LOW IMPACT HYDROPOWER CERTIFICATION HANDBOOK

2nd Edition

Revision 2.05: January 1, 2022

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DEDICATION

This 2nd Edition of the LIHI Certification Handbook is dedicated to Julie Keil, who gave us her inspirational leadership for all 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 2nd 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 2nd Edition since 2016 have benefited greatly from the suggestions of former and current members of the LIHI Governing Board, Technical Committee, LIHI's advisory panel, application reviewers, staff, applicants, and stakeholders.

This revision 2.05 also reflects the valuable input from members of an Ad Hoc Committee that met throughout 2019 and 2020 to discuss alternatives to the recertification process, as well as those who commented on the recertification proposal issued in October 2020. 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, 2nd Edition. Low Impact Hydropower Institute, Lexington, MA.*

REVISION HISTORY

2nd Edition Handbook	*Revision Date*
Initial Issuance	March 7, 2016
Revision 2.01	May 4, 2016
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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 2nd 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 2nd 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 stakeholders during development of the 2nd Edition Handbook. Additional information about the programmatic changes embodied in the 2nd 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 the annual reviews of the Handbook and are incorporated into revisions of the 2nd Edition Handbook.

This Revision 2.05 is the most current revision to the Handbook and is published on the LIHI website. In addition to minor editorial changes and renumbered tables with minor modifications in Appendix B, the primary changes are:

- Extension of the base LIHI Certificate term from five to ten years for new facilities and those that have been certified under the 2nd Edition Handbook (Section 6);
- Enhanced annual compliance reviews for Certified facilities (Section 5.3);
- New mid-term reviews with public comment opportunities for facilities that have undergone material changes during the current LIHI term (Section 5.3.4); and
- Modification of recertification procedures (Section 6).

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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 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.

LIHI Certificates help define hydropower's eligibility in renewable energy markets. They 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 to be compatible with 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 2nd 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 that is used by LIHI to certify hydropower facilities as Low Impact. It also provides guidance on how to apply for LIHI Certification. Through the operation of the Certification Program, LIHI certifies hydropower facilities that seek to minimize the impacts of their operations as compared to other hydropower facilities based on objective criteria.

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 hydropower 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. Appendix B provides instructions and a detailed explanation of necessary application materials, including supporting information that demonstrates compliance with specific standards and criteria (examples of application packages are provided on the LIHI website "How to apply" page). Appendix C contains the LIHI Fee Schedule, current at the time of Handbook publication.

Throughout the text, key terms that require definition and further explanation are highlighted by underlining. Definitions for these key terms are provided in Appendix A. Defined terms that appear in titles are not highlighted.

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 - those with powerhouses 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 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 recommended for removal or decommissioning by a resource agency. Exceptions may be considered but only when it is shown that the changes in the facility resulted in improvements to resources assessed by LIHI criteria, especially those issues raised in removal recommendations.

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. 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 recommended for removal by a resource agency. If a natural resource agency has concluded that a dam should be removed and has documented their recommendation in an official, publicly available report or proceeding, the hydroelectric facilities associated with that dam are not eligible for LIHI Certification;
- Hydropower facilities that are located at a dam or diversion that was 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 eight criteria, goals, and standards. There are eight criteria and supporting goal statements, all of which must be met for a facility to qualify as Low Impact Certified:

- Ecological Flow Regimes
- Water Quality Protection
- Upstream Fish Passage
- Downstream Fish Passage and Protection
- Shoreline and Watershed Protection
- Threatened and Endangered Species Protection
- Cultural and Historic Resources Protection
- Recreational Resources

All criteria and their respective goals must be satisfied but the 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 criteria are not satisfied, the facility cannot be granted LIHI Certification.

3.1 Structure of Criteria, Goals, and Standards

Goal statements are provided for each criterion to define the purpose or objective that must be achieved. For each criterion and supporting goal statement, a set of alternative standards provide a comprehensive menu of alternatives by which the criterion goal can be met. The order of the alternative standards is consistent for all criteria.

The first standard for each criterion 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 the first standard 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 most criteria, the second standard, if applicable, requires meeting the most environmentally protective, science-based resource agency recommendation(s) of the relevant state or federal resource agencies whose mandates are to protect the resources the criteria are designed to evaluate. The application must include specific descriptions of the methods, procedures, and/or studies used by agencies to develop the recommendation in order to demonstrate that the recommendation is science-based.

In circumstances where there are no such resource agency recommendations, the applicant can use other standards to satisfy the criterion through demonstrated best practices and technologies.

The numbering and order of alternative standards is important. Except for the "PLUS" standards, 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, which may or may not be the case. Applicants should consult with LIHI staff early in the application process to determine which standards are most appropriate (see Section 4.1).

