legally enforceable or other formal agreements. Any issues surrounding the facility's compliance and current status of the issues should be discussed in the application with supporting documentation.

### **4.1.4 Attestation and Waiver of Liability**

All applications must include an attestation and waiver of liability signed by an officer or authorized representative of the facility owner attesting that the material presented in the application is true and complete. Applications for pre-operational certification of a "new" facility (see [Section 4.5.3](#)), must include an acknowledgement that LIHI may modify, suspend, or revoke the Certification should the impacts of the facility, once it becomes operational, fail to comply with the Certification criteria. A template Attestation and Waiver Form ([Appendix B, Section B.3](#)) to use for this requirement is provided in Appendix B.

### **4.1.5 Contacts Forms**

The application package must provide contact information for authorized representatives of the facility owner, any consultant firms that are assisting the owner with the LIHI application process, facility operations contacts designated to handle ongoing LIHI compliance obligations, billing/accounts payable contacts; and federal and state agency, tribal, and other interested party contacts ([see Appendix B, Section B.4](#)). The contacts forms must be provided at the intake stage. If a facility is sold or transferred to a new owner entity during or after Certification, the seller must notify LIHI within 30 days and provide new owner contact information. The new owner assumes all program obligations, or the Certification will be revoked (see [Section 5.1](#)).

## **4.2 Processing Steps**

All applicants should become familiar with the LIHI Certification Program process and terminology described in this Handbook including definitions in [Appendix A](#) before starting the application process.

It is the responsibility of the applicant to produce a complete application package that clearly explains and demonstrates how the facility satisfies the LIHI eligibility requirements and each criterion's standards and goals. Applicants should also familiarize themselves with the LIHI Marketing Guidelines and [Certification Mark License Agreement \(CMLA\)](#), the execution of which is a requirement before a facility may market the facility as LIHI Certified® (see [Section 5](#)).

#### **4.2.1 Pre-Application Consultation**

Applicants are encouraged to contact LIHI staff for an informal pre-application discussion which is confidential, optional, and free. The purpose is to help the potential applicant understand the LIHI Certification Program and to provide guidance on the information needed to support a complete application. It also provides an early opportunity to identify potential conflicts between the LIHI criteria and a prospective facility's likelihood of satisfying them, and to determine whether there may be ways to resolve such conflicts before an application is submitted.

Challenging policy or interpretation questions that are identified in this early consultation may be raised to the LIHI Governing Board, or as delegated to the Technical Committee or Executive Director for clarification, if necessary. The Board or delegates may decline to address such questions prior to being presented with a complete reviewer's report after the full certification review is complete. After pre-application consultation, the potential applicant may elect to proceed with the intake review step explained below or not to pursue LIHI Certification further.

#### **4.2.2 Intake Review**

Upon receipt of an application and payment of the intake review fee (see [Section 4.4](#) and [Appendix C](#)), LIHI will notify the applicant that the intake review process has begun. The intake review takes a high-level look at whether sufficient information is provided to adequately evaluate the facility against the LIHI criteria. When the intake review is complete, the reviewer drafts a summary report and submits it to LIHI staff for approval, along with a list of missing information, a recommendation on whether and how to proceed to a full application review, and an estimate for the reviewer's fee required to complete the full review. LIHI staff will send this information to the applicant in a confidential intake transmittal letter with a copy of the reviewer's findings and will discuss any substantive issues identified with the applicant. LIHI makes every attempt to complete intake reviews within 30 days of receipt of the later of an initial application package or the intake review fee. After the intake transmittal letter is sent, the applicant may decide not to proceed to the full review stage or may need to supplement or revise the application package based on the intake review report. LIHI staff and reviewers are available for continued free consultation throughout the application process.

#### **4.2.3 Certification Review**

The next stage of the LIHI Certification process is the full certification review. This is a public process, initiated upon receipt of a complete final application package (including any supplemental information requested during the intake stage) and payment of the full certification review fee (see [Appendix C](#)). All application materials, including payment of the full certification fee, the Facility Description, the Standards Matrices, supporting documentation for satisfying each LIHI criterion, facility and interested

party contact forms, and the Attestation and Waiver of Liability (see [Appendix B](#)) are required for an application to be deemed complete and posted on the LIHI website for public review and comment.

Materials provided to LIHI on a confidential basis as part of a pre-application consultation or during the intake review or full review stages will be kept confidential with access limited to LIHI staff and the reviewer, unless and until a complete certification application is submitted and public notice is made. All information pertaining to a final certification application will be available for public review except for information identified as Critical Energy Infrastructure Information (CEII), privileged or other confidential information (i.e., locational information about threatened and endangered species or cultural and historic resources), and other traditional cultural or tribally protected information.<sup>1</sup> The applicant can indicate that certain information should remain confidential if it is marked as such and submitted separately from the application document. In that case, the information will be secured with access limited to LIHI staff, the application reviewer, and, in some cases, the Technical Committee of the LIHI Governing Board in accordance with LIHI's cybersecurity program.

The final certification application should be responsive to all the missing information and guidance provided in the intake review report and from LIHI staff. Once LIHI has received supplemental information or a revised application if needed and payment of the full certification review fee, the application package is deemed complete. The date that a package is designated as complete by LIHI staff is the date that will become the Certificate's effective date if a decision to certify the facility is made.

The application reviewer examines the application package, conducts a search of public records associated with the facility, including a review of the FERC eLibrary, and may make necessary inquiries to resource agencies, tribal governments, and/or interested parties to seek clarification on factual issues or make other inquiries as needed. The reviewer also considers all public comments and applicant responses to the comments received (see [Section 4.2.4](#)).

Once the review is complete, the reviewer submits a detailed written report to LIHI staff, with a recommendation on whether the facility should be certified or not with an explanation outlining the basis for the recommendation. If the reviewer believes that facility-specific Certification conditions are necessary, they are included as recommendations in the report.

The duration of the full review period varies, depending on availability of information, unforeseen complexities or issues of concern that arise, and timely responses to reviewer or staff inquiries of the applicant and resource agencies, tribal governments, and other interested parties. LIHI will issue a preliminary certification decision ([Figure 4.1](#), step 10) within 180 days of accepting a final application package as complete ([Figure 4.1](#), step 7). Circumstances beyond the control of LIHI may extend the review period. At the close of the public comment period LIHI will notify the applicant of the status of the review and the time expected for LIHI to reach a final certification decision.

---

<sup>1</sup> See <https://www.achp.gov/digital-library-section-106-landing/frequently-asked-questions-protecting-sensitive-information>

#### **4.2.4 Public Comment Period**

The complete application and relevant non-confidential supporting information are posted for public review on the LIHI website, and a 60-day comment period is announced via email. Comments may be submitted to [comments@lowimpacthydro.org](mailto:comments@lowimpacthydro.org). The distribution lists for LIHI email notices are organized by state. The email notice lists are open to any interested party by signing up for the LIHI email list [online](#). The announcement is also forwarded to the resource agencies, tribal governments, and interested party contacts that must be identified in the application. LIHI makes no commitment to consider public comments that are received after the 60-day comment period closes. The applicant will be given a reasonable period to respond to all comments, if desired. All public comments and any formal applicant responses will also be posted on the facility webpage at the LIHI website.

#### **4.2.5 Certification Decision and Announcement**

Certification decisions may be made by the full LIHI Governing Board, or by the LIHI Technical Committee or Executive Director under authority delegated by the LIHI Governing Board. The LIHI Technical Committee provides expertise and support in the decision-making process. All Board members have the opportunity to participate in the Technical Committee's review of individual applications that come before the Committee. Where authority has been delegated to the Executive Director, that authority will be exercised after consideration of the reviewer's report and recommendation, and in some cases with input from the Technical Committee and/or the Governing Board.

Decisions to certify a facility are first announced in preliminary form. If the decision is to not certify, the Executive Director will notify the applicant in writing of the decision and the reasons for rejection. An applicant may decide to withdraw the application for any reason without prejudice prior to a formal preliminary decision. An applicant may decide to withdraw if the decision is not to certify or if the applicant is unable or unwilling to comply with facility-specific conditions or with the terms and conditions of the LIHI Certificate (see [Section 4.5.4](#)). A notice of withdrawal for a previously announced application will be posted on the LIHI website for a 30-day period and any commenters on the application will be notified of the applicant's decision to withdraw the application.

If the decision is to certify, the preliminary decision is publicly posted on the LIHI website for a 30-day period, along with the application reviewer's report and (if prepared) a report of the Executive Director. An announcement of the preliminary decision to certify is sent to all parties that signed up to be on LIHI's applicable state email list, as well as to all parties that provided public comments on the application. Any commenter can request an appeal of the preliminary certification decision during the 30-day appeal period (see [Section 4.3.1 and Section 4.3.3](#)). Only those who submitted public comments during the initial 60-day public comment period may appeal. Preliminary decisions not to certify are also subject to appeal by the applicant (see [Section 4.3.2](#)). Conditions may also be appealed by the applicant (see [Section 4.3.3](#)). If no appeals are filed within the 30-day period, the certification decision becomes final and the decision is publicly announced and posted on the LIHI website.

During the review process, LIHI may determine that facility-specific Certificate conditions are necessary. Conditions are typically imposed to:

- a) verify that a criterion is satisfied where additional confirming data is needed or will be collected;
- b) reflect anticipated changes to the facility's structures, operations, or capacity;
- c) incorporate upcoming FERC relicensing or other outcomes;
- d) address agency reservations of authority to require additional measures in the future;
- e) respond to public, tribal, or agency comments and recommendations; and/or
- f) ensure that planned or in-progress studies, mitigation measures, agreements between the applicant and agencies, Tribal Nations, and/or other interested parties, or compliance matters are completed in a timely manner.

Conditions may have a special annual fee associated with them (see [Section 4.4.2](#) and [Appendix C](#)). Applicants are provided with draft condition language using an informal process and are offered the opportunity to provide input and request modifications to the condition language before the preliminary Certification decision is announced publicly. LIHI will give due consideration to this input however the final condition language is decided by LIHI.

If the application is approved for Certification, no appeals are filed within the 30-day period, and the LIHI CMLA (See [Section 5](#)) is executed, a LIHI Certificate will be issued for a defined term with any facility-specific conditions and associated condition fees identified.

### **4.3 Appeals of Certification Decisions**

Preliminary LIHI Certification decisions are subject to appeal by either the applicant or by a commenter who provided comments to LIHI during the 60-day public application review period. Conditions may also be appealed (see [Section 4.3.3](#)).

#### **4.3.1 Appeal of Decision Granting Certification**

Only commenters who participated in the 60-day public review period may submit a letter to the Executive Director requesting an appeal if the request is received within 30 days of the preliminary LIHI Certification decision announcement. An appeal request must be in writing and include specific reasons why the appellant believes the facility does not meet the LIHI criteria. Requests for appeals may be submitted by email to the LIHI Executive Director. The Executive Director will evaluate the request to determine if: a) the party requesting the appeal previously filed timely comments; and b) if the request adequately supports the basis for the appeal. If either condition is not met, the Executive Director will reject the request for appeal and notify the requestor. If both conditions are met the Executive Director will notify the appellant and provide a detailed description of the appeals process. Before an appeal proceeds, each party requesting the appeal must pay a \$500 appeal processing fee.

#### **4.3.2 Appeal of Decision Denying Certification**

If Certification is denied the applicant can also request an appeal of the decision during the 30-day period. Requests for appeals may be submitted by email to the LIHI Executive Director. The appeal request must either: a) propose measures or changes to the facility which, if implemented, would address LIHI's reasons for rejection; or b) set forth specific reasons why the facility should have passed the LIHI criteria. The Executive Director will evaluate the request to determine if the request adequately supports the basis for the appeal. If it does not, the Executive Director will reject the request and notify

the applicant. If the Executive Director determines that there is a basis for appeal, they will notify the applicant and provide a detailed description of the appeals process. Before an appeal proceeds, the applicant must pay a \$500 appeal processing fee.

#### **4.3.3 *Appeal of Conditions Placed on a Certificate***

If after a preliminary decision is announced, an applicant is not willing to comply with the condition language as worded, the applicant may appeal the conditions within the 30-day period by submitting a letter by email to the Executive Director explaining why the conditions as written are a hardship or unreasonable. A commenter may also appeal condition language, explaining why they believe the conditions as written are insufficient to support the LIHI criteria. The Executive Director will review the request and convene the Technical Committee, if needed, to determine if modifications to the condition language are appropriate. If so, condition language will be modified.

#### **4.3.4 *Appeal Review***

If a timely appeal of a LIHI Certification decision is submitted and accepted by the Executive Director, the Executive Director will convene an Appeals Panel and forward the full certification application file to the Panel members.

Once the panel has been selected, it will meet with the Executive Director to receive instructions and materials, then convene to independently consider the appeal. The panel will review all application materials, making any additional inquiries it deems necessary, and meet to discuss and resolve the appeal. Under no circumstances is either the appellant or applicant permitted to communicate with any member of the panel. If additional materials are necessary or the panel has questions for either party, all communications must occur through the LIHI Executive Director or their designee. If the panel requires additional assistance, an Appeal Reviewer will be appointed from LIHI's existing roster of application reviewers, to acquire any additional information from the parties and to prepare a report to the Executive Director and the panel that analyzes the merits of the appeal. The Appeal Reviewer will not be the same application reviewer that conducted the relevant application review. However, the Appeal Reviewer may consult with the original application reviewer. At the direction of the panel, the Appeal Reviewer will compile the written report and any other relevant information including subsequent comments and documentation pertinent to the appeal and submit it to the panel.

Decisions by the Appeals Panel will be made by majority vote. The panel will function independently of the Governing Board and make an independent decision about whether a facility should be certified. Appeals Panel decisions will be rendered in writing to the Executive Director and the Governing Board and will include identification of the issues of fact, interpretations of the LIHI criteria, and other policy matters that the panel decided in order to render its decision. This process is expected to take approximately 60 days.

The Governing Board will review Appeals Panel decisions only to ensure that the decisions are consistent with LIHI criteria and policies. The decision of the panel will stand unless the Governing Board finds that the decision is inconsistent with the LIHI criteria and/or policies. The Governing Board determination at this stage is final.



If the Governing Board accepts an Appeals Panel decision to certify a facility, the Executive Director will then issue a LIHI Certificate for the facility, post notice of the final LIHI Certification decision on the LIHI website and send notice of the LIHI Certification to all interested parties in the applicable email notice list, as well as to all parties that commented on the application package, the appellant(s), and the applicant.

For certifications that are denied by the Appeals Panel, the Executive Director will provide written notice of the decision and reasons for that decision to the applicant and other parties to the appeal. In the case of an appeal of a decision to recertify a facility, the current Certification will remain active until a final appeal decision is made. If the appeal results in de-certification, the effective end date will be the date of the final appeal decision.

In the case of a denied original certification, if an appeal is successful in reversing the preliminary decision, the effective date for the new Certification will be the date of receipt of the final full application package. Upon such a reversal and the final decision to certify, the owner of the facility may market the facility as LIHI Certified® retroactive to the effective date of the LIHI Certification.

#### **4.4 Program Fees**

LIHI program fees are designed to cover the cost of processing applications and for monitoring and maintaining active certifications. There are two types of fees associated with LIHI Certification: 1) fees to process an application prior to issuance of a Certificate; and 2) Certification maintenance fees that apply annually during the term of a Certificate. A summary of LIHI program fees is provided below. The complete fee policy is described fully in the Fee Schedule in [Appendix C](#); however, LIHI reserves the right to alter the program fees and/or policy as needed with reasonable notice to Certificate holders. The most current [LIHI Fee Schedule](#) is posted on the LIHI website.