In addition to the alternative standards, each criterion also includes a "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. Some examples include implementing advanced technologies, science-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. 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 (see Section 4.1.1 for definition of Zones of Effect), and for documenting the basis upon which the standard applies, and how the facility satisfies that standard. The specific information required to justify each standard is explained in more detail in Appendix B. The goals of each criterion must be 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 - Ecological Flow Regimes

Goal: The flow regimes in riverine reaches that are 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, appropriate flow management should apply an ecosystem-based approach that supports fish and wildlife resources by considering base flows, daily, seasonal, and inter-annual variability, high-flow pulses, and short-term rates of change. 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 flows criterion, the applicant must demonstrate compliance with at least 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. Agency Recommendation:*** The flow regime at the facility was developed in accordance with a science-based resource agency recommendation; or
- ***STANDARD A-3. Limited Storage:*** In the absence of applicable agency recommendations and 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 an applicable agency recommendation, the flow regime at the facility was developed on a site-specific basis, using a well-documented science-based habitat evaluation technique or a flow-ecology model.
- ***STANDARD A-PLUS:*** In addition to satisfying one or more of the 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.

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 agency's water quality standards. In all cases, if any waterbody directly affected by the facility has been defined as being water quality limited (for example, included on a state 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. In addition, to pass the water quality criterion, the applicant must demonstrate compliance with at least 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); or
- ***STANDARD B-2. Agency Recommendation:*** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing 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 an applicable agency recommendation specific to the facility, the facility owner demonstrates with monitoring data that it is in compliance with the quantitative water quality standards established by the state or other regulatory authority 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 or more of the 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. This criterion is intended 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 at least 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. Agency Recommendation:*** The facility is in compliance with science-based fish passage resource agency recommendations for the facility and which may include provisions for appropriate monitoring and effectiveness determinations; or
- ***STANDARD C-3. Best Practice/Best Available Technology:*** In the absence of applicable resource agency recommendations, the facility 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 science-based fish passage resource agency 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. These measures could be in-kind or out-of-kind mitigation. In all cases, resource agencies 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 reproductive success (for example, numbers of fish produced) or area of suitable fish habitat provided.

- ***STANDARD C-PLUS:*** In addition to satisfying one or more of the 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 and Protection

Goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs 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 and protection criterion, the applicant must demonstrate compliance with at least 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 migratory fish in the vicinity of the facility. If such species were present historically, the facility did not contribute to the extirpation of them; 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. Agency Recommendation:*** The facility is in compliance with a science-based resource agency recommendation for downstream fish passage and/or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations; or
- ***STANDARD D-3. Best Practice/Best Available Technology:*** In the absence of science-based resource agency recommendations for downstream fish passage or protection, the facility includes well-designed, well-operated downstream fish passage methods or technologies that are appropriate for the migratory species that occur in the area affected by the facility, and technologies that minimize loss of riverine species. 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 science-based resource agency recommendation for downstream fish passage and in lieu of downstream passage and/or protection provisions at the facility, the applicant employs approved alternative fish passage mitigation measures that support migratory and native non-migratory fish species affected by the facility. These measures might include in-kind or out-of-kind mitigation. In all cases, resource agencies 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 reproductive success (for example numbers of fish produced) or areas of suitable fish habitat provided.

- ***STANDARD D-PLUS:*** In addition to satisfying one or more of the 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 - Shoreline and Watershed Protection

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 watershed protection criterion, the applicant must demonstrate compliance with at least 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 under the direct or indirect ownership or control of the facility owner that 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 (SMP) or similar protection plan; or
- ***STANDARD E-2. Agency Recommendation:*** The facility is in compliance with all government agency recommendations in a license, exemption, water quality certificate, or other authorization, such as an approved SMP or equivalent for protection, mitigation or enhancement of shoreline surrounding the facility; or
- ***STANDARD E-3. Enforceable Protection:*** The facility demonstrates that, on lands abutting facility waters under its direct or indirect ownership or control, there is an approved and legally enforceable shoreline buffer or equivalent watershed land protection plan (including enforceable state or local regulatory 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:*** 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. In addition, the buffer zone must include at least 50% of the undeveloped shoreline around the reservoir, or a reservoir shoreline equivalent along its riverine zones. Alternatively, the facility has established a watershed enhancement fund for land management within the facility's

watershed 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 reservoir and/or river corridors.

3.2.6 Criterion F - Threatened and Endangered Species Protection

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

Introduction to Standards: To pass the threatened and endangered species criterion, the applicant must demonstrate compliance with at least 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 a federal or state listed species. However, a facility that is making significant efforts to reintroduce an extirpated species may pass this criterion.