##### **4.4.1 Application Review Fees**

Application review fees include fees for the initial intake review, full application review, and recertification review, including mid-term reviews. These fees are designed to cover LIHI's costs associated with reviewing applications at each stage in the process. The intake review fee is a fixed fee charged to all applicants, regardless of facility size or circumstances. Before submitting payment of this fee to LIHI, it is strongly recommended that interested applicants contact LIHI staff for free and confidential pre-application consultation. Application review fees include the estimated cost of hiring an independent reviewer and overhead costs covering LIHI staff time. Application review fees vary based on the circumstances and available information for each facility. LIHI reserves the right to charge additional fees in circumstances where a review is more complex than initially estimated.

Some facilities may have very low environmental and social impacts and may qualify for the Not Applicable / De Minimis Effect standard (Standard 1) for all criteria resulting in a Very Low Impact (VLI) designation. These applications may be processed at lower application fees compared to the Fee Schedule and applicants should consult with LIHI staff to determine whether they may qualify for reduced fees. The determination of applicability will be based on the LIHI criteria being satisfied at the Not Applicable / De Minimis Effect standard, not on facility design (e.g., a FERC-designated conduit

project will not be treated as VLI if it does not meet the Not Applicable / De Minimis Effect standard for all criteria).

#### **4.4.2 Certification Maintenance Fees**

Certification maintenance fees include annual fees, condition fees, and any other supplemental compliance fees LIHI may impose on a Certificate holder to maintain an active LIHI Certificate. Details on fees are provided in the preliminary decision letter sent to the applicant. The annual fee and condition fees are retroactive, covering the 12-month period ending the month prior to the anniversary month of the Certificate. The annual fee is calculated using a \$/MWh rate structure that includes a base rate or variable regional market rates. There is a tiered minimum annual fee, or floor, for facilities with low installed capacity or low annual generation. There is also a maximum annual fee, or cap, for large facilities (see [Appendix C](#)). Facilities that qualify for the Not Applicable / De Minimis Effect standard on all criteria may qualify for reduced certification maintenance fees that are noted in the preliminary decision letter.

Condition fees may be charged on an annual basis to Certificate holders for active conditions. Not all conditions will require a fee, and the fee amounts may vary from year to year during the term of a Certificate, as conditions are satisfied, modified, or added. Condition fees are calculated based on the estimated time required by LIHI staff to monitor compliance and review compliance submittals.

#### **4.4.3 Refund Policy**

All fees are non-refundable. Should an applicant choose to withdraw or place an application on hold at any point during the review process, LIHI is under no obligation to refund fees already collected. Should a Certificate holder decide to withdraw a Certified facility from the program (see [Section 4.5.4](#)), LIHI will discontinue all annual maintenance billing for the years after the year of withdrawal. Additional fees may apply when an applicant chooses to reactivate an application that was submitted previously but was withdrawn or placed on hold by the applicant.

### **4.5 Special Situations**

LIHI recognizes that each hydro facility is unique and strongly advises that pre-application consultation take place with LIHI staff. This step is intended to provide guidance on how to structure applications in special circumstances, as well as how to handle other unique situations.

#### **4.5.1 Facilities Undergoing FERC Licensing**

If a new application for LIHI Certification is received for a facility that is currently in, or approaching FERC licensing, relicensing, or exemption, and a new license or exemption is expected to be issued during the term of LIHI Certification, LIHI will advise the applicant to delay application until they have completed that proceeding. The applicant will also be advised to delay application if the facility is subject to an ongoing amendment or rehearing proceeding that may affect the LIHI criteria. See [Section 6.1.2](#) for currently Certified facilities undergoing FERC licensing while seeking recertification.

#### **4.5.2 Multi-Facility Applications**

If an applicant owns or operates multiple facilities that are operationally or hydrologically connected, the applicant may submit a consolidated application for those facilities. The applicant should consult with LIHI staff prior to the intake review about how best to structure a consolidated application. A consolidated application may be subject to a supplemental processing fee determined at the sole discretion of the Executive Director.

#### **4.5.3 Pre-operational Applications**

An applicant may submit an application for a new hydropower facility that is or will be built on an existing dam, diversion, or conduit but is not yet operational, provided that:

- the applicant has obtained all required local, state, federal, and tribal permits, licenses, and authorizations addressing environmental and social impacts;
- the authorizations are not subject to any pending legal challenges; and
- the applicant specifically acknowledges on the [Attestation and Waiver Form](#) in Appendix B that LIHI may modify, suspend, or revoke the Certification if facility operations result in non-compliance with the LIHI criteria.

For a pre-operational facility, the LIHI Certification term will begin on the date that the facility begins generation, and annual billing will begin at the Certificate's first anniversary billing month (one month prior to the Certificate anniversary date). If applicable, condition fees may be charged annually even if operations have not commenced. Applicants may be charged a fee premium for pre-operational certifications determined solely at the discretion of the Executive Director.

#### **4.5.4 Withdrawal of an Application**

At any time and without prejudice, an applicant may withdraw its application from consideration. If an application has been publicly announced and is later withdrawn, the final status of the application in public LIHI documents will be described as "withdrawn" and posted on the LIHI website [Pending Applications](#) page for a 30-day period, and commenters on the application will be notified of the withdrawal. After the 30-day period, all facility documents will be removed from the website. The applicant can resubmit an application package at a later date if desired. An applicant may also suspend or place their pending application on hold at any time. This may be appropriate if additional information is needed to complete the application review and render a Certification decision. In this case, the application status on the Pending Applications webpage will be described as "review in process, awaiting additional information" until such time as the applicant or LIHI determines that the application is unlikely to move forward and should be withdrawn. Application review fees are not refundable, even in case of withdrawal. Re-activated applications may be subject to additional review fees.

*(this page blank)*

## 5. MARKETING GUIDELINES AND COMPLIANCE

Low Impact Certified hydropower provides consumers with assurance that an independent review has determined that the facility is operated in accordance with LIHI’s objective, science-based criteria. Certification also results in a legally binding contract that grants the Certificate holder a limited license to use the LIHI Certification Mark and to market the facility as LIHI Certified®.

### 5.1 Certification Mark and Marketing Guidelines

Once the Certification decision becomes final, a LIHI Certificate for the facility will be issued to the applicant but only after the applicant has executed the LIHI Certification Mark License Agreement (Agreement or CMLA). The CMLA standard form is available for review at <https://lowimpacthydro.org/how-to-apply/>.

The CMLA entitles the Certificate holder to use the LIHI Certification Mark to market energy and the associated green attributes from the facility as “Low Impact Certified” or “LIHI Certified®”. This includes selling Renewable Energy Credits into a market which requires proof of LIHI Certification to qualify. The Agreement requires strict, ongoing adherence by Certificate holders to all program rules provided for in this Handbook, as well as the LIHI marketing guidelines and the program compliance requirements in [Section 5.3](#). The LIHI marketing guidelines provide rules for the observance of Federal Trade Commission principles as well as acceptable language for the use of the Low Impact Certification Mark. The marketing guidelines are available at <http://lowimpacthydro.org/marketing-guidelines>, and will be updated periodically at the discretion of LIHI. All Certificate holders will be notified of changes to the guidelines at least 60 days before they go into effect.



LIHI Certification Mark

If a facility is sold during the term of Certification, the seller must notify LIHI within 30 days and provide new owner contact information. The new owner must execute a new CMLA with LIHI, or if the new owner is already a LIHI Certificate holder, LIHI will add a new Exhibit to the existing CMLA, and the new owner must agree to assume all program obligations in order to retain Certification.

### 5.2 Withdrawal of Certification

A Certificate holder may withdraw a Certified facility from the LIHI program at any time by notifying LIHI in writing. If a Certificate is withdrawn, facility documents will be removed from the website and the Certificate holder must immediately notify its current customers that it is no longer LIHI Certified® and, if its customers do not deliver power to the ultimate retail customer, immediately notify the retail marketer. The Certificate holder must also immediately notify any entity marketing power from the facility to immediately stop employing the LIHI Certification in its marketing unless it can find another supply that is also Low Impact Certified®. The Certificate holder may re-apply for LIHI Certification at a later date if desired.

### **5.3 Compliance Requirements**

During the term of the LIHI Certificate, facility owners/operators are required to operate their hydroelectric facilities in a manner that complies with the Certificate terms and all rules in this Handbook. LIHI maintains the integrity and credibility of Low Impact Certification by verifying compliance annually with the LIHI criteria and with facility-specific conditions. Changes to a facility or its operational requirements do not necessarily represent a violation of the LIHI criteria. Nonetheless, LIHI verifies compliance in order to maintain a complete and accurate record of the operations at each Certified facility.

#### **5.3.1 Notification of Potential Non-Compliance or Changes in the Facility**

Certificate holders must notify LIHI as soon as possible when a violation of the terms of the LIHI Certificate has or may have occurred and must also summarize those instances and their resolution in annual compliance statements submitted to LIHI. Notifications are required for:

- a violation of the LIHI criteria or associated site-specific conditions included in the LIHI Certificate;
- a violation of the LIHI marketing guidelines;
- receipt of a substantive notice of violation or formal notice of alleged or actual non-compliance from any local, state, federal, or tribal authority relevant to the facility's Certification, to the LIHI criteria, or to facility-specific conditions in the LIHI Certificate; or
- a material change in the facility, its operations, or regulatory requirements relevant to the Certification that may impact compliance.

The notification should include an explanation as to why the violation does not amount to a significant violation of LIHI Certification, or in the case of a change, that the change will not result in an adverse impact under the LIHI criteria. Any other party may also notify LIHI of the occurrence of one or more events that require notification.

#### **5.3.2 Review of Potential Non-Compliance or Changes in the Facility**

The Executive Director will review the alleged violation or change in facility conditions, make any necessary inquiries, decide whether to refer the allegations to an application reviewer and may, if necessary, request additional information from the Certificate holder. The request may include a facility inspection by LIHI staff and/or the application reviewer. If an application reviewer is utilized, they will submit a written report to the Executive Director regarding whether a compliance violation has occurred or whether the change results in non-compliance with the criteria. Consistent with the Governing Board's Delegated Authority policy LIHI will then determine what compliance action, if any, is appropriate (see [Section 5.3.5](#)). If a reviewer is used, the costs associated with their effort may be charged to the Certificate holder.

#### **5.3.3 Annual Compliance Review**

To maintain compliance with LIHI Certification, all Certificate holders must submit a signed statement provided by LIHI annually confirming that during the preceding year there were no violations of the

terms of the LIHI Certificate, no new resource agency or tribal government recommendations made directly to the Certificate holder or formal agency or tribal order was received, no substantive notices of violation or substantive complaints were received, and that no special circumstances or newly identified facility-specific issues of concern have arisen. If any such events have occurred that result in a material change, the facility may be subject to a mid-term review (see [Section 5.3.4](#)). The submittal shall also include an update on the status of any facility-specific conditions that are active along with all materials and documentation required under those conditions.

LIHI will review the FERC docket and other relevant data sources for additional information to confirm compliance and may ask for additional information in order to determine if material changes have occurred; whether any financial benefits were received from LIHI Certification during the prior year; and whether any specific environmental or social benefits were achieved. The annual compliance statement must be submitted by the 15<sup>th</sup> day of the anniversary month of the LIHI Certificate. Failure to timely file an annual statement, or a material misrepresentation contained in the statement may result in suspension or revocation of the Certificate.

Potential non-compliance issues will be addressed and resolved within the compliance review process. LIHI will work with the Certificate holder to ensure timely resolution of issues. Continued certification within the current LIHI term is contingent upon the facility remaining in or returning to compliance in a timely manner, and additional conditions may be imposed.

Facility compliance status and a summary will be posted on the project webpage once compliance submittals have been reviewed.

#### **5.3.4 Mid-Term Reviews**

Annual compliance submittals are also evaluated to determine if any material changes have occurred that would trigger a mid-term review. These reviews confirm that the facility continues to satisfy the LIHI criteria in light of the material changes that were made. A fee will be charged for mid-term reviews (see [Appendix C](#)).

If LIHI determines through the annual compliance review that material changes have occurred, the Certificate holder will be notified and required to submit a summary of the changes with supporting documentation to demonstrate continued compliance with the LIHI criteria within 3 months after reporting the change in the most recent annual compliance statement, or after notification by LIHI, resource agencies, tribal governments, or other interested parties that a triggering event (see below) has occurred. Reviews will focus only on changes that specifically impact the LIHI criteria. If the LIHI criteria also changed during the term of a LIHI Certificate, those changes will be evaluated in conjunction with the triggering event(s).

The following are examples of material changes that will trigger a mid-term review:

- **Facility or operational change:** A permanent facility or operational feature change that changes the nature or extent of impacts related to the LIHI criteria such as those related to water quality

compliance, adherence to flow requirements, changes in fish passage measures, changes to cultural or historic resources, etc.

- ***Watershed change:*** Changes at upstream or downstream facilities (e.g., dam removal, installation of fish passage, a new FERC license); flooding or erosion events that significantly alter river hydrology and/or facility operations; changes in water quality status in facility-affected reaches; newly identified threatened or endangered species at the facility; a newly issued biological opinion or change in river designation (e.g., Wild and Scenic River, other new protected status); changes in cultural or historic property designations; or other changes that directly affect the facility and are likely to change the nature or extent of impacts related to the LIHI criteria.
- ***Regulation, policy, or management plan change:*** A change in local, regional, state, federal or tribal regulation, policy, or management plan change that directly affects the facility and is likely to change the nature or extent of impacts related to the LIHI criteria, including but not limited to: changes in state or tribal water quality standards or other water-related regulations; new or modified instream flow policies; fishery or other resource management plans; listed or tribal trust species biological opinions or recovery plans; or local, regional, state, federal, or tribal recreation, public access, or traditional cultural access policies or plans.
- ***New FERC License or material FERC license or exemption amendment:*** A new FERC license or material license or exemption amendment that affects one or more LIHI criteria may result in a targeted or full mid-term review depending upon the extent of changes applicable to the LIHI criteria. In this case, the Certificate holder must submit a summary of related changes with supporting documentation within 6 months of the new license or amendment issuance. If the review determines that the facility continues to satisfy the LIHI criteria, a new Certificate term will be granted even if the current LIHI term has not expired.

Mid-term reviews will only result in a new LIHI term in the case of a new license or material license or exemption amendment has been issued and the facility continues to satisfy the LIHI criteria. For all other mid-term reviews, continued certification within the current LIHI term is contingent upon the facility remaining in compliance and continuing to satisfy the LIHI criteria in effect at the time of review. Review fees and additional conditions may also be imposed.

In all cases of material changes, the submitted information will be posted on the project page of the LIHI website and the public will be notified and given an opportunity to comment consistent with the procedure for recertification applications ([Section 6](#)). LIHI will prepare a brief report that summarizes how the facility continues to satisfy the LIHI criteria. In the case of a new FERC license or material license or exemption amendment, the decision to grant a new Certification term will follow the procedure for new applications (see [Section 6.2](#) and [Section 4.2.5](#)).



### **5.3.5 Consequences of Non-Compliance**

If LIHI finds that a Certified facility has committed a significant violation of the terms of certification, or that a material misrepresentation of fact was made in any submission from the applicant or current Certificate holder, and such violation or material misrepresentation is not corrected within thirty (30) days after the facility receives written notice from the Executive Director, LIHI may:

- Impose additional conditions and/or condition fees.
- Temporarily suspend the Certification pending a return to compliance and:
  - Require the Certificate holder to immediately notify its current customers that its LIHI Certification has been suspended, and, if its customers do not deliver power to the ultimate retail customer, immediately notify the retail marketer; and
  - Require any entity marketing power from the facility to immediately stop employing the LIHI Certification in its marketing unless it can find another supply that is also Low Impact Certified®.
  - LIHI will notify the appropriate entities as applicable of the suspension and will remove the facility information from the LIHI website.
- Revoke the Certification and:
  - Bar the Certificate holder from re-applying to certify the same facility for five years.
  - Require the Certificate holder to immediately notify its current customers that its LIHI Certification has been revoked, and, if its customers do not deliver power to the ultimate retail customer, immediately notify the retail marketer; and
  - Require any entity marketing power from the facility to immediately stop employing the LIHI Certification in its marketing unless it can find another supply that is also Low Impact Certified®.
  - LIHI will notify the appropriate entities as applicable of the revocation and will remove the facility information from the LIHI website.

### **5.3.6 Notification of Ownership Changes**

If the Certified facility transfers ownership and the purchaser wishes to maintain LIHI Certification, the new facility owner must assume all obligations and responsibilities of the LIHI Certificate holder. The seller shall notify LIHI within 30 days of the transfer and provide contact information for the purchaser. The purchaser shall provide detailed contact information and execute a separate CMLA with LIHI or LIHI shall add the subject facility as an Exhibit to a CMLA executed by the purchaser and LIHI that is already in effect (if applicable).

LIHI will conduct an informational session with the new owner to ensure that LIHI program requirements and Certificate obligations are understood, and that compliance can and will be maintained.

*(this page blank)*

## 6. RECERTIFICATION

All LIHI Certificates are issued for a term from ten to fifteen years once a facility has been certified under the 2<sup>nd</sup> Edition LIHI Handbook. Before the end of the current term, the Certificate holder may apply for recertification. Approximately six to nine months prior to the Certificate expiration, LIHI will notify the Certificate holder that its Certification is due to expire and will provide instructions on how to apply for recertification in accordance with the LIHI Handbook revision in effect at that time.

To renew a LIHI Certification, the Certificate holder submits a recertification application package similar to a new application package (see [Appendix B](#) for instructions) and pays recertification review fees (see [Section 4.4](#) and [Appendix C](#)). Recertification applications should be received by LIHI well in advance of the current term expiration to allow sufficient time for review and public comment.

### 6.1 Facilities Undergoing FERC Relicensing

If a facility is currently Certified and enters a FERC relicensing proceeding during the Certification term, but a new license is not expected during the LIHI term, the recertification application will be evaluated under the conditions in the existing FERC license until FERC issues a new license. In this case, the LIHI Certificate may be conditioned to require updating and potential modification as soon as a new license is issued, so as to be consistent with any new science-based resource agency recommendations, or science-based or indigenous knowledge-based tribal government recommendations made during the proceeding. Similarly, the findings of any science-based or indigenous knowledge-based studies, or other information relevant to the LIHI criteria, may be considered.

If the facility is not recertified before starting the FERC relicensing process and depending on the expected date of issuance of a new FERC license, the LIHI Technical Committee may choose to provide an extension of the current Certificate for a term of one year. One-year extensions may continue to be provided until a new license is issued, subject to Technical Committee approval.

### 6.2 Recertification Process

Recertification occurs in two stages which involve third-party independent application reviews and an opportunity for public review and comment. Stage I is a relatively simple and quick process that is similar to the original intake review for a new application. Stage II, if needed, is a more comprehensive evaluation similar to the full review of the first-time Certification application.

The Stage I review focuses on three primary questions:

1. Is there any missing information in the application?
2. Are there any newly identified issues of concern or have there been any material changes (see [Section 5.3.3](#) and [Section 5.3.4](#)) at the facility during the term of the previous Certification?
3. Have there been any material changes in the LIHI criteria or Certification process since the facility was originally certified or last recertified?

If the application reviewer determines that the answer to each question is “no,” then a recertification decision can be made relatively quickly pending verification of the information provided in the

application, and receipt of any public comments during the 60-day comment period. If the reviewer determines that the answer to any of the recertification questions is “yes,” a more extensive Stage II investigation is required. In this case, the reviewer will prepare a brief confidential Stage I review report identifying missing information or unresolved issues and any supplemental information needed. LIHI will share the report with the applicant following the procedures in [Section 4.2.2](#). The recertification fee may also be increased if additional effort is required by LIHI staff or the reviewer to conduct a Stage II recertification review.

The Stage II recertification review involves a complete review of the application package, annual compliance submittals and prior mid-term reviews (if any) during the prior Certificate term; a search of public records associated with the facility; and any necessary inquiries to resolve factual disputes, evaluate the veracity of claims, or obtain additional information from the applicant, resource agencies, tribal governments and/or other interested parties. The review also considers all public comments received and any applicant responses to comments.

The applicant submits the application package, along with the Stage II recertification fee (see [Appendix C](#)), following the instructions received from LIHI staff prior to expiration of the current Certificate. When the application is deemed complete, including payment of fees and submittal of all required forms and documents, LIHI will post the application package on the LIHI website for the 60-day public comment period. Notice of the application is sent via email to the agency, tribal government, and interested party contacts listed in the application, as well as to others on the LIHI email notice list.

Any party may submit public comments to LIHI during the 60-day comment period to [comments@lowimpacthydro.org](mailto:comments@lowimpacthydro.org). The application reviewer will examine all application materials, the LIHI facility file containing the past Certification decision(s) and annual compliance submittals, public documents for the period of the current Certification term, public comments received, and responses to any reviewer inquiries of the applicant and/or third parties.

When the review is complete, the reviewer submits a written report to LIHI staff, with a recommendation on whether the facility should continue to be Low Impact Certified or not, and an explanation outlining the basis for the recommendation. If the reviewer believes that new facility-specific conditions or continuation or modification of conditions from the current Certification are necessary, they are included as recommendations in the review report.

### **6.3 Recertification Decisions and Appeals**

Decision-making authority for recertification applications is the same as in original LIHI Certification applications ([Section 4.2.5](#)). If there have been adverse material changes, the Executive Director’s recommendation and the reviewer’s report will be submitted to the Technical Committee of the LIHI Governing Board for a certification decision. If LIHI’s decision is to recertify the facility, LIHI will post a notice of the preliminary decision on the LIHI website for the 30-day appeal period. Should an applicant or any other party desire to appeal a decision on a recertification application, the guidelines in [Section 4.3](#) apply.

## 6.4 Withdrawal of Recertification Application

At any time and without prejudice, a Certificate holder may withdraw its recertification application from consideration. If the application is withdrawn, the final status of the application in public LIHI documents will be described as “withdrawn” and posted on the LIHI website’s Pending Applications page for a 30-day period and commenters on the application will be notified. The Certificate will remain active until its expiration date, at which time all facility documents will be removed from the LIHI website. Certificate maintenance fees and condition fees if applicable, will be billed for the full annual period ending in the month prior to the Certificate’s expiration date (see [Section 4.4.2](#)). Application review fees are not refundable, even in the instance of withdrawal. The applicant may resubmit an application package at a later date, if desired.

Alternatively, and in consultation with LIHI staff, the applicant may suspend or place their application on hold. This may be appropriate if additional information is needed to complete the recertification review. In this case, the application status on the Pending Applications webpage will be described as “review in process, awaiting additional information” and the current Certificate will be extended for up to one year to allow time for the additional information (see [Section 6.1.2](#) for FERC relicensing situations). Re-activated applications may be subject to additional review fees.

## 7. LITERATURE CITED

- Annear, T., and others, 2004. Instream flows for riverine resource stewardship, revised edition, Instream Flow Council, Cheyenne, WY. 268 pp.
- California Environmental Flows Working Group (CEFWG). 2021. California Environmental Flows Framework Version 1.0. California Water Quality Monitoring Council Technical Report 65 pp.
- Clement, J.P., A. d'A. Belin, M.J. Bean, T.A. Boling, and J.R. Lyons, 2014. A strategy for improving the mitigation policies and practices of the Department of the Interior. A report to the Secretary of the Interior from the Energy and Climate Change Task Force, Washington, DC, 25 pp.
- DePhilip, M. and T. Moberg, 2013. Ecosystem flow recommendations for the Upper Ohio river basin. The Nature Conservancy. 193 pp.
- Dingman, S. Lawrence. "Physical Hydrology. Long Grove, IL." (2002): 342-344.
- Dynesius, M. and C. Nilson, 1994. Fragmentation and flow regulation of river systems in the northern third of the world. *Science* 266:753-762.
- Grimm, L.T., 2002. Certifying hydropower for "green" energy markets: the development, implementation, and future of the Low Impact Hydropower Certification Program. Report to the U.S. Department of Energy Hydropower Program from the Low Impact Hydropower Institute, Portland, OR. 104 pp.
- Kendy, E. C, Apse, and K. Blann, 2012. A practical guide to environmental flows for policy and planning: with nine case studies in the United States. The Nature Conservancy. 65 pp.
- Mathews, R., and B. Richter, 2007. Application of the indicators of hydrologic alteration software in environmental flow setting. *Journal of the American Water Resources Association* 43: 1400–1413. doi: 10.1111/j.1752-1688.2007.00099.x
- McManamay, R. and M. Bevelhimer, 2013. A holistic framework for environmental flows determination in hydropower contexts. ORNL/TM-2013/159. Oakridge National Laboratory. 62 pp.
- Novak, R., J.G. Kennen, R.W. Abele, C.F. Baschon, D.M. Carlisle, L. Dlugolecki, J.E. Flotermersch, P. Ford, J. Fowler, R. Galer, L.P. Gordo, S.N. Hansen, B. Herbold, T.E. Johnson, J.M. Johnston, C.P. Konrad, B. Leamond, and P.W. Seelbach, 2017. Final EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration: U.S. Geological Survey Scientific Investigations Report 2016–5164, U.S. Environmental Protection Agency EPA Report 822-R-16-007 155 pp.
- Opperman, J., G. Grill and J. Hartmann, 2015. The Power of Rivers: Finding balance between energy and conservation in hydropower development. The Nature Conservancy. Washington, D.C. 52 pp.
- Richter, B., M. Davis, C. Apse, C. Konrad. 2012. A presumptive standard for environmental flow protection. *River Research and Applications* 28:1312-1321.
- Stalnaker, C., L. Lamb, J. Henrickson, K. Bovee, and J. Bartholow, 1995. The instream flow incremental methodology, a primer for IFIM. Biological Report 29, U.S. National Biological Service, Washington, D.C. 44 pp.
- United Nations, 2009. United Nations World Water Development Report 3: Water in a changing World. 429 pp. (see Appendix 1: World Water Development Report Ecosystem Health Indicators: Fragmentation and Flow Regulation of Rivers).

## APPENDIX A - DEFINED TERMS AND ACRONYMS USED

**Adaptive management:** A system of management practices based on clearly identified timeframes and outcomes with monitoring to determine if management actions are meeting outcomes, and, if they are not, facilitating management changes that will best ensure that outcomes are timely met, or to re-evaluate the outcomes. Adaptive management recognizes that knowledge about natural resource systems is not static and sometimes uncertain and is the preferred method of management in those cases.

**Advanced technology:** A technology or mitigation technique based on new ideas, new technology, or unique, site-specific conditions that has a reasonable probability of providing the desired results (e.g., effective fish passage, improved water quality).

**Alternative fish passage mitigation:** Mitigation measures employed *in lieu* of upstream or downstream fish passage measures at the facility to support fish populations adversely affected by the facility. Such measures might include restoration of degraded habitat in the facility-affected reaches or the watershed to enhance natural reproduction. Such alternative mitigation measures should be designed to sustain the abundance and diversity of target fish stocks in the river system.

**Anadromous fish:** Fish that begin their life cycle in freshwater then migrate as juveniles to the ocean where they grow into adults before migrating back into freshwater to spawn.

**Appeals Panel:** An appeals panel is comprised of three independent, non-conflicted individuals selected by the Executive Director from a pool of qualified candidates. Appeals panel members are selected based on their expertise in hydropower and natural resource issues, and their ability to objectively evaluate cases concerning the LIHI Certification Program.

**Applicant:** The party applying for LIHI Certification. This will usually be the facility owner or operator, or their authorized agent. However, compliance with the conditions of a Certificate is the responsibility of the facility owner and all affiliates.

**Base flow:** As used in this Handbook, base flow is water that enters a stream from persistent, slowly varying sources and which maintains streamflow between water-input events (Dingman, 2002).

**Basin-scale redevelopment strategy:** A watershed-level action plan that examines the dual opportunities for hydropower generation and environmental restoration/enhancement and defines ways to achieve both. The applicant must demonstrate a substantial commitment to achieving the goals of the plan.

**Best practice/best available technology:** A method, technique, or technology that has consistently proven to produce superior results within the hydropower industry. To justify such approaches, the applicant should reference past successful uses and/or recognition by a resource management authority or professional research organization.

**Bylaws:** The Low Impact Hydropower Institute bylaws are the written rules by which the organization is governed. They set forth the structure of the LIHI Governing Board and the organization. They determine the procedures by which the LIHI Certification Program is implemented and guide the LIHI

Governing Board in conducting business. The bylaws are available on the LIHI website [Governance page](#).

**Bypassed Reach:** The area in a waterway between the initial point where water has been diverted for the purpose of water-powered generation of electricity and the point at which water is subsequently released into the waterway downstream of that point.

**Catadromous fish:** Fish that begin their life cycle in saltwater then migrate as juveniles into freshwater where they grow into adults before migrating back into the ocean to spawn. American eels are the only catadromous fish in North America.

**CMLA:** The Certification Mark License Agreement which is required to be executed by the Certified facility owner (and appropriate affiliates) prior to use of the LIHI Certification Mark. The CMLA authorizes the use of the Certification Mark for the Certificate holder to market power and the associated green attributes from the facility as Low Impact Certified by LIHI or “LIHI Certified®”. The standard CMLA is available at the bottom of the LIHI website [How to Apply page](#).

**Compliance:** A facility is in compliance with a requirement or recommendation if it complies at the time of application and has not had any material violations or formal notices of violation issued by a local, state, federal, or tribal authority within the prior ten years. If the facility has been in violation of a requirement or recommendation but the applicant does not believe the violation is material, the violation must be disclosed, and its materiality explained in the application. Certificate holders must certify compliance annually on a form provided by LIHI.

**Cultural or historic resources:** Material remains of past and present human life or activities that are of significant cultural or archaeological interest. “Of cultural or archaeological interest” means capable of providing scientific or humanistic understandings of past human behaviors, cultural adaptation, and related topics through the application of scientific, scholarly, or indigenous knowledge-based techniques such as controlled observation, contextual measurement, controlled collection, analysis, interpretation, and explanation. This term includes, but is not limited to, objects made or used by humans, such as pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, or any portion or piece of the foregoing items, and the physical site, location, or context in which they are found. Cultural resources are also understood to include historic resources such as facility equipment and structures having historic significance because of their engineering, technology used, and/or architectural features.

**Diversion:** A diversion channels a portion of a river through a canal, flowline, and/or a penstock to utilize the natural change in riverbed elevation to produce energy. Diversion facilities may or may not use a low dam to direct the water. These facilities typically have little to no storage capacity.

**Downstream fish passage (also downstream passage):** Safe and effective movement of fish downstream through the facility’s impoundment, dam, powerhouse, and bypassed stream reaches. Effective downstream passage should encompass migratory fish and riverine fish and life history stages that are identified at or could be impacted by the facility.