- ***STANDARD F-1. Not Applicable/De Minimis Effect:*** There are no listed species documented to be present in the facility area, and the facility was not responsible for the extirpation of listed species that historically were present; or
- ***STANDARD F-2. Finding of No Negative Effect:*** There are or may be listed species in the facility area, but the facility has been found by an appropriate resource management agency 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, in an incidental take permit or statement, biological opinion, habitat conservation plan, or similar government document and the incidental take document and/or biological opinion issued relevant to the facility was designed to be a long-term solution for protection of the listed species; or
- ***STANDARD F-4. Acceptable Mitigation:*** If a newly listed species has been determined to be present by an appropriate resource agency subsequent to the establishment of environmental requirements at the facility, and no incidental take permit or statement, biological opinion, habitat conservation plan, or similar government document relevant to the facility exists, the facility is implementing significant, agency-approved measures to avoid or minimize the impact of the facility on that listed species***.***
- ***STANDARD F- PLUS:*** The facility has established an enforceable agreement with applicable resource agencies to operate the facility in support of rare and endemic species; is implementing proactive measures to substantively minimize impacts on species which are at risk of becoming listed species in the vicinity of the facility in the future; or the facility is a significant participant in a species recovery effort.

3.2.7 Criterion G - Cultural and Historic Resource Protection

Goal: The facility does not unnecessarily impact cultural or historic resources associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.

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 cultural or historic resources present on facility lands 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 state, federal, and recognized tribal plans for protection, enhancement, or mitigation of impacts to cultural or historic resources affected by the facility.
- ***STANDARD G-PLUS:*** The applicant has made a substantial commitment to restoring one or more significant cultural or historical resource in the vicinity beyond what is required in existing plans, such as a Historic Properties Management Plan; or the applicant has created a significant new educational opportunity about cultural or historical resources in the area, and formally commits as a condition of its LIHI Certification that this opportunity will exist for the duration of the LIHI Certification.

3.2.8 Criterion H - Recreational Resources

Goal: The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.

Introduction to Standards: To pass the recreational resources criterion, the applicant must demonstrate compliance with at least 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 reservoir levels and river flows. It is understood that recreation activities must be consistent with the assurance of reasonable safety of employees and the public, and with Critical Energy Infrastructure protections dictated by state or federal authorities.

- ***STANDARD H-1. Not Applicable/De Minimis Effect:*** The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact recreational opportunities in the vicinity of the facility; or
- ***STANDARD H-2. Agency Recommendation:*** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility; or
- ***STANDARD H-3. Assured Accessibility and Use:*** In the absence of resource agency recommendations or a recreation plan, the applicant demonstrates that they have been, and formally commits as a condition of LIHI Certification to continue to be, responsive to reasonable requests from recreational interests for public access to lands and waters associated with the facility and to appropriate recreational water flows and levels, without fees or charges.
- ***STANDARD H-PLUS:*** The facility has created significant new public recreational opportunities in

the vicinity of the facility beyond those otherwise required by resource agencies or the facility's FERC license, exemption, water quality certificate, or other authorization. Such new opportunities could include campgrounds, whitewater parks, boating access facilities, visitor centers, trails, or the like, as long as these opportunities do 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 stakeholder involvement and public participation, and 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

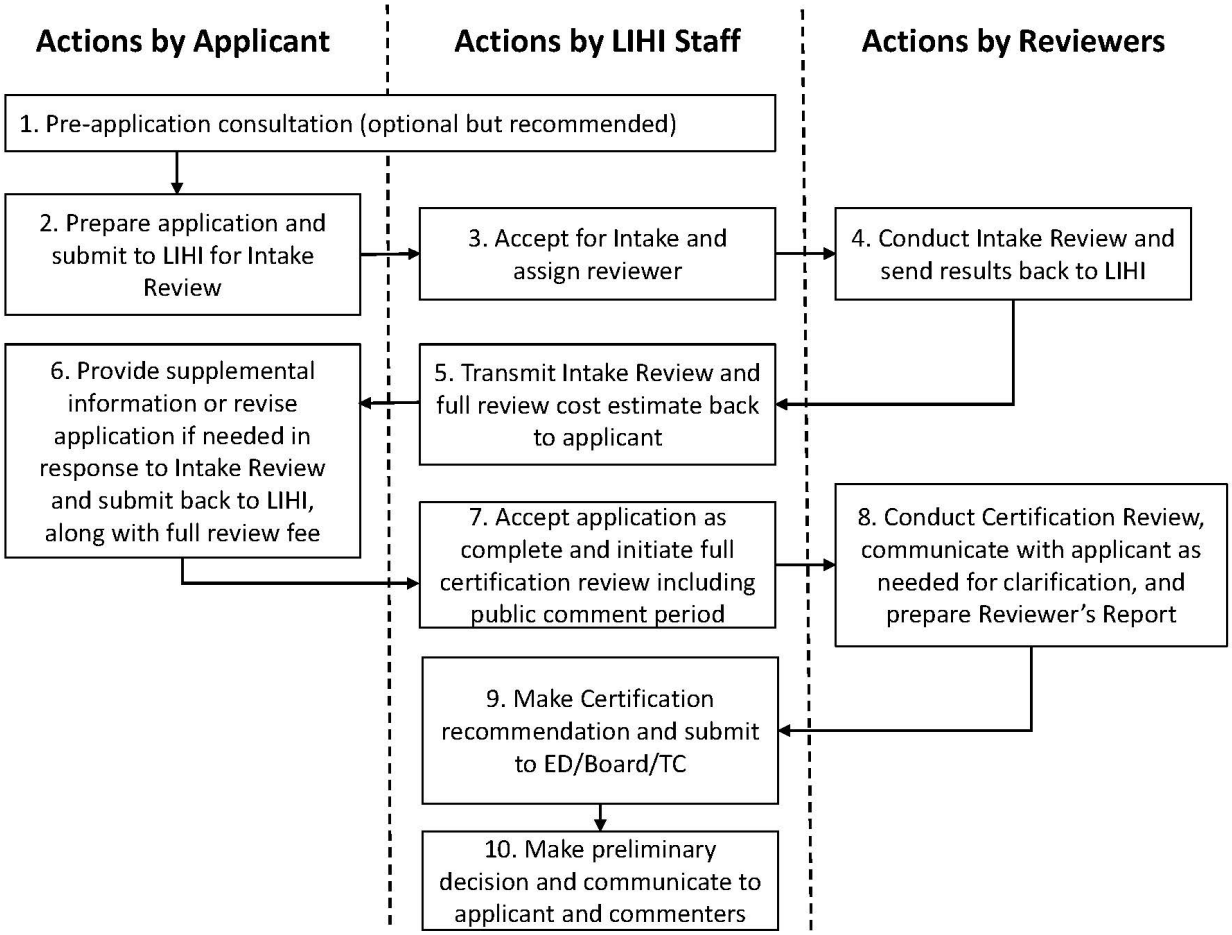
The relationship between the processing steps and the parties responsible for each are shown in Figure 4-1. An application is not complete until it is accepted by LIHI staff at the beginning of the full certification review step, the signed Attestation and Waiver Form has been received, and payment of 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. Forms and tables should be downloaded from the LIHI website How to Apply page to ensure the most current version is used:

- Facility description (Table 1.a or Table 1.b)
- Standards matrices (Table 2.a repeated for each Zone of Effect or Table 2.b)
- Supporting documentation to demonstrate that the facility meets standards for each criterion in each Zone of Effect (Tables 3 - 10)
- Completed Attestation and Waiver of Liability Form
- Completed contacts forms (Tables 11 - 13)
- 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 and pertaining to a complete certification application will be available for public review and public access unless designated as confidential by the applicant (see Appendix B for additional details).

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 stakeholders; documentation of other environmental certifications or awards pertinent to the facility; or information about, or summaries of, any relevant 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 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 includes:

- Name of the facility
- Reason for applying for certification
- Location
- Facility owner
- 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 area. Examples of facility designs and associated ZoEs are shown in Figure 4-2 and Figure 4-3 below.

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.

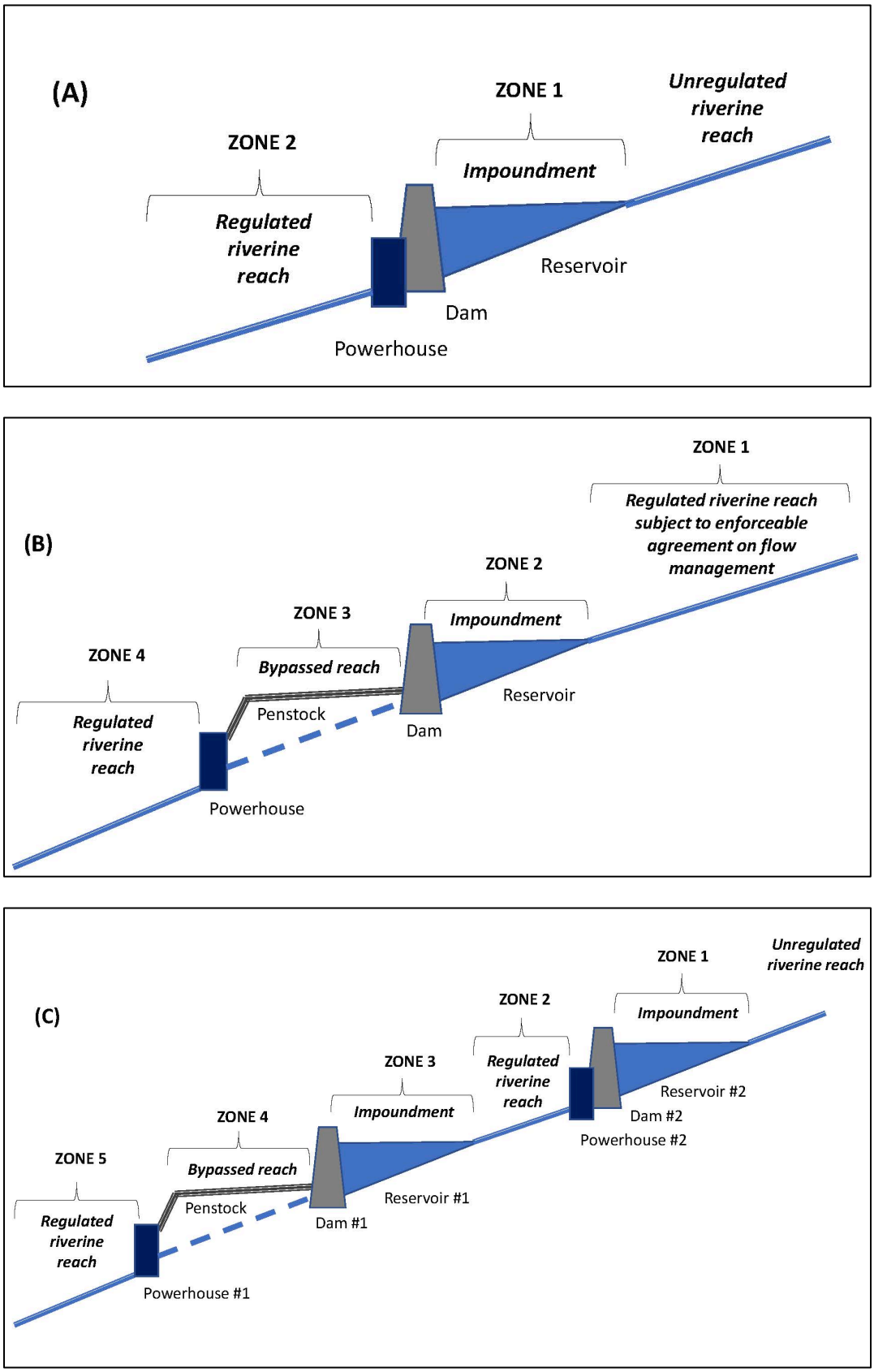
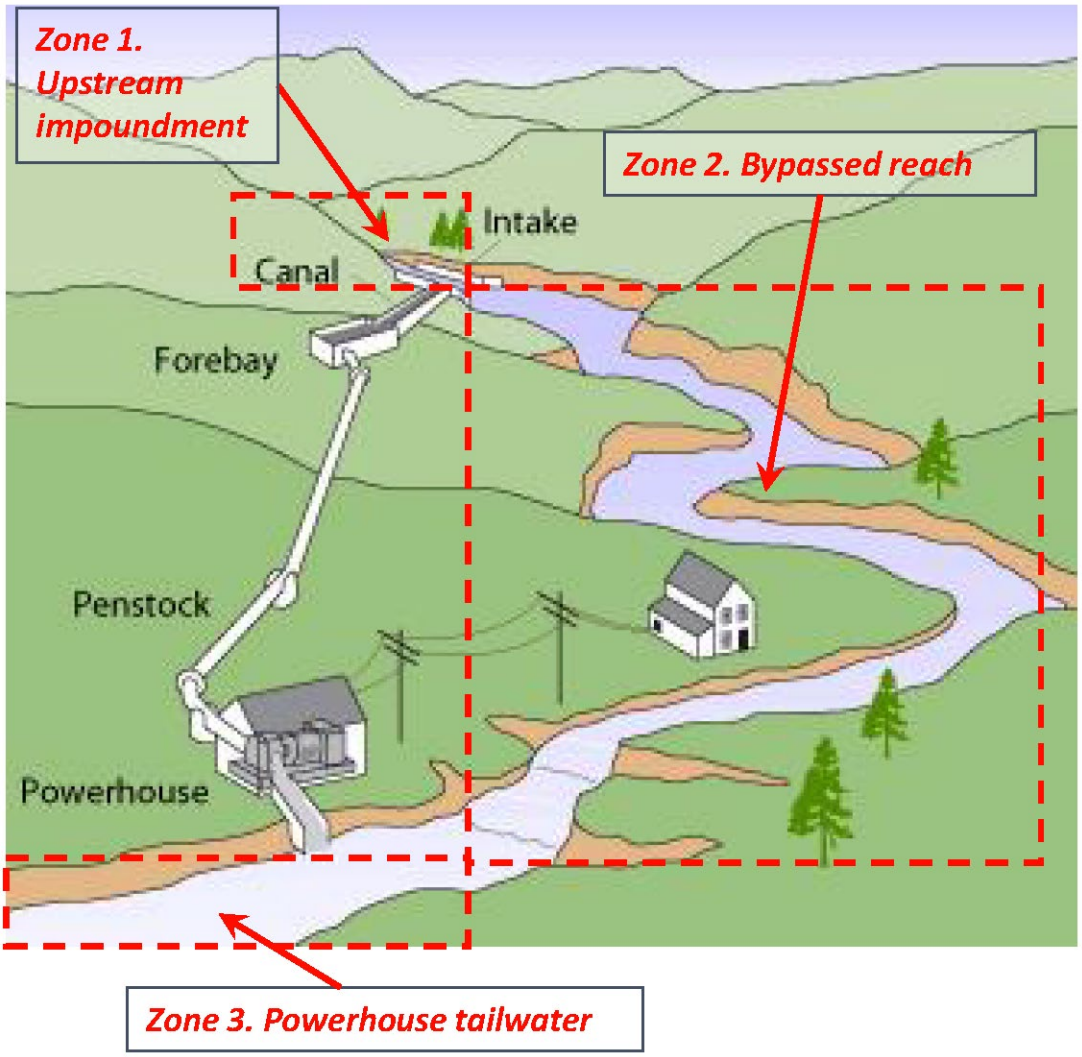


Figure 4-3. Conceptual Example of Zones of Effect for a Typical Diversion Project.