**Enforceable (also enforceable protection):** For purposes of this Handbook, enforceable protection means a legally enforceable agreement, restriction, permit, authorization, or covenant that requires



certain actions by the facility owner on facility lands or waters so as to achieve ecological land protection for water quality, wildlife, aesthetics, low-impact recreation, or other resource values. Examples include permanent conservation easements, habitat or species protection plans, public or traditional cultural access agreements, and shoreline permit programs.

**Extirpate (also extirpated and extirpation):** To completely remove or locally eliminate a species population from an area.

**Fish passage:** The ability of native migratory fish and riverine fish species and life history stages that are identified at or could be impacted by the facility or its operation to move safely and effectively upstream and downstream of an artificial obstruction.

**Fish protection:** Techniques or structures to prevent the loss of resident or migratory fish (e.g., screens and other barriers that exclude fish from impingement or entrainment, plunge pools, adequate flows for passage).

**Fishway:** A fishway is the combination of elements (structures, facilities, devices, operations, and measures) necessary to ensure the safe, timely, and effective movement of fish past a barrier. Generally, fishways employ proven technological approaches that comply with agency guidance if such guidance exists.

**Flow-ecology model:** For the purposes of this Handbook, a science-based or indigenous knowledge-based flow-ecology model is a method that: 1) quantitatively or qualitatively defines the relationships between flow, hydrologic alteration, and ecological condition; and 2) demonstrates that an altered flow regime is within acceptable limits of ecosystem risk. Possible approaches could range from broadly applicable hydrologic alteration thresholds (Richter et al., 2012) to regional or river-specific ecosystem flow recommendations (Kendy et al., 2012; DePhilip and Moberg, 2013; McManamay et al., 2013; Novak et al., 2015).

**Formal agency or tribal order:** Includes but is not limited to material changes in regulatory status (e.g., from FERC licensed to exempt or vice versa); a material amendment to a water quality certificate, FERC or other regulatory authorizations; or other local, state, federal, or tribal regulatory requirements or authorizations that change facility operations or features.

**Habitat evaluation technique:** A science-based or knowledge-based habitat evaluation technique is a quantitative environmental assessment procedure that describes how habitat quantity and quality change over a range of physical conditions, such as stream flows or impoundment surface elevations. The term refers to a relatively large number of science-based assessment methods such as the Instream Flow Incremental Methodology (IFIM) and the Physical Habitat Simulation (PHABSIM) model that dates to the 1970s (Stalnaker et al., 1995) and the Habitat Evaluation Procedures developed in the 1980s by the U.S. Fish and Wildlife Service (<https://www.fws.gov/policy-library/870fw1>). Knowledge-based approaches can include the Delphi Technique (<https://www.theijes.com/papers/v3-i4/Version-4/B03404008013.pdf>), comparison of historical and current conditions, and other methods such as flow demonstration studies. For examples, see Annear et al. (2004) and other products from the Instream Flow Council (<http://www.instreamflowcouncil.org/>). The most important aspect of these techniques is that they involve a sound framework that considers the tradeoffs between multiple ecological processes

and resource management objectives and that evaluates a range of flow options over a continuum of hydrologic conditions, both within years and among different types of water years (wet to dry). The resulting management decisions supported by these methods may result in seasonal or year-round limits on impoundment fluctuations, facility discharge ramping rate restrictions, and/or minimum instream flows into a bypassed reach or downstream reach.

**Hydropower Facility:** A hydropower facility typically consists of an impoundment, dam or diversion structure, associated powerhouses, water conveyance systems such as canals or penstocks, transmission facilities, other ancillary structures, and the lands and waters associated with the facility including bypassed reaches. For purposes of this Handbook, a facility may also consist of a storage dam and impoundment with no associated powerhouse.

**Indirect ownership:** Indirect ownership means that the hydropower facility and associated lands are owned through separate LLC's or other segmented ownership structures that have interconnected business relationships with the applicant company. Indirect ownership may include lands not directly related to power generation and transmission (e.g., lands other than those associated with the dam, powerhouse, or transmission corridor).

**Indigenous Knowledge-based (also includes Traditional Knowledge-based or Traditional Ecological Knowledge-based):** As used in this Handbook, indigenous knowledge-based refers to tribal government recommendations based on the body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. Indigenous knowledge cannot be separated from the people inextricably connected to that knowledge. It applies holistically to phenomena across biological, physical, social, cultural, and spiritual systems. Indigenous peoples have developed their knowledge systems over millennia and continue to do so based on evidence acquired through direct contact with the environment, long-term experiences, extensive observations, lessons, and skills.

**Limited storage capacity:** An impoundment with a storage ratio (relationship between usable impoundment storage and mean annual flow) that poses a low relative risk of altering the flow regime. In this Handbook, limited storage includes impoundments with an active or usable storage capacity equal to or less than 5% of the estimated unregulated mean annual flow (Dynesius and Nilsson, 1994; UNEP, 2009; Opperman et al., 2015). Load-following or peaking facilities will be reviewed on a case-by-case basis for compliance with the intent of this defined term.

**Listed species:** Listed species are those species that have been designated by the appropriate federal or state agency as either "Endangered" and in danger of extinction throughout all or a significant portion of their range, or "Threatened" and likely to become endangered in the foreseeable future throughout all or a significant portion of their range. See also tribal trust species below.

**Material change:** A change in facility structures or operations that changes the nature or extent of impacts related to the LIHI criteria such as adherence to flow requirements, water quality compliance, changes in fish passage measures, changes to cultural or historic resources, etc.; changes in the watershed; changes in regulations, policies, or management plans; changes resulting from a new FERC

license or license or exemption amendment; or changes in the LIHI criteria.

**Material FERC license or exemption amendment:** An amendment that changes the facility or operations and directly impacts one or more LIHI criteria. This excludes minor amendments with no impacts associated with the LIHI criteria that have proper regulatory approvals (e.g., some FERC boundary changes, small construction projects, some dam repairs).

**Migratory fish:** Fish species that require stream connectivity to travel between different areas on an occasional (daily, seasonal, annual, or longer) basis for purposes such as spawning, rearing, feeding, growth to maturity, dispersion, and/or seasonal use of habitat. Migratory fish include anadromous, catadromous, potamodromous, and other riverine or resident species if those species must move through a river system to successfully complete their life cycle.

**Mitigation:** Generally, refers to a sequence of actions, including avoidance, minimization, and compensation, in that order (Clement et al., 2014). Mitigation can be either “in-kind” where a mitigation project is in close proximity to the site of impact and is designed to replace lost resources with identical or very similar resources; or “out-of-kind” which involves replacement or substitute resources that are related to but of a different quality, resource mix, or even resource type compared to more direct in-kind mitigation. Out-of-kind mitigation must have benefits that are of equal or greater overall value to that of the impacted resource. Out-of-kind mitigation may be employed outside the boundary of the facility’s affected area. For example, in lieu of upstream fish passage measures to make habitat available above a barrier, the facility owner/operator might enhance or make available other spawning habitat downstream of the barrier or in another part of the watershed not affected by the facility.

**Mode of operation:** The operation of impoundment or powerhouse releases that determine the water surface elevations and downstream flow patterns over sub-daily, daily, and/or seasonal time periods. Modes may include run-of-river, run-of-release, peaking, pulsing, seasonal storage, diversion, etc.

**Net benefit:** An increase in the overall habitat quality or quantity in the vicinity of the facility after technological improvements or mitigation measures have been completed.

**New hydropower facility (or new generation):** The addition of electrical generation equipment or retrofit of such equipment at an existing dam or diversion that was originally built before August 1998 and that does not degrade resource conditions upstream or downstream of the modified facility.

**Potamodromous fish:** Fish that migrate only in freshwater. This term refers to behavior based on lifecycle needs and not to specific species in many cases. However, some species of freshwater fish (e.g., sicklefin redhorse, robust redhorse, lake sturgeon, flathead catfish, white sucker, and trout) commonly display this behavior. The best source of information on freshwater fish that may migrate locally is the state or tribal fish and wildlife agency.

**Pumped Storage Hydropower:** A type of hydropower facility that usually generates electric energy during peak load periods by using water previously pumped into an elevated storage impoundment during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the impoundment through penstocks to turbine generators located in a power plant at a lower level. The water can then be pumped back up

into the storage impoundment for later use. Pumped storage facilities can be either open loop (connected to a river system) or closed loop (disconnected from a river system). Pumped storage facilities typically use more electricity in pumping than is supplied to the regional grid.

**Ramping Rate:** Ramping rate refers to the rate of change in water flow levels.

**Rare and Special Status Species:** A species that: a) naturally occurs in a narrow geographical area; b) occupies only one or a few specialized habitats; c) forms only small population(s) in its range; or d) is otherwise listed as rare, special status, or a species of conservation concern by a resource agency or Tribal Nation.

**Recognized Tribal plan:** A plan for management of tribal trust resources as adopted by a Tribe. This includes but is not limited to Comprehensive Plans accepted by FERC.

**Recreation activities:** Public uses of a facility's lands or waters including but not limited to swimming, boating, fishing, sightseeing, picnicking, and wildlife viewing.

**Recreation and public access:** The ability to enter waterbodies and lands associated with the facility by the public for recreational and traditional cultural uses. Safety and security issues may dictate that such access is not feasible in some locations.

**Regionally accepted instream flow policy:** A study methodology or standard that is routinely relied upon by regulatory agencies, Tribal Nations, and/or scientists working in the facility's geographic area. These are often referred to as standard-setting or desk-top methods and are often used to define a minimum threshold flow, below which instream conditions are considered unsupportive of sustaining aquatic life. In Standard A-3, this method to protect base flows is coupled with the requirement of an impoundment having limited storage, to limit the risk of hydropower operational effects on seasonal and inter-annual flow variability. For further explanation, see publications from the Instream Flow Council (Annear et al., 2004), The Nature Conservancy (Mathews and Richter, 2007), and the California Environmental Flows Working Group (California Environmental Flows Working Group (CEFWG). 2021).

**Resource agency and tribal government recommendations:** Formal recommendations, permits, authorizations, or other conditions for facility operation, maintenance, or construction that are issued by local, regional, state, or federal agencies, or by Tribal Nations affected by the facility or its operations. Resource agency and tribal government recommendations considered in LIHI Certification must be:

- **Formally issued.** Resource agency and tribal government recommendations are those issued by resource agencies having jurisdictional authority and the governing bodies of affected Tribal Nations, or by their respective authorized designees. Recommendations may be issued pursuant to a legal or other administrative proceeding, issued as part of a Tribal council resolution or contained in other formal agreements made between the facility owner/operator and resource agencies or Tribal Nations. The recommendation must be made on official letterhead and signed by an individual with authority, as defined by each resource agency or Tribal Nation, to submit formal correspondence on their behalf. The proceedings anticipated to apply for most facilities are a FERC licensing, exemption, or amendment proceeding. Formal recommendations issued specifically as part of LIHI Certification can also be used provided that, for agencies, they

can demonstrate that the recommendations are based on the best available scientific information. Tribes can also demonstrate that their recommendations are science-based or based on indigenous knowledge. For a FERC-regulated facility, these recommendations could include proposed or mandated license conditions submitted through the FERC licensing or other processes pursuant to Federal Power Act Sections 4(e), 10(a), 10(j), or 18; Clean Water Act (CWA) Section 401; the Endangered Species Act Section 7; or other state, federal, or tribal laws, and their associated regulations, permits, or published standards. For both FERC-regulated and non-FERC-regulated facilities, these recommendations may also derive from consultation pursuant to the Endangered Species Act, CWA Section 401 proceedings, the National Historic Preservation Act, the National Environmental Policy Act, Northwest Power Act proceedings, or other state, federal, or tribal proceedings, or from direct consultation with resource agencies or Tribal Nations which result in specific formal agreements related to the facility and/or its operations. Recommendations that are subsequently vacated by a judicial proceeding cease to be valid for purposes of LIHI Certification.

- **Recent.** If a single resource agency, the governing body of a Tribal Nation, or their authorized designee has made multiple recommendations, their most recent formal recommendation shall generally apply. This principle also applies when there is a settlement agreement. If a resource agency or tribe is party to a settlement, or formally concurs in a settlement, the settlement terms in effect at the time of LIHI application submittal will be considered the most recent resource agency or tribal recommendation. If, however, a resource agency or Tribal Nation is not party to a settlement and does not formally concur in the settlement, a subsequent formal science-based recommendation by that agency, or a science-based or indigenous knowledge-based recommendation by that Tribal Nation will still be considered in the certification evaluation.
- **Most stringent.** In addition to being the most recent recommendation, the most stringent resource agency or tribal government recommendation for a particular resource will apply. If a condition in the facility's FERC license or exemption (or other operating requirement) is less stringent than another science-based resource agency recommendation, or science-based or indigenous knowledge-based tribal recommendation, the more stringent recommendation will be considered in the certification evaluation. For a simplistic example, if the U.S. Fish and Wildlife Service originally recommended a 100-cfs minimum flow, and the state Department of Fish and Wildlife recommended 50 cfs, then the U.S. Fish and Wildlife Service revised its recommendation to 80 cfs based on the results of an instream flow study, but FERC issued a license with a 40-cfs minimum flow, the facility must release a minimum flow of 80 cfs to satisfy the Flow Regimes criterion.
- **Consistent with and supportive of resource management goals and objectives.** Resource agency and tribal government recommendations must align with the relevant formal management goals and objectives for the resource(s) in question as they relate to the facility or its operations (e.g., fishery management plan, species recovery plan). The specific recommendation for the facility must also demonstrate how the recommendation supports achievement of the relevant resource management goals and objectives.

- **Resolution of conflicting recommendations.** In instances of conflicting resource agency and/or tribal government recommendations, and the conflict cannot be resolved by applying the most recent and most stringent tests, the conflict will be resolved by applying the recommendations in this order: 1) based upon the health of threatened, endangered, or tribal trust species; 2) based on the health of other rare or at-risk species; 3) based on traditional and cultural resources; and 4) based on recreation and access; unless there is a statutory mandate to resolve the conflict otherwise. For example, recommendations designed to protect threatened or endangered species (i.e., a species recovery plan) would generally prevail over recommendations regarding recreation and access, although LIHI reserves the right to use its discretion in making a final determination. If a conflict still exists among resource agency(ies) and/or tribal government recommendations, LIHI will determine which recommendation will apply for the purpose of LIHI Certification.

**Riverine fish:** A fish species that spends its entire life cycle in the riverine (fresh water) system and may migrate or move from one area to another for purposes of completing its life cycle. Riverine fish do not migrate to or from the ocean. Riverine fish are also referred to as resident fish however, many riverine fish species are potamodromous.

**Run-of-River:** For purposes of this Handbook, a facility is operated in a run-of-river mode if the outflow of the facility is within reasonable measurement accuracy (plus or minus 10 percent) of the inflow to the facility, measured on an hourly basis. This level of alteration is estimated to have a low risk to ecosystem flow needs (Richter et al. 2012). **NOTE:** LIHI distinguishes hydro facilities located at non-hydro dams or locks and dams where flow operations are controlled by another party as “run-of-release” facilities.

**Science-based:** Science-based resource agency or tribal government recommendations can be based on relevant peer-reviewed and published studies; principles, methods, or techniques generally accepted within the scientific community; other technically sound best management practices; or on facility-specific studies. In all cases, the recommendation must be based on rigorous, systematic, and objective methodologies to obtain reliable and valid knowledge that demonstrates that the design and operations of a facility would be expected to achieve the LIHI criterion goals.

**Site-specific basis:** Studies or measures that are directly related to a facility’s impacted lands or river segments and intended to address the physical and biological conditions that have been altered by the facility’s construction, modification, and/or operation.

**Special circumstances or newly identified facility-specific issues:** New issues of concern and relevance to the LIHI criteria that did not exist or were not known to LIHI at the time of prior LIHI Certification; or ongoing problems with previously known issues that appeared to have been resolved or on the road to resolution at the time of the prior LIHI Certification, but in fact are not resolved.

**Substantive complaint:** A complaint from a resource agency, Tribal Nation, interested group, or member of the public that directly relates to the LIHI criteria and cannot be resolved within the annual compliance review process and/or that requires active engagement and commitment by the Certificate holder to resolve.

**Substantive notice of violation:** Includes formal FERC notices of violation and/or written resource agency or Tribal compliance warnings or violations that directly relate to the LIHI criteria. This excludes short-term deviations and those beyond the operator’s control if properly reported to LIHI, and if applicable, reported to resource agencies, Tribal Nations, and/or FERC, and if corrected in a timely manner with minimal environmental impact.

**Tailwater/downstream reach:** The river reaches directly downstream of the powerhouse, including turbine discharges and waters flowing from a bypassed reach, if one is present. A tailwater/downstream zone of effect should consider all water releases from a facility and be designated to extend sufficiently far downstream to encompass all facility influences on a river.

**Traditional (or Tribal or Indigenous) Cultural Landscape:** As used in this Handbook, any place in which a relationship, past or present, exists between a spatial area, resource(s), and an associated group of indigenous people whose cultural practices, beliefs, or identity connects them to that place. A traditional cultural landscape is determined by and known to a culturally related group of indigenous people with relationships to that place.

**Traditional Cultural Property (TCP):** As used in this Handbook, any property that is eligible for inclusion in the National Register of Historic Places based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community’s history and are important in maintaining the continuing cultural identity of the community. Many TCPs can only be identified by consulting directly with members of the affected community(ies). Members have specialized expertise regarding properties that play important roles in their historically rooted beliefs, customs, and practices. While certain properties may be documented in the historic literature or through previous ethnographic or archeological studies, certain information regarding these and other properties has only been passed down through generations by oral history or practice.

Tribal Trust Resources: Tribal trust resources refer to resources, the collective rights to their use and management, and access to traditional areas and times for their harvest, procurement or gathering that have been associated with a Tribal Nation’s sovereignty since time immemorial. The term includes inherent rights or inherent rights expressly or impliedly reserved via treaty, Executive Order, or statute associated with usual, accustomed, and traditional territories. In addition, tribal trust resources include areas important to traditional cultural practices and the natural and cultural resources associated with those practices including plants, wildlife, or fish used for commercial, subsistence, and ceremonial purposes. Resources may also include archaeological or historic sites or Traditional Cultural Properties associated with tribal use and sites considered sacred by Tribes. Resources, archaeological sites, Traditional Cultural Properties, Traditional Cultural Landscapes, and natural resources often can be interconnected and overlapping.

**Tribal Trust Species:** A species protected under tribal reserved rights. This term is a subset of tribal trust resources and, in this Handbook, used in conjunction with Listed Species. Tribes identify species of cultural importance for ceremonial, subsistence, and/or commercial purposes that need protection. The federal government coordinates with tribes on a government-to-government basis in efforts to protect them and their associated habitats.

**Tribal Nation (or Tribe):** As used in this Handbook, any state or federally recognized American Indian Tribe, Alaska Native entity, or Native Hawaiian organization. **NOTE:** Tribes and Tribal Nations that are not federally or state recognized, as well as other historic tribal groups having interests in the facility area must still be included in the tribal government and Tribal resource agency contact list (Table 13) of a LIHI application and their comments and recommendations will be considered in Certification decisions.

**Upstream fish passage (also, upstream passage):** Safe and effective movement of fish upstream over or around the facility's dam and bypassed stream reaches. Effective upstream passage should encompass migratory fish species and life history stages that are identified at or could be impacted by the facility or its operations.

**Upstream fish passage structure:** Any human-built structure that allows fish passage upstream around an artificial obstruction, including, but not limited to, fish ladders, elevators, nature-like fishways, and trap and haul facilities.

**Water conduit:** A tunnel, canal, pipeline, aqueduct, flume, ditch, or similar conveyance structure that is operated for the distribution of water for agricultural, municipal, or industrial consumption and not primarily for the generation of electricity.

**(Recent) water quality certification:** A state or tribal water quality certification (WQC) issued within 10 years of the LIHI application. It does not include a waiver of certification but may include amendments to an older WQC.

**Water quality limited:** Waterbodies directly affected by the facility that are currently identified by a state or tribe as not meeting water quality standards (for example, a listing pursuant to Section 303(d) of the Clean Water Act; this includes numeric standards, narrative standards, and designated uses).

**Zone of effect:** A specific waterbody or river segment, adjacent riparian lands, and other lands under the applicant's direct or indirect control that are directly affected by the design and operation of the hydropower facility, including areas in and surrounding impoundments above a dam or diversion, bypassed reaches between a dam and a powerhouse, and rivers downstream of a powerhouse discharge. **NOTE:** For hydro facilities at dams not owned or controlled by the hydro owner/operator, the impoundment is still considered a Zone of Effect.



## APPENDIX B - APPLICATION MATERIALS

This appendix provides comprehensive information about the required contents of an application for LIHI Certification. Editable forms and tables are subject to change and should be downloaded from [www.lowimpacthydro.org/how-to-apply](http://www.lowimpacthydro.org/how-to-apply) at the time of application.

Be sure to review the eligibility requirements in [Section 2](#) before proceeding and contact LIHI staff for guidance and assistance in completing the application, following the instructions in Sections 3, 4, 5 and 6 (if a recertification) and reviewing the defined terms and acronyms in [Appendix A](#). Certified facilities that have not yet been recertified under the 2<sup>nd</sup> Edition Handbook should also follow these instructions. Separate instructions for recertification applications for facilities already certified under the 2<sup>nd</sup> Edition Handbook are provided in a separate section [below](#).

### General Instructions

The recommended approach for preparing an application package is as follows (see [Example Outline](#) below):

1. Provide an introductory narrative summary of the facility, its history, history of ownership with dates of ownership transfer, facility operations, location in the watershed and in relation to other dams, and a brief description of each ZoE.
  - a. Include annotated maps, figures, and photographs that illustrate the facility layout and primary structures (e.g., dam, powerhouse, turbines, bypassed reach, fishways).
  - b. Include one or more annotated aerial images that illustrate and delineate all ZoEs.
  - c. If there are upstream and downstream dams, provide a map that locates them in relation to the facility and indicate which are owned by the applicant's parent company or other affiliated company, which have hydropower, their regulatory status, and whether they have upstream and/or downstream fish passage.

For "new" facilities describe how the facility meets the eligibility criteria in [Section 2](#) and summarize all facility, equipment, and operational changes that occurred after August 1998.

2. Complete the Facility Information Table (Table 1.a or alternate Excel format Table 1.b) with facility-specific information, including the designation of all ZoEs in the appropriate section.
  - a. For multiple hydro developments included in a single application see [Additional Information](#) below.
  - b. For pre-operational facilities please provide the additional information requested at the bottom of Table 1.a or 1.b.
3. Complete one Standards Matrix for each designated ZoE (repeat Table 2.a for each ZoE) or complete a consolidated Standards Matrix for multiple ZoEs (Table 2.b or Table 2.c for more complex facilities). Number the ZoEs consecutively starting with the upstream-most ZoE.

Select the single most applicable numbered standard for each Criterion in each ZoE. Indicate if a

PLUS standard for one or more criteria is being requested for each applicable ZoE. **NOTE:** For facilities at dams not controlled by the hydro owner/operator the impoundment must still be included as a ZoE.

4. Using the standards selected, refer to the Criterion goal statement and documentation requirements in Tables 3 through 10 (and the PLUS standard if applicable).
  - a. Provide a detailed narrative and supplementary documentation that demonstrates how the facility in the applicable ZoE satisfies the applicable Standard and the Criterion goal statement. Group the narrative sections by LIHI Criterion (e.g., discuss Criterion A –Flow Regimes for each ZoE and its selected standard, then discuss Criterion B – Water Quality for each ZoE, and so on).
  - b. Where narrative text would be identical for different ZoEs, do not repeat the information, simply refer to the applicable text in another ZoE or note that the discussion applies to all ZoEs or to the identified ZoEs.
  - c. Do not simply reference supporting documentation but summarize relevant information from it and provide references to page numbers in the supporting documents.
  - d. If PLUS standards are requested, provide a detailed narrative to justify the request and provide additional supporting documentation that supports the request.
5. Provide a summary of any planned or unplanned deviations from, or violations of the FERC license, exemption, or other permit or authorization requirement (e.g., water quality certification) over the last ten years. Indicate if each occurrence has or has not been resolved/corrected and include or provide links to or copies of relevant documents. For recertifications, provide supplemental information not previously reported to LIHI in annual compliance statements (e.g., since the last compliance statement was submitted).
6. Provide a summary of the efforts made and resources used during preparation of the application to identify all Tribal Nations that are or may be directly or indirectly affected by the facility. It is not sufficient to rely solely on such information from past FERC licensing or Water Quality Certification processes although that may be a good place to start.

A map of state and federal tribes can be found here: <http://www.native-languages.org/states.htm>. This map has not been updated since 2021, so double check via these resources:

- Federally recognized tribes by state <https://www.bia.gov/service/tribal-leaders-directory/federally-recognized-tribes>
  - State recognized Tribes can be found on Wikipedia [https://en.wikipedia.org/wiki/State-recognized\\_tribes\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/State-recognized_tribes_in_the_United_States) but information should be verified by the state via the Historic Preservation Office or Tribal affairs office.
  - Organizations that self-identify as Native American tribes (e.g., unrecognized federally or by states) [https://en.wikipedia.org/wiki/List\\_of\\_organizations\\_that\\_self-identify\\_as\\_Native\\_American\\_tribes](https://en.wikipedia.org/wiki/List_of_organizations_that_self-identify_as_Native_American_tribes)
7. Complete the [Attestation and Waiver Form](#), and the [Contact Forms](#) for the facility and applicant, federal, state and local resource agencies, tribal governments and tribal agencies, and other

interested parties (Tables 11-14 in Word or Excel format). Be sure to include contacts for at least one active member from each agency, tribe or interested party group that is part of a project-related working group.

8. Provide clearly named attachments or appendices containing supporting documentation that demonstrates compliance with existing regulatory requirements and that provide justification for how the facility meets each selected standard for each criterion in each ZoE.
  - a. If documents are readily available electronically (e.g., from the FERC eLibrary or from a state agency website), provide a list of relevant supporting documents with active weblinks to them.
  - b. If any Critical Energy Infrastructure Information (CEII), privileged information (i.e., locational information about threatened and endangered species or cultural and historic resources), or other traditional cultural or tribally protected information is included in an application, it should be placed in a separate document and marked “confidential”. However, if confidential information is imbedded in an application, both a public and non-public version of the application should be submitted and clearly identified as such.
9. Assemble all parts into a complete application package that includes a cover page, table of contents, facility description, and narrative text before or after the standards tables that explain how all LIHI criteria are satisfied, along with any attachments. Submit the application package via email. If you need assistance or if the application package is too large to send via email, please contact LIHI staff.

#### **Additional Information for Multiple Developments in a Single Application**

- If there are only two or three developments (facilities) included in an application, all facility information can be combined into a single Facility Information Table. In each applicable Facility Table row, provide information for each facility starting from the upstream-most facility. If there are numerous facilities and a single Table 1.a would be too onerous or complex, use separate tables for each facility or use the alternate Excel format, Table 1.b available on the LIHI website, and include all required information for each facility.
- Provide the total installed capacity and 10-year (or less for a newer facility) average annual generation values for each facility and for the application as a whole.
- All ZoEs included in the application should be uniquely numbered from 1 to xx, from upstream to downstream, and identified as to which facility it belongs.
- All narrative and information from Tables 3 through 10 should be grouped by LIHI Criterion first, then by ZoE.

## Example Application Outline

1. Cover page
2. Table of contents
3. Introduction, facility description, compliance status, overview map(s)/image(s), description of ZoEs
  - a. Table 1.a or the alternate Excel format, Table 1.b
  - b. Standards matrices for each ZoE (Table 2.a repeated for each ZoE, or Table 2.b or Table 2.c)
4. Discussion of each Criterion and how the facility meets the selected standard in each ZoE:
  - a. Flow Regimes, use applicable portion for Table 3 for each ZoE
  - b. Water Quality, use applicable portion for Table 4 for each ZoE
  - c. Upstream Fish Passage, use applicable portion for Table 5 for each ZoE
  - d. Downstream Fish Passage, use applicable portion for Table 6 for each ZoE
  - e. Shorelines and Watershed, use applicable portion for Table 7 for each ZoE
  - f. Threatened and Endangered Species, use applicable portion for Table 8 for each ZoE
  - g. Cultural and Historic Resources, use applicable portion for Table 9 for each ZoE
  - h. Recreation, use applicable portion for Table 10 for each ZoE
5. Signed Attestation and Waiver Form
6. Completed Facility and external Contact Forms (Tables 11 - 14)
7. Appendices/Attachments
  - a. Additional figures, maps, photographs
  - b. Supporting letters, emails from resource agencies, tribal governments, and/or other interested parties, if available
  - c. Supporting documents or hyperlinked list of documents available online
  - d. Confidential documents marked as such (separate from the main application document)

### NOTES:

- Materials provided to LIHI as part of a pre-application consultation or during the intake review stage will be kept confidential, unless and until a complete certification application is submitted and public notice is made. Except in rare circumstances, all information submitted to LIHI pertaining to a certification application not identified as confidential will be available for public review. In that case, the information will be secured with access limited to LIHI staff, the application reviewer, and, in some cases, the Technical Committee of the LIHI Governing Board in accordance with LIHI's cybersecurity program.
- The contents of the tables in this appendix may change over time. Applicants should use the most current revision of the [LIHI Handbook](#) and template forms posted on the LIHI [How to Apply](#) page. Please check with LIHI staff if you are unsure of the current versions of documents and forms.

## B.1 Facility Information Table

All applicable information identified in the table below must be summarized in the table and detailed in the application narrative for an application to be considered complete. If the information is provided in the application narrative, please identify in the table the application section where the information can be found. Alternative formats including the Excel Table 1.b are acceptable if all information is provided.