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 record an 'X' or check mark (✓) inside each cell that applies to the ZoE. Only one numbered standard should be checked off in each row of the matrix. If a PLUS standard is also selected that should be noted in the applicable criteria and ZoEs 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 supplemental information required to support selection of that standard (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	**Ecological Flow Regimes**	X				X
B	**Water Quality**			X		
C	**Upstream Fish Passage**	X				
D	**Downstream Fish Passage**				X	X
E	**Watershed and Shoreline Protection**	X				
F	**Threatened and Endangered Species Protection**	X				
G	**Cultural and Historic Resources Protection**		X			
H	**Recreational Resources**			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 0.55 – 0.3	RM 0.44 – 0.3	RM 0.3 – 0.0
Criterion		**Standard Selected**		
A	Ecological Flows	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	Shoreline and Watershed Protection	1	1	1
F	Threatened and Endangered Species	3	3	3
G	Cultural and Historic Resources	1	1	1
H	Recreational Resources	2	2	2

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**
		Ecological Flows	**Water Quality**	**Upstream Fish Passage**	**Downstream Fish Passage**	**Shoreline and Watershed Protection**	**Threatened and Endangered Species**	**Cultural and Historic Resources**	**Recreational Resources**
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

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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 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 demonstrate that the facility is in compliance with or has taken action to regain compliance with, its current regulatory requirements related to the LIHI criteria contained in relevant FERC license or exemption articles, water quality certification conditions, resource agency terms and conditions, and other authorizations, permits, and enforceable 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 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 annual LIHI compliance obligations, billing/accounts payable contacts; and agency and other stakeholder contacts (see Contacts Forms in Appendix B). 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 new owner must notify LIHI and assume all program obligations or the Certification will be revoked (See Assignment and Assumption Form in Appendix B).

4.2 Processing Steps

All applicants should become familiar with the LIHI Certification 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 criteria. Interested applicants should also familiarize themselves with the 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.

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 decide 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 whether the facility can satisfy 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 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 an initial application package and 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 meeting the standards, facility and stakeholder 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 stage 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. Except in rare circumstances, all information pertaining to a final certification application will be available for public review. The applicant can request to keep certain information confidential if it is submitted separately and marked as such (see Appendix B).

The final certification application should be responsive to all the missing information and guidance provided in the intake review report. Once LIHI has received supplemental information or a revised application if needed, the Attestation and Waiver of Liability Form, 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 has been 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 makes any necessary inquiries to resource agencies and/or stakeholders 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 other stakeholders. 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.

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. The distribution lists for LIHI email notices are organized by state. The email notice lists are open to any interested party by signing up online. The announcement is also forwarded to governmental and other stakeholder contacts 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 the 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 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.

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

a) satisfy a criterion where additional confirming data is 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 stakeholder or agency comments; and/or
f) ensure that planned or in-progress studies, mitigation measures, agreements between the applicant and stakeholders, 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 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, the 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 reports 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 policy. The decision of the panel will stand unless the Governing Board finds that the decision is inconsistent with the LIHI criteria and/or policy. 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 stakeholders 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 be considered 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 the 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.

4.4.1 Application Review Fees

Application review fees include fees for the initial intake review, for full application review, and for recertification review. These fees are designed to cover LIHI's cost associated with reviewing applications at all stages 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 for free and confidential pre-application consultation. Application review fees include the cost of hiring an independent reviewer, which is estimated during the intake review, 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 that 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 Table C-1 in Appendix C 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 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 (see Appendix C). There is also a maximum annual fee, or cap, for large facilities. 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 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-Dam 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 (see Appendix C).

4.5.3 Pre-operational Applications

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

- the applicant has obtained all required federal, tribal, state, and local 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). Applicants may be charged a fee premium for pre-operational certifications (see fee schedule in Appendix C).

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 application on hold at any time without prejudice. 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". Application review fees are not refundable, even in the instance of withdrawal and re-activated applications may be subject to additional review fees.

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, scientific 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/.

LIHI Certification Mark

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 RECs 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 from time to time 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.

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 (see Section 4).

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 with the LIHI criteria and with facility-specific conditions annually. 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;
- a material change in the facility, its operations, or regulatory requirements relevant to the Certification that may impact compliance; or
- receipt of a substantive notice of violation or formal notice of non-compliance from any government agency relevant to the facility's Certification, LIHI criteria, or facility-specific conditions.