**Table 1.a Facility Information.**

| <i>Item</i>                                       | <i>Information Requested</i>  | <i>Response – if applicable, include references or links to further details</i> |
|---|---|---|
| <b>Name of the Facility</b>                       | Facility name (use FERC project name or other legal name)   |   |
| <b>Reason for applying for LIHI Certification</b> | <ol style="list-style-type: none"> <li>To participate in state RPS program (specify the state and the total MW/MWh associated with that participation (value and % of facility total MW/MWh)</li> <li>To participate in voluntary REC market (e.g., Green-e)</li> <li>To satisfy a direct energy buyer’s purchasing requirement</li> <li>To satisfy the facility’s own corporate sustainability goals</li> <li>For the facility’s corporate marketing purposes</li> <li>Other (describe)</li> </ol> | (select and describe only applicable reasons)                                   |
|   | If applicable, the amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification   |   |
| <b>Location</b>                                   | River name (USGS proper name)   |   |
|   | Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: <a href="https://water.usgs.gov/wsc/map_index.html">https://water.usgs.gov/wsc/map_index.html</a>  |   |
|   | Nearest town(s), county(ies), and state(s) to dam   |   |
|   | River mile of dam above mouth   |   |
|   | Geographic latitude and longitude of dam  |   |
| <b>Facility Owner</b>                             | Application contact names   |   |
|   | Facility owner company and authorized owner representative name.<br><b>For recertifications: If ownership has changed since last certification, provide the effective date of the change.</b>   |   |

| <b>Item</b>              | <b>Information Requested</b>   | <b>Response – if applicable, include references or links to further details</b> |
|--------------------------|--|---|
|                          | FERC licensee company name (if different from owner)   |   |
| <b>Other Owners</b>      | If different from hydro facility owner, Provide the dam owner(s)/operator(s) entity names (see also Table 11).   |   |
| <b>Regulatory Status</b> | FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption   |   |
|                          | FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")  |   |
|                          | Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.   |   |
|                          | Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories <sup>2</sup> <b>(or provide a separate list) If not electronically available, provide as appendices to the application</b> |   |
| <b>Powerhouse</b>        | Date of initial operation (past or future for pre-operational applications)  |   |
|                          | Total installed capacity (MW)<br><b>For recertifications: Indicate if installed capacity has changed since last certification</b>  |   |
|                          | Average annual generation (MWh) and period of record used<br><b>For recertifications: Indicate if average annual generation has changed since last certification</b>   |   |
|                          | <u>Mode of operation</u> (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)<br><b>For recertifications: Indicate if mode of operation has changed since last certification</b>  |   |
|                          | Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity (in cfs) and maximum and minimum output (in kW or MW) of each turbine and generator unit  |   |

<sup>2</sup> For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service or other agency, U.S. Army Corps of Engineers permits, and other regulatory documents, or permits or authorizations issued by a Tribal Nation, other 3<sup>rd</sup>-party agreements including Memorandums of Agreement or Understanding about water or land management, grants of right-of-way, water rights, and the like. If extensive, the list of hyperlinks can be provided separately in the application.

| <b>Item</b>                      | <b>Information Requested</b>  | <b>Response – if applicable, include references or links to further details</b> |
|----------------------------------|---|---|
|                                  | Trashrack clear spacing (inches) for each trashrack   |   |
|                                  | Approach water velocity (ft/s) at each intake if known  |   |
|                                  | Dates and types of major equipment upgrades <b>(or provide a separate list)</b><br><br><b>For recertifications: Indicate only those since last certification</b>                |   |
|                                  | Dates, purpose, and type of any recent operational changes <b>(or provide a separate list)</b><br><br><b>For recertifications: Indicate only those since last certification</b> |   |
|                                  | Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments <b>(or provide a separate list)</b>                                |   |
| <b>Dam or Diversion</b>          | Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications   |   |
|                                  | Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like |   |
|                                  | Spillway maximum hydraulic capacity   |   |
|                                  | Length and type of each penstock and water conveyance structure between the impoundment and powerhouse  |   |
|                                  | Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)   |   |
| <b>Conduit Facilities Only</b>   | Date of conduit construction and primary purpose of conduit   |   |
|                                  | Source water  |   |
|                                  | Receiving water and location of discharge   |   |
| <b>Impoundment and Watershed</b> | Authorized maximum and minimum impoundment water surface elevations<br><b>For recertifications: Indicate if these values have changed since last certification</b>              |   |

| <b>Item</b>               | <b>Information Requested</b>   | <b>Response – if applicable, include references or links to further details</b> |
|---------------------------|--|---|
|                           | Normal operating elevations and normal fluctuation range<br><b>For recertifications: Indicate if these values have changed since last certification</b>  |   |
|                           | Gross storage volume and surface area at full pool<br><b>For recertifications: Indicate if these values have changed since last certification</b>  |   |
|                           | Usable storage volume and surface area<br><b>For recertifications: Indicate if these values have changed since last certification</b>  |   |
|                           | Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions   |   |
|                           | Upstream dams by name, ownership (including if owned by an affiliate of the applicant’s company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage |   |
|                           | Downstream dams by name, ownership (including if owned by an affiliate of the applicant’s company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage                                     |   |
|                           | Operating agreements with upstream or downstream facilities that affect water availability and facility operation  |   |
|                           | Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property  |   |
| <b>Hydrologic Setting</b> | Average annual flow at the dam, and period of record used  |   |
|                           | Average monthly flows and period of record used  |   |
|                           | Locations, names, and hyperlinks to the closest stream gaging stations above and below the facility  |   |



| <b>Item</b>   | <b>Information Requested</b>  | <b>Response – if applicable, include references or links to further details</b> |
|---|---|---|
|   | Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation   |   |
|   | Other facility specific hydrologic information (e.g., average hydrograph)   |   |
| <b>Designated Zones of Effect</b>                       | Numbers and names of each zone of effect and river mile of upstream and downstream limits of each zone of effect (e.g., “Zone 1: Impoundment RM 6.3 - 5.1”)   |   |
| <b>Pre-Operational Facilities Only</b>                  |   |   |
| <b>Expected Operational Date</b>                        | Date generation is expected to begin  |   |
| <b>Dam, Diversion Structure or Conduit Modification</b> | Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height.<br>Date the modification is expected to be completed |   |
| <b>Change in Water Flow Regime</b>                      | Description of any change in impoundment levels, water flows or operations required for new generation  |   |

## B.2 Supporting Information

To use the tables in this section, first complete a Standards Matrix for each Zone of Effect (ZoE) (Table 2.a, repeated for each ZoE) or for all ZoEs (Table 2.b or Table 2.c) to select the single numbered standard for each criterion that is applicable to the ZoE (see [Section 4.1.2](#) for example matrices). Then, provide the information in the corresponding instructions box in Tables 3 through 10 below for each ZoE (see [Example Outline](#) above). Select only one numbered standard for each ZoE and each criterion.

If a PLUS standard is also selected, also provide the information required in the instructions for the PLUS standard. However, the criterion must first be satisfied with one of the numbered standards before a PLUS standard can be used.

**Table 2.a. Standards Matrix Template for One ZoE.**

Copy the table for each ZoE.

Facility Name: \_\_\_\_\_

Zone of Effect: \_\_\_\_\_

| Criterion |  | <i>Alternative Standards</i> |          |          |          |             |
|-----------|--|------------------------------|----------|----------|----------|-------------|
|           |  | <i>1</i>                     | <i>2</i> | <i>3</i> | <i>4</i> | <i>Plus</i> |
| <b>A</b>  | <b>Flow Regimes</b>                      |                              |          |          |          |             |
| <b>B</b>  | <b>Water Quality</b>                     |                              |          |          |          |             |
| <b>C</b>  | <b>Upstream Fish Passage</b>             |                              |          |          |          |             |
| <b>D</b>  | <b>Downstream Fish Passage</b>           |                              |          |          |          |             |
| <b>E</b>  | <b>Shorelines and Watershed</b>          |                              |          |          |          |             |
| <b>F</b>  | <b>Threatened and Endangered Species</b> |                              |          |          |          |             |
| <b>G</b>  | <b>Cultural and Historic Resources</b>   |                              |          |          |          |             |
| <b>H</b>  | <b>Recreation</b>                        |                              |          |          |          |             |

**Table 2.b. Standards Matrix Template for Multiple ZoEs.**

Use this form for simple facilities with only two or three ZoEs. Enter the numbered standard for each ZoE under the applicable criterion column. If PLUS is requested, write "PLUS" next to the numbered standard.

Facility Name: \_\_\_\_\_

| Zone:   |                                   | 1: Impoundment   | 2: Bypassed Reach | 3. Downstream Reach |
|---|-----------------------------------|--|-------------------|---------------------|
| River Mile at upper and lower extent of Zone: |                                   |  |                   |                     |
| <b>Criterion</b>                              |                                   | <b><i>Standard Selected<br/>(type in one numbered standard and PLUS if applicable)</i></b> |                   |                     |
| A   | Flow Regimes                      |  |                   |                     |
| B   | Water Quality                     |  |                   |                     |
| C   | Upstream Fish Passage             |  |                   |                     |
| D   | Downstream Fish Passage           |  |                   |                     |
| E   | Shorelines and Watershed          |  |                   |                     |
| F   | Threatened and Endangered Species |  |                   |                     |
| G   | Cultural and Historic Resources   |  |                   |                     |
| H   | Recreation                        |  |                   |                     |

*(this page blank)*

**Table 2.c. Standards Matrix Template for Multiple ZoEs.**

Enter the numbered standard for each ZoE under the applicable criterion column. If PLUS is requested, write “PLUS” next to the numbered standard.

|           |  | <b>CRITERION</b><br><i>(type in one numbered standard and PLUS if applicable)</i> |               |                       |                         |                          |                                   |                                 |            |
|-----------|--|---|---------------|-----------------------|-------------------------|--------------------------|-----------------------------------|---------------------------------|------------|
| Zone Name | River Mile at upper and lower extent of Zone | <b>A</b>  | <b>B</b>      | <b>C</b>              | <b>D</b>                | <b>E</b>                 | <b>F</b>                          | <b>G</b>                        | <b>H</b>   |
|           |  | Flow Regimes  | Water Quality | Upstream Fish Passage | Downstream Fish Passage | Shorelines and Watershed | Threatened and Endangered Species | Cultural and Historic Resources | Recreation |
| ZoE 1.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 2.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 3.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 4.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 5.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 6.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 7.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 8.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 9.    |  |   |               |                       |                         |                          |                                   |                                 |            |
| ZoE 10.   |  |   |               |                       |                         |                          |                                   |                                 |            |
|           |  |   |               |                       |                         |                          |                                   |                                 |            |
|           |  |   |               |                       |                         |                          |                                   |                                 |            |
|           |  |   |               |                       |                         |                          |                                   |                                 |            |

*(this page blank)*

### Notes on using these materials:

- Tables 3 through 10 in the sections below correspond to each LIHI criterion, A through H. Each table provides instructions about the supporting information needed to demonstrate how the selected numbered standard and criterion goal is satisfied for each criterion in each ZoE. In the tables below, not all bullets in each standard will apply. Supporting information is a necessary component to confirm that the facility meets the LIHI standards, criteria, and goals.
- Refer to [Appendix A](#) for definitions of terms used in the table instructions and tables.
- In addition to addressing the required information in the tables and their introductory sections below, narrative text should be provided to introduce and explain how the standards are applied to satisfy each criterion in each ZoE. Read the goals of each criterion then explain how the goal and the selected numbered standard are satisfied for each combination of criterion and ZoE. The instructions in Tables 3 – 10 below identify information needed to meet each criterion and satisfy its goal.
- The facility must demonstrate in each criterion discussion how it is in compliance with, or has taken action to regain compliance with, its current regulatory requirements and formal commitments related to the LIHI criteria including: FERC license or exemption articles, water quality certification terms and conditions, settlement agreements, other local, state, federal, and tribal authorizations and permits, related management plans required under any permit, license or authorization, and formal agreements with resource agencies, Tribal Nations, upstream or downstream hydro owners, dam owners if different, and other parties. Any issues surrounding compliance with these obligations and the current status of any issues should be discussed in applicable sections of the application.

*(this page blank)*



### B.2.1 Flow Regime Standards

**Required regardless of standard selected:**

1. Identify any flow-related deviations that have occurred in the past 10 years or the life of the project if less. If none have occurred, state so. If deviations have occurred, identify the date, duration, cause, and the measures taken to minimize reoccurrence. Links to FERC or other regulatory notifications and responses should be included.
2. Identify how flows and water levels are monitored and explain how compliance with requirements is demonstrated.
3. Describe any enforceable agreements with upstream or downstream facilities that regulate inflow or outflow at the facility (see [Section 4.1.1](#) as these “regulated reaches” may need to be designated as separate Zones of Effect).
4. Describe for each ZoE how the facility satisfies the criterion goal: *The flow regimes in riverine reaches affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*
5. Describe how the flow management approach is appropriate by considering factors such as base flows, inflow, daily, seasonal, and inter-annual variability, high-flow pulses, and ramping rates.

**Table 3. Flow Regime Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <i>Criterion</i> | <i>Standard</i> | <i>Instructions</i>   |
|------------------|-----------------|---|
| <b>A</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Confirm the location of the powerhouse relative to any dam/diversion structures and demonstrate that there are no bypassed reaches in the designated Zone of Effect.</li> <li>• For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits which discharge to a natural waterbody.</li> <li>• Describe the target fish and wildlife resources that were considered and how the resultant flow regime supports their habitats over their life cycles.</li> <li>• For impoundment zones, explain water management (e.g., fluctuations, ramping, refill rates, restrictions) and how those requirements support fish and wildlife habitat within the ZoE.</li> </ul> |

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>A</b>         | <b>2</b>        | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Identify the proceeding and source, date, and specifics of the agency and any tribal government recommendations applied in the designated ZoE (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>• Explain the scientific, technical, or indigenous knowledge basis for the recommendation, including the methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>• Explain how the recommendation relates to formal agency and tribal management goals and objectives for fish and wildlife and provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</li> </ul> |
| <b>A</b>         | <b>3</b>        | <p><b>Limited Storage (see <a href="#">Appendix A</a> for definition):</b></p> <ul style="list-style-type: none"> <li>• Provide and explain the calculation of active storage capacity and retention time (storage/flow), including data sources.</li> <li>• Provide the name and published reference for the regionally accepted instream flow policy or methodology used, including how it has been regionally accepted.</li> <li>• Provide the calculations used to derive the final flow, including data sources and any pre-processing applied.</li> </ul>  |
| <b>A</b>         | <b>4</b>        | <p><b>Site-Specific Studies:</b></p> <ul style="list-style-type: none"> <li>• Describe the site-specific habitat evaluation technique that was used to define the flow regime and how the results satisfy the goal of this criterion.</li> <li>• Describe the resultant flow regime in terms of base flow, seasonal variability, high-flow events, short-term rates of change, and year-to-year variability, as applicable.</li> <li>• Describe the target fish and wildlife resources that were considered and how the resultant flow regime supports their habitat over their life cycles.</li> </ul>  |
| <b>A</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• If an adaptive management program is in place, provide sufficient information to describe the program, the current status of implementation, any agency and tribal consultation, and how the program is expected to achieve the desired results; or</li> <li>• If non-flow habitat enhancements have been implemented, explain what they are, how their benefits are being monitored, and how they are achieving a positive net benefit to fish and wildlife resources.</li> </ul>  |

## B.2.2 Water Quality Standards

### **Required regardless of standard selected:**

1. Specify the state and tribal water quality classifications and designated uses for the river at the facility or for each ZoE if they differ. For instance, "*The impoundment is a Class B water designated by the state (or XX Tribe) as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation*".
2. Provide a link to the most recent final Clean Water Act Section 303(d) impaired waters list, the Section 305(b) integrated water quality report, and lists of other stressed waters (if applicable) and indicate the page number(s) therein that apply to facility waters, or state that the facility waters are not included on any list.
3. Discuss if/how the facility does or does not contribute to the specific impairments.
4. Describe for each ZoE how the facility satisfies the criterion goal: *Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

**Table 4. Water Quality Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>B</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Explain the rationale for why the facility in the designated ZoE does not alter water quality characteristics below, around, and above the facility.</li> </ul>   |
| <b>B</b>         | <b>2</b>        | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Provide a copy of the most recent state and, if applicable, Tribal Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a confirmation letter or email from the resource agency or Tribal Nation).</li> <li>• Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</li> <li>• Identify any tribal government recommendations and explain their scientific or indigenous knowledge basis.</li> <li>• Describe all compliance requirements and activities related to water quality including on-going monitoring, and how those are integrated into facility operations and reported to resource agencies, tribal governments, and FERC, as applicable.</li> </ul> |