The notification should include an explanation as to why the violation or change 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 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 formal agency recommendation made directly to the Certificate holder or formal agency order received; no substantive notices of violation or substantive complaints, 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 past year; and whether any specific environmental or social benefits were achieved. The annual compliance statement must be submitted by the end 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 evaluated to determine if any material changes have occurred that would trigger a more detailed mid-term review. These reviews confirm that the facility continues to satisfy the LIHI criteria relevant to the material changes made.

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, or stakeholders 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).

Any of the following material changes 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 changes in river designation (e.g., Wild and Scenic River, 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 federal, state, regional, or local 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; threatened and endangered species biological opinions or recovery plans; or regional, state, or local recreation 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 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 not result in a new LIHI term unless a new license or material license or exemption amendment has been issued and the facility continues to satisfy the LIHI criteria. 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.

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 if finds that a material misrepresentation of fact was made in any submission from an applicant or 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 a LIHI Certificate holder. This can be demonstrated in one of the following ways: by providing LIHI with a copy of an Assignment and Assumption Agreement (See Appendix B, Section B.5) between the seller and purchaser of the facility which is subject to the acceptance of LIHI; or by the purchaser executing a separate CMLA with LIHI; or by adding 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.

6. RECERTIFICATION

All LIHI Certificates are issued for a term from ten to fifteen years once a facility has been certified under the 2nd 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.

To renew a LIHI Certification, the Certificate holder submits a recertification 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 made during the proceeding. Similarly, the findings of any science-based studies, relevant to certification 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. Stage II, if needed, is a more comprehensive evaluation similar to the 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 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. The review also considers all public comments received and any applicant responses to comments.

The applicant submits the application package, along with the 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 and stakeholder contact list provided 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. The application reviewer will examine all application materials, the LIHI 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 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, LIHI will post a notice of the preliminary decision on the LIHI website for the 30-day appeal period. Should an applicant or any stakeholder 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. 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.

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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 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 which has a reasonable possibility 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 the restoration of degraded habitat in the watershed to enhance natural reproduction. Such alternative mitigation measures should be designed to sustain the abundance and diversity of 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 to be 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.

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 through turbines or other mechanical means for the purpose of water-powered generation of electricity and the point at which water is released into the waterway below the turbines or other mechanical means of electricity generation.

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 the application is filed and has not had any material violations or formal notices of violation issued by a state or federal agency within the prior year. 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 Resource: 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 or scholarly 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, or human skeletal materials or graves. 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 architecture.

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.

Endemic Species: A species that is found naturally only in a single geographical area.

Enforceable (also, enforceable protection): For purposes of this Handbook, enforceable protection means a legally enforceable agreement, restriction, 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, and shoreline permit programs.

Extirpate (also, extirpated and extirpation): To completely remove or locally eliminate a species population from the facility's affected area.

Fish passage: The ability, by 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 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 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 or other federal or state regulatory authorization; or FERC orders or other federal, state, or tribal regulatory requirements that change facility operations or features.

Habitat evaluation technique: A science-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 assessment methods that include the Instream Flow Incremental Methodology (IFIM) and the Physical Habitat Simulation (PHABSIM) model that dates to the 1970s (Stalnaker et al., 1995), the Habitat Evaluation Procedures developed in the 1980s by the U.S. Fish and Wildlife Service (https://www.fws.gov/policy/ESMindex.html), and many subsequent methods. 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 an analytical framework that considers the tradeoffs between multiple ecological processes and resource management objectives and 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 and/or downstream of a powerhouse.

Indirect ownership: Indirect ownership means that the generation 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).

In-kind mitigation: A mitigation project in close proximity to the site of impact that is designed to replace lost resources with identical or very similar resources.

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 of 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 regulatory agency, as either "Endangered" and in danger of extinction throughout all or a significant portion of its range, or "Threatened" and likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

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 and with 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: This term is used in this Handbook to generally refer to a hierarchical set of actions, including avoidance, minimization, and compensation, in that order (Clement et al., 2014).

Mode of operation: Type of 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, peaking, pulsing, seasonal storage, diversion, etc.

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

New hydropower facility (or new generation): Addition of electrical generation equipment or retrofit

of such equipment at an existing dam or diversion that was built before August 1998 and that does not degrade resource conditions above or below the modified facility.

Out-of-kind mitigation: Replacement or substitute resources that are related to but of a different quality, species mix, or even species 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 species. 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.

Potamodromous fish: Fish species whose migrations occur entirely within fresh water. This term includes riverine and resident species.

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 reservoir 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 reservoir 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 reservoir 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.

Rare Species: A species that: a) naturally occurs in a narrow geographical area; b) occupies only one or a few specialized habitats; or c) forms only small population(s) in its range.

Recognized tribal plan: A plan for management of cultural resources as adopted by a tribe recognized by a federal or state government.