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>B</b>         | <b>3</b>        | <p><b>Site-Specific Studies:</b></p> <ul style="list-style-type: none"> <li>• Document consultation with the appropriate state and tribal water quality authorities to determine what water quality parameters and sampling methods are required.</li> <li>• Present recent water quality data from the facility or from other sources in the vicinity of the facility (e.g., data collected by the state or tribe, watershed associations, or others who collect data under generally accepted sampling protocols and quality assurance procedures) and explain and demonstrate how it satisfies current applicable water quality standards including designated uses; or provide a letter from the appropriate state and/or Tribal Nation accepting the data.</li> </ul> |
| <b>B</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• Describe any advanced technologies or methods that have been deployed at the facility to enhance ambient water quality and how its performance is being monitored; or</li> <li>• If adaptive management is being implemented, describe the management objectives, the monitoring program in place to evaluate performance against those objectives, and the management actions that will be taken in response to monitoring results.</li> </ul>   |

### B.2.3 Upstream Fish Passage Standards

**Required regardless of standard selected:**

1. Provide a list of all migratory fish species (anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the facility.
2. Provide confirmation from the applicable state and tribal fish and wildlife authorities that no potamodromous species require upstream passage at the facility.
3. Describe for each ZoE how the facility satisfies the criterion goal: *The facility allows for the safe, timely, and effective upstream passage of migratory fish to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

**Table 5. Upstream Fish Passage Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>   |
|------------------|-----------------|---|
| <b>C</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no additional facility barrier to further upstream movement.</li> <li>• Provide available fish distribution data showing the absence of migratory fish species in each ZoE.</li> <li>• If migratory fish species have been extirpated from the facility area, explain why the facility is not or was not the cause of the extirpation.</li> </ul>  |
| <b>C</b>         | <b>2</b>        | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Identify the proceeding and source, date, and specifics of the agency and tribal government recommendations applied in the designated ZoE (NOTE: there may be more than one; identify all and explain which one is most environmentally stringent).</li> <li>• Explain the scientific, technical, or indigenous knowledge basis for the recommendation, including the methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>• Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the recommendation, and how these are being implemented.</li> <li>• Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies and tribal authorities, meets effectiveness relative to performance targets).</li> </ul> |

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>C</b>         | <b>3</b>        | <p><b>Best Practice / Best Available Technology:</b></p> <ul style="list-style-type: none"> <li>• Describe the upstream fish passage practices or technologies that have been deployed and are in operation and justify why they qualify as best practices or best available technology.</li> <li>• Identify the migratory fish species in the area and explain how the upstream fish passage facilities provide adequate and safe passage for them.</li> <li>• Describe the monitoring and effectiveness activities that have been or are being conducted for the upstream passage facilities.</li> </ul>   |
| <b>C</b>         | <b>4</b>        | <p><b>Acceptable Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Describe the alternative mitigation measures being deployed in lieu of upstream fish passage and/or protection strategies and provide documentation of agency and tribal government approval of the measures.</li> <li>• Explain how the total benefits of the mitigation provided equal or exceed the benefits that might accrue from providing upstream passage in terms of reproductive success (e.g., numbers of fish produced, or area of suitable habitat provided).</li> <li>• Explain how the alternative mitigation measures sustain the abundance and diversity of fish stocks in the river system.</li> </ul> |
| <b>C</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• If advanced technology has been or will be deployed, explain how it will increase fish passage success relative to other options; or</li> <li>• If a basin-scale redevelopment strategy is being pursued, explain how it will increase the abundance and sustainability of migratory fish species in the river system; or</li> <li>• If adaptive management is being implemented, describe the management objectives, the monitoring program to evaluate performance against those objectives, and the management actions that will be taken in response to monitoring results.</li> </ul>                                    |

## B.2.4 Downstream Fish Passage Standards

### *Required regardless of standard selected:*

1. In addition to the migratory species list provided for criterion C above, provide a list of all riverine/resident fish species that occur now or have occurred historically at the facility.
2. Provide information from the applicable state and tribal fish and wildlife authorities about any potamodromous species that require downstream passage at the facility.
3. Describe for each ZoE how the facility satisfies the criterion goal: *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, including resident potamodromous fish, the facility minimizes loss of fish from impoundments and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.*

**Table 6. Downstream Fish Passage Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>D</b>         | <b>1</b>        | <p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration.</li> <li>• For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or</li> <li>• Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or</li> <li>• If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.</li> </ul> |

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>   |
|------------------|-----------------|---|
| <b>D</b>         | <b>2</b>        | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Identify the proceeding and source, date, and specifics of the agency and tribal government recommendation applied in the designated ZoE (NOTE: there may be more than one; identify and explain which is most environmentally stringent).</li> <li>• Explain the scientific, technical, or indigenous knowledge basis for the recommendation, including the methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>• Describe any provisions for fish passage and/or fish protection monitoring or effectiveness determinations that are part of the recommendation, and how these are being implemented.</li> <li>• Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies and tribal authorities, meets effectiveness relative to performance targets).</li> </ul> |
| <b>D</b>         | <b>3</b>        | <p><b>Best Practice / Best Available Technology:</b></p> <ul style="list-style-type: none"> <li>• Describe the downstream fish passage practices or technologies that have been deployed and are in operation and justify why they qualify as best practices or best available technology.</li> <li>• Explain how the downstream fish passage facilities provide adequate and safe passage for fish species that are present and require passage.</li> <li>• Describe the monitoring and effectiveness activities that have been or are being conducted for the downstream passage facilities.</li> </ul>   |
| <b>D</b>         | <b>4</b>        | <p><b>Acceptable Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Describe the alternative mitigation measures being deployed in lieu of downstream fish passage and/or protection strategies and provide documentation of agency and tribal government approval of the measures.</li> <li>• Explain how the total benefits of the mitigation strategy equal or exceed the benefits that might accrue from providing downstream passage in terms of reproductive success (e.g., numbers of fish produced, or area of suitable habitat provided).</li> <li>• Explain how the alternative mitigation measures sustain the abundance and diversity of fish stocks in the river system.</li> </ul>  |
| <b>D</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• If advanced technology has been or will be deployed, explain how it will increase fish passage success relative to other options; or</li> <li>• If a basin-scale redevelopment strategy is being pursued, explain how it will increase the abundance and sustainability of migratory fish species in the river system; or</li> <li>• If adaptive management is being implemented describe the management objectives, the monitoring program to evaluate performance against those objectives, and the management actions that will be taken in response to monitoring results.</li> </ul>  |



## B.2.5 Shorelines and Watershed Standards

### *Required regardless of standard selected:*

1. Describe land use and land cover around the facility. Describe any protections afforded the river or lands around the facility (e.g., Wild and Scenic River designation, conservation lands surrounding the impoundment, state, local, or tribal regulatory restrictions on facility lands, critical or core habitats for sensitive species, etc.).
2. If applicable, provide a summary and copies of any relevant facility-related land conservation easement documents including maps, organization maintaining oversight, and management and/or stewardship plans.
3. Describe for each ZoE how the facility satisfies the criterion goal: *The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation, and ecosystem functions on shoreline and watershed lands associated with the facility.*

**Table 7. Shorelines and Watershed Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>E</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• If there are no lands with significant ecological value associated with the designated ZoE, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary, and absence of critical habitat for listed and Tribal trust species).</li> <li>• Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.</li> </ul>  |
| <b>E</b>         | <b>2</b>        | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Provide copies or links to all agency and tribal government recommendations and management plans that related to protection, mitigation, or enhancement of shorelines surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans).</li> <li>• Provide documentation that the facility is in full compliance with applicable agency and tribal government recommendations and management plans.</li> </ul>  |
| <b>E</b>         | <b>3</b>        | <p><b>Enforceable Protection:</b></p> <ul style="list-style-type: none"> <li>• Demonstrate that there is an approved and enforceable shoreline buffer or equivalent watershed protection plan (including tribal, state or local regulations) in place for conservation purposes, including buffered shorelines along river corridors; or</li> <li>• In lieu of an existing shore land protection plan, provide documentation that the facility has protected or commits to protect and not develop an equivalent land area for conservation purposes as a condition of LIHI Certification, with such commitment to be in effect for the duration of LIHI Certification.</li> </ul> |

| <i>Criterion</i> | <i>Standard</i> | <i>Instructions</i>   |
|------------------|-----------------|---|
| <b>E</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• Provide documentation that the facility has a formal site-specific conservation plan protecting a buffer zone of 50% or more of the undeveloped impoundment shoreline and/or the equivalent along river reaches; or</li> <li>• Provide documentation of perpetual conservation easement(s) on facility-owned lands that protect an equivalent of a buffer zone of 50% or more of the undeveloped shoreline; or</li> <li>• In lieu of a formal conservation plan, provide documentation that the facility has established an ongoing watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around the undeveloped shorelines.</li> </ul> |

## B.2.6 Threatened and Endangered Species Standards

### *Required regardless of standard selected:*

1. Identify all federal and state listed species and tribal trust species (fish, aquatic plants and organisms, and terrestrial plants and wildlife) in the facility area based on current data. Avoid using privileged locational information or provide that information in a separate confidential attachment.
2. Describe for each ZoE how the facility satisfies the criterion goal: *The facility does not negatively impact federal or state listed species, or tribal trust species.*

**Table 8. Threatened and Endangered Species Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>   |
|------------------|-----------------|---|
| <b>F</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Document that there are no listed or tribal trust species in the designated ZoE; or</li> <li>• If listed or trust species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species.</li> <li>• If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.</li> </ul>  |
| <b>F</b>         | <b>2</b>        | <p><b>Finding of No Negative Effects:</b></p> <ul style="list-style-type: none"> <li>• Identify all federal and state listed species and any tribal trust species that are or may be in the immediate area of the designated ZoE based on current data from the appropriate natural resource management agencies and Tribal Nations.</li> <li>• Provide documentation that there is no demonstrable negative effect of the facility on any listed or trust species in the area from appropriate federal, state, and tribal natural resource management authorities; or</li> <li>• Provide documentation that habitat for the species does not exist within the designated ZoE or is not impacted by facility operations.</li> </ul> |
| <b>F</b>         | <b>3</b>        | <p><b>Recovery Planning and Action:</b></p> <ul style="list-style-type: none"> <li>• If listed species are present, document that the facility is in compliance with relevant conditions in species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government or Tribal documents.</li> <li>• Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed and trust species in the facility area.</li> </ul>   |

| <i>Criterion</i> | <i>Standard</i> | <i>Instructions</i>   |
|------------------|-----------------|---|
| <b>F</b>         | <b>4</b>        | <p><b>Acceptable Mitigation:</b></p> <ul style="list-style-type: none"> <li>• If newly listed or unlisted species (e.g., proposed to be listed, rare, or special status species), or tribal trust species are present for which environmental requirements have not been fully determined, describe any significant measures that the facility is implementing to avoid or minimize the impacts on such species.</li> <li>• Document that the mitigation measures for such species are being implemented to the interim satisfaction of applicable federal and state resource agencies, and tribal governments.</li> </ul>  |
| <b>F</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• Describe any formal agreements that the facility has with resource agencies or Tribal Nations to operate the facility in support of rare or at-risk species; or</li> <li>• Describe any formal agreements that the facility has with resource agencies or Tribal Nations to take proactive measures in the vicinity of the facility to substantially minimize impacts on species that are at risk of becoming listed or designated as tribal trust species; or</li> <li>• Describe any formal agreements that the facility has with resource agencies or Tribal Nations to be a significant participant in a species recovery effort.</li> </ul> |

## B.2.7 Cultural and Historic Resources Standards

### *Required regardless of standard selected:*

1. Identify all federal<sup>3</sup> and state<sup>4</sup> recognized Tribal Nations having reserved rights, interests, resources, and/or historic presence (see definition of tribal trust resources in [Appendix A](#) in the facility area and provide a summary of those rights and interests that relate to the facility or its operations.
2. Identify the cultural and historic resources, and Traditional Cultural Properties, Traditional Cultural Landscapes and other tribal trust resources (tribes are the only resource for this information) that are present on facility-owned property or that may be affected by facility operations. Avoid using privileged locational information or provide that information in a separate confidential attachment.
3. Describe for each ZoE how the facility satisfies the criterion goal: *The facility does not adversely impact cultural or historic resources associated with the facility's lands and waters, including archaeological sites, historic era sites, traditional cultural landscapes, traditional cultural properties, and other Tribal trust resources.*

**Table 9. Cultural and Historic Resources Standards**

(Select one standard, and PLUS if requested for each ZoE).

| <b>Criterion</b> | <b>Standard</b> | <b>Instructions</b>  |
|------------------|-----------------|--|
| <b>G</b>         | <b>1</b>        | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Document that there are no federal or state recognized Tribal interests, cultural or historic resources, traditional cultural properties, traditional cultural landscapes or other tribal trust resources associated with facility lands or waters within the designated ZoE that can be affected by construction or operations of the facility; or</li> <li>• Document that the facility construction and operations have not in the past, nor currently adversely affect any such resources that are present on facility lands in the designated ZoE; and</li> <li>• Provide a letter from the state historic preservation office (SHPO) and tribal historic preservation offices (THPOs) or affected tribal government that confirms no effect (this may be newly obtained or issued during a prior FERC licensing or exemption, or other formal proceeding).</li> </ul> |
| <b>G</b>         | <b>2</b>        | <p><b>Approved Plan:</b></p> <ul style="list-style-type: none"> <li>• Provide documentation of all approved local, state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to tribal, cultural and historic resources affected by the facility.</li> <li>• Document that the facility is in compliance with all such plans.</li> </ul>  |

<sup>3</sup> Federally recognized Tribes can be found here: <https://www.bia.gov/service/Tribal-leaders-directory/federally-recognized-tribes>

<sup>4</sup> State recognized Tribes can be found here [https://en.wikipedia.org/wiki/State-recognized\\_tribes\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/State-recognized_tribes_in_the_United_States) but should be verified by the state via the Historic Preservation Office or Tribal liaison office

| <i>Criterion</i> | <i>Standard</i> | <i>Instructions</i>   |
|------------------|-----------------|---|
| <b>G</b>         | <b>PLUS</b>     | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• Document any substantial commitment that the facility has made to restoring one or more significant traditional cultural properties, traditional cultural landscapes, tribal trust resources, tribal or other cultural, or historic resources in the facility vicinity, beyond what is required in existing plans such as a Historic Resources Management Plan; or</li> <li>• Document any significant new educational opportunity about traditional, cultural, or historic resources in the area that the facility has created, including contractual obligations that guarantee that this opportunity will exist for the duration of the LIHI Certification; or</li> <li>• Document that the facility owner is collaborating with applicable Tribal Nations to develop a plan for protection, enhancement and/or mitigation of Tribal trust resources if no such plans currently exist.</li> </ul> |

## B.2.8 Recreational, Public, and Traditional Cultural Access Standards

### *Required regardless of standard selected:*

1. Identify and briefly describe all recreational amenities and existing public and traditional cultural access opportunities/locations associated with the facility. Identify which are owned or operated by the facility, and which are not owned or operated by the facility.
2. Provide representative photos of all formal facilities taken within the last 12 months, and a map showing locations.
3. If there has been a FERC Environmental and Recreation Inspection, please provide a link to or copy of the report and any follow-up activities that were conducted. If there was no inspection, please state that.
4. If applicable, provide a weblink to any public website or describe signage informing the public about the facility's recreational and access amenities.
5. Describe for each ZoE how the facility satisfies the criterion goal: *The facility accommodates recreation activities on lands and waters controlled by the facility; and provides recreational, public, and traditional cultural access to its associated lands and waters without fee or charge.*

**Table 10. Recreation, Public, and Traditional Cultural Access Standards**  
(Select one standard, and PLUS if requested for each ZoE).

| <i>Criterion</i> | <i>Standard</i> | <i>Instructions</i>   |
|------------------|-----------------|---|
| H                | 1               | <p><b>Not Applicable / De Minimis Effect:</b></p> <ul style="list-style-type: none"> <li>• Document that the facility does not occupy lands or waters in the designated ZoE to which public or Tribal member access can be safely granted, and that the facility does not otherwise impact recreational or access opportunities in the facility area.</li> </ul>  |
| H                | 2               | <p><b>Resource Agency and Tribal Government Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Document all resource agency and tribal government recommendations and any enforceable plans or agreements in place for recreational, public, and traditional cultural access or accommodations.</li> <li>• Document that the facility in the designated ZoE is in compliance with all such recommendations, plans, and agreements.</li> </ul>  |
| H                | 3               | <p><b>Assured Accessibility:</b></p> <ul style="list-style-type: none"> <li>• In the absence of existing agency or tribal government recommendations or formal management plans, document the facility's current and future commitment to accommodate reasonable requests from recreational interests, local community members, and Tribal Nations for adequate access for recreational and/or Tribal member use of facility lands and waters including recreational water flows, water levels, and other water or land-based access, without fees or charges.</li> </ul> |
| H                | PLUS            | <p><b>Bonus Activities:</b></p> <ul style="list-style-type: none"> <li>• Document any new recreational, public access and/or traditional cultural access opportunities that have been created on facility lands or waters beyond those required by local, regional, state or federal agencies or Tribal Nations; and</li> <li>• Document that such new opportunities are compatible with, and do not create unmitigated impacts to other resources.</li> </ul>  |

*(this page blank)*



### B.3 Attestation and Waiver Form

All applications for LIHI Certification must include the following statement before they can be reviewed by LIHI:

#### ATTESTATION

*As an Authorized Representative of \_\_\_\_\_,  
the Undersigned attests that the material presented in the application is true and complete.*

*The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's Certification Program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.*

*The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).*

*The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's Certification Program.*

#### FOR PRE-OPERATIONAL CERTIFICATIONS:

*The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.*

Company Name: \_\_\_\_\_

*Authorized Representative:*

Name: \_\_\_\_\_

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

Authorized Signature: \_\_\_\_\_

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

## B.4 Contacts Forms

All applications for LIHI Certification must include complete contact information, including all relevant agencies, Tribal governments, and interested parties including contacts for active members of project-related working groups. The Word versions of these tables appear below and on the LIHI website. An Excel version with separate tabs for each category of contact can be found on the LIHI website [How to Apply](#) page.

**Table 11. Applicant-related contacts**

|  |  |
|--|--|
| <b>Facility Owner:</b>   |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |
| <b>Facility Operator (if different from Owner):</b>                        |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |
| <b>Consulting Firm / Agent for LIHI Program (if different from above):</b> |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |
| <b>Compliance Contact (responsible for LIHI Program requirements):</b>     |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |
| <b>Party responsible for accounts payable:</b>                             |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |
| <b>Dam owner / operator if different from facility contacts above</b>      |  |
| Name and Title   |  |
| Company  |  |
| Phone  |  |
| Email Address  |  |
| Mailing Address  |  |

**Table 12. Federal, state, and local resource agency contacts with knowledge of the facility.**

- Include federal and state fish and wildlife agencies and federal agencies owning project lands or having oversight of the project; state agencies responsible for environmental protection, water quality certification, natural heritage, and historic preservation; and local and regional agencies with project oversight or interest.
- If applicable, also include at least one contact for each agency involved in each active project working group and identify the working group name.

| <b>Contact Name and Agency</b> | <b>Title</b> | <b>Email</b> | <b>Phone</b> | <b>Resource Area(s) of Interest, from the list below</b> |
|--------------------------------|--------------|--------------|--------------|--|
|                                |              |              |              |  |
|                                |              |              |              |  |
|                                |              |              |              |  |
|                                |              |              |              |  |
|                                |              |              |              |  |
|                                |              |              |              |  |
| <b>add rows as needed</b>      |              |              |              |  |

**Resource Areas (LIHI Criteria):**

- A.** Flow regimes
- B.** Water quality
- C.** Upstream fish passage
- D.** Downstream fish passage and protection
- E.** Shorelines and watershed
- F.** Threatened and endangered species
- G.** Cultural and historic resources
- H.** Recreation

**Table 13. Tribal government and tribal agency contacts.**

- Include federally recognized tribes, state-recognized tribes, and non-recognized tribal entities (see Appendix B) instructions.
- If applicable, also include at least one contact for each tribe involved in each active project working group and identify the working group name.

| Contact Name and Tribal Affiliation | Title | Email | Phone | Resource Area(s) of Interest, from the list below |
|-------------------------------------|-------|-------|-------|---|
|                                     |       |       |       |   |
|                                     |       |       |       |   |
|                                     |       |       |       |   |
|                                     |       |       |       |   |
|                                     |       |       |       |   |
|                                     |       |       |       |   |
|                                     |       |       |       |   |
| add rows as needed                  |       |       |       |   |

**Resource Areas (LIHI Criteria):**

- A. Flow regimes
- B. Water quality
- C. Upstream fish passage
- D. Downstream fish passage and protection
- E. Shorelines and watershed
- F. Threatened and endangered species
- G. Cultural and historic resources
- H. Recreation

**Table 14. Currently engaged external interested party contacts.**

If applicable, also include at least one contact for each organization involved in each active project working group and identify the working group name.

| Contact Name and Organization | Title | Email | Phone | Resource Area(s) of Interest, from the list below |
|-------------------------------|-------|-------|-------|---|
|                               |       |       |       |   |
|                               |       |       |       |   |
|                               |       |       |       |   |
|                               |       |       |       |   |
|                               |       |       |       |   |
|                               |       |       |       |   |
| add rows as needed            |       |       |       |   |

**Resource Areas (LIHI Criteria):**

- A. Flow regimes
- B. Water quality
- C. Upstream fish passage
- D. Downstream fish passage and protection
- E. Shorelines and watershed
- F. Threatened and endangered species
- G. Cultural and historic resources
- H. Recreation

*(this page blank)*

## APPENDIX C - FEE SCHEDULE

LIHI program fees are designed to cover the cost of operating the Low Impact Hydropower Institute’s Certification Program, including processing applications, monitoring compliance, and maintaining active Certifications. This Fee Schedule explains each component of the fees. LIHI reserves the right to alter the program fee policy as needed with reasonable notice to applicants and Certificate holders. Adjustments to fees may be available under certain circumstances, please contact LIHI for details.

**Table C-1. Program Fee Schedule**

| <i>Type</i>                         | <i>Amount/Method*</i>  | <i>Frequency and Due Date</i>   |
|-------------------------------------|--|---|
| <b>Application Fees</b>             |  |   |
| Intake Review                       | \$1,500  | Once – due with submittal of intake draft application   |
| Certification Review                | May range from \$3,000 - \$16,000+   | Once – due with submittal of final certification application  |
| Recertification or Mid-Term Review  | Stage I: \$2,000<br><br>Stage II if required: \$0 - \$16,000+  | Stage I – due with submittal of recertification application or mid-term review summary.<br>Stage II, if required– due after Stage 1 is completed                    |
| <b>Certificate Maintenance Fees</b> |  |   |
| Annual Certificate Fee              | Unless minimum fees apply, the product of average generation and applicable market category rate.<br>\$250 minimum - \$35,720 maximum (as of 2025) | Annually – due by the 15 <sup>th</sup> of the anniversary month of the Certificate’s effective date   |
| Condition Fee                       | By number and nature of conditions, ranges from \$0 to \$1,000 per condition   | Annually – due by the 15 <sup>th</sup> of the anniversary month of the Certificate’s effective date (and for pre-operational facilities) for active conditions only |

**\*Note:** Fees listed here are effective as of the publication of this Handbook revision. An up-to-date fee schedule can be found on the LIHI website at <https://lowimpacthydro.org/lihi-fee-structure/>.

## **C.1 Application Review Fees**

Application review fees include intake review fees, full certification review fees, recertification, and mid-term review fees. Application fees are designed to cover LIHI's cost associated with reviewing applications for Certification at all stages in the process.

### ***C.1.1 Intake Review Fee***

The intake review fee is a fixed fee charged to all applicants, regardless of the facility's installed capacity or circumstances. The fee covers the cost of conducting an initial high-level review of the initial application. Before submitting payment of this fee to LIHI, it is strongly recommended that interested applicants contact LIHI staff for free pre-application consulting (See [Section 4.2.1](#)). An invoice for the intake review fee will be issued by LIHI staff only when a prospective applicant notifies LIHI that they wish to initiate the intake application. An applicant must pay a separate intake review fee for each separate application. The fee must be received before LIHI can begin to review the application materials.

### ***C.1.2 Application Review Fee***

All applicants must also pay a full application review fee to process an application. Application review fees are individually tailored based on the information gathered in the intake review stage. As stated in [Section 4.2.2](#) and [Section 4.2.3](#), all applicants that submit an intake application will be provided with a summary of the intake review findings which includes a recommendation on how to proceed to the next stage and an estimate for the non-refundable full application fee. The fee estimate covers review costs such as the cost of hiring an independent reviewer, LIHI staff time, and other overhead costs. LIHI reserves the right to charge additional fees in circumstances where a review is more complex than initially estimated. If, during the full application review, LIHI staff determine that unanticipated complexities in the review process impose additional costs to LIHI, a supplementary fee may be charged prior to the issuance of a certificate. Supplementary fees are imposed at the discretion of the Executive Director and in consultation with the applicant.

#### **Additional Information:**

##### **Fee supplement for a consolidated application seeking LIHI Certification for multiple facilities:**

At the request of the applicant and at the discretion of LIHI staff, a consolidated, single application may be submitted by an applicant for multiple facilities in a watershed that are operationally or hydrologically connected. The fee supplement for a consolidated application will be determined at the sole discretion of the Executive Director.

##### **Application Fee Premium for a "Pre-Operational" facility:**

An application for certification of a facility that is pre-operational may include a fee premium of an additional twenty-five percent (25%) of the certification application fee charged.



### **Reduced Fee for “Not Applicable/ De Minimis Effect” facilities:**

For facilities that can satisfy the Not Applicable / De Minimis Effect standard for each criterion, a reduced full review fee may apply.

## **C.2 Certification Maintenance Fees**

Certification maintenance fees include annual certificate fees, fees for active conditions if imposed, and any other supplemental fees LIHI may impose to maintain an active Certificate.

### **C.2.1 Annual Certificate Fees**

For the full term of the LIHI Certification, the owner of each LIHI Certified® facility shall pay to LIHI an annual certificate fee for each year of Certification, subject to the following provisions:

**Billing Schedule:** The annual fee term begins on the effective date of the LIHI Certification for the subsequent twelve (12) month period, with the first annual fee due by the 15<sup>th</sup> day of the first anniversary month of the Certificate’s effective date. Subsequent annual fees are due by the 15<sup>th</sup> day of each following Certificate anniversary month. Thus, annual fees are retroactive and cover the prior year of certification ending in the month prior to the Certificate anniversary. Annual fees are imposed every year, including the year in which a Certified facility is undergoing recertification or mid-term review.

**Annual Fee Amount and Rates:** Unless a minimum or maximum fee applies, the annual fee amount for each Certificate is the product of the total average annual generation (AAG) of the Certified facility as provided by the applicant in their LIHI certification application<sup>5</sup> and the applicable \$/MWh Fee Rate(s), according to the market participation of the facility generation output and as published in the LIHI Fee Schedule at <https://lowimpacthydro.org/lihi-fee-structure/>. Rates are as follows:

**Verified Market Participant:** The Verified Market Participant rate applies to the percentage of LIHI Certified® generation publicly listed as eligible for a state Renewable Portfolio Standard program, a Renewable Energy Standard program, an Alternative Energy Portfolio Standard, a voluntary Green Energy program such as Green-e, or any other policy or program that utilizes the LIHI Certification standard as a requirement or option for eligibility. The current \$/MWh rates vary by program and region. If a LIHI Certified® facility has only a portion of their generation certified in a verified market, only that portion will be charged at this rate, and the balance will be charged at the published Base Rate.

**Base Rate:** All generation that is not subject to the provisions above is assessed at the Base Rate.

**Publication of LIHI Rate Schedule and Changes to Annual Certificate Fee Rates:** The most current LIHI Rate Schedule is published at <https://lowimpacthydro.org/lihi-fee-structure/>. LIHI reserves the right to alter the definitions and rates for the Base Rate and Verified Market Participant categories with

---

<sup>5</sup> The AAG amount may be adjusted according to actual generation documented by a Certificate holder in annual compliance statements that result from newly added generation capacity, efficiency gains, a reduction in generation capacity from equipment brought offline or any other material change that impacts generation output.

reasonable notice to certificate holders.

**Annual Certificate Fee Minimum and Maximum Amounts:** If the calculated annual Certificate fee amount using the \$/MWh rate is less than the published minimum fees, the Certificate holder shall pay the minimum annual fee. If the calculated annual fee is greater than the published maximum annual, the Certificate holder shall pay the maximum fee.

### **C.2.2 Active Condition Fees**

A non-refundable fee may be charged along with annual certificate fees for each active facility-specific condition attached to the Certificate. This fee may range from \$0 to \$1,000 per condition depending on the complexity of the condition. The fee will be determined at the sole discretion of LIHI. Not all conditions will incur a fee, and the fee amount may vary from year to year during the term of a Certificate, as conditions are satisfied, modified, or added to Certificates. Condition fee amounts are established in proportion to the time and effort required by LIHI staff to monitor compliance with the condition.

### **C.3 Recertification Application and Mid-Term Review Fees**

All applicants for recertification must pay a recertification review fee, and facilities subject to a mid-term review must pay a mid-term review fee. In both cases, the Stage I fee is a fixed amount. If a Stage I review determines that a Stage II review is required (see [Section 6.2](#)), then additional review fees will likely be required. The Stage II fee will be determined by the reviewer's cost estimate plus LIHI overhead, in proportion to the level of effort and time estimated to be needed for the Stage II review.

### **C.4 Reduced Fees for Very Low Impact Facilities**

Some types of hydropower facilities may qualify for the Not Applicable / De Minimis Effect standard for all eight LIHI criteria. In those cases, the facility is designated as Very Low Impact (VLI) and reduced application fees and reduced annual maintenance fees may apply. Consult with LIHI staff to determine whether your facility qualifies.

### **C.5 Refund Policy**

LIHI fees are non-refundable. Should an applicant choose to withdraw or place an application on hold at any point during the review process, LIHI is under no obligation to return or refund fee amounts already collected. Should a Certificate holder decide to withdraw a Certified facility from the program (see [Section 5.2](#)), LIHI will discontinue all annual maintenance billing for the years after the year of withdrawal but will charge an annual fee for the last year or partial year of active LIHI Certification. Additional fees may apply if an applicant chooses to revive a LIHI application that was submitted previously and withdrawn or placed on hold by the applicant.