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

Recreational access: The ability to enter waterbodies and lands associated with the facility by the public for recreational use. 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 and 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 risk of hydropower operations on seasonal and inter-annual flow variability. For further explanation, see publications from the Instream Flow Council (Annear et al., 2004) and The Nature Conservancy (Mathews and Richter, 2007).

Regulation, policy, or management plan change: May include but is not limited to changes such as those in state or tribal water quality standards or other water-related regulations; new or modified

instream flow policies, fishery or other resource management plans; threatened and endangered species biological opinions or recovery plans; or regional, state, or local recreation policies or plans.

Resource agency recommendations: Recommendations or conditions for operation, maintenance, and/or construction of facility structures issued by resource agencies for the facility. Resource agency recommendations considered in LIHI Certification shall be:

- ***Issued pursuant to a proceeding.*** Valid resource agency recommendations are those issued pursuant to a legal or administrative proceeding, or other legally enforceable agreements made between a resource agency and the facility owner/operator. For a filing in a proceeding to be considered a valid recommendation, the submittal must be on agency letterhead and signed by an individual with the statutory or regulatory authority, as defined by each agency, to submit formal correspondence on behalf of the agency. The proceedings anticipated to apply for most facilities are a FERC licensing, exemption, license amendment proceeding, or formal recommendations issued specifically as part of LIHI Certification. For a FERC-regulated facility, these recommendations would include proposed or mandated license conditions submitted through the FERC licensing or other processes pursuant to Federal Power Act Sections 4(e), 18, 10(a) or 10(j), Clean Water Act Section 401, the Endangered Species Act Section 7, or other state or federal laws. For non-FERC-regulated facilities, the proceedings anticipated to apply may include consultation pursuant to the Endangered Species Act, CWA Section 401 proceedings, Northwest Power Act proceedings, or other state or federal proceedings resulting in a legally enforceable agreement between the facility owner/operator and a resource agency. Resource agency recommendations that are subsequently overturned by a judicial proceeding cease to be valid for purposes of certification.

- ***Recent.*** If a single resource agency has made multiple recommendations, the most recent formal recommendation shall generally apply. This principle also applies when there is a settlement agreement. If a resource agency is party to a settlement, or otherwise formally concurs in a settlement, the settlement terms will be considered the most recent resource agency recommendation for these purposes. If, however, a resource agency is not party to a settlement and does not formally concur in the settlement, a subsequent formal science-based recommendation by that agency will be considered in the certification evaluation.

- ***Environmentally protective.*** In general, the most environmentally protective resource agency recommendation shall apply where different resource agencies have made differing recommendations or recommendations by a single agency have changed over time. If a condition in the facility's FERC license or exemption (or other operating requirement, if not FERC licensed) is less environmentally protective than a more recent science-based resource agency recommendation, the more recent recommendation will be considered in the certification evaluation.

- ***Consistent with and supportive of resource management goals and objectives.*** Resource agency recommendations must align with the relevant published agency 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 resource agency recommendations.*** Where there are conflicting resource agency recommendations and the conflict is not resolved by applying the most recent and most environmentally protective tests, the conflict shall be resolved by applying the recommendations based upon the health of threatened or endangered biological organisms first; the health of other biological organisms second; cultural resources third; and recreation fourth unless there is a statutory mandate to resolve the conflict otherwise. For example, recommendations designed to protect threatened or endangered species (i.e., a biological opinion) would prevail over recommendations regarding recreation. If a conflict still exists among resource agency recommendations, LIHI will determine which recommendation shall apply for purposes 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).

Science-based: Science-based agency 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, stakeholder group, or the general 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 compliance warnings or violations that directly relate to the LIHI criteria. Excludes short-term

deviations and those beyond operator control, that are properly reported to LIHI, applicable resource agencies (and FERC if required), 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.

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 issued water quality certification (WQC) that has been 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 tribal agency 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).

Watershed change: Any material change in the watershed that directly affects the facility or its operations. Changes could include but are not limited to those at upstream or downstream facilities (e.g., dam removal, installation of fish passage, new license); flooding or erosion events that significantly alter river hydrology and/or facility operations; threatened or endangered species newly identified at the facility; a newly issued biological opinion, changes in river designation (e.g., Wild and Scenic River, protected status), changes in cultural or historic property designations, etc.

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 reservoirs or impoundments above a dam or diversion, bypassed reaches between a dam and a powerhouse, and rivers downstream of a powerhouse discharge.

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 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 instructions in Sections 3, 4, 5 and 6 (if a recertification). Certified facilities that have not yet been recertified under the 2nd Edition Handbook should also follow these instructions. Separate instructions for recertification applications for facilities already certified under the 2nd 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. Include annotated maps, figures, and photographs that illustrate the facility layout and primary structures (e.g., dam, powerhouse, turbines, bypassed reach, fishways). Include one or more annotated aerial images that illustrate and delineate all ZoEs. If there are upstream and downstream dams, provide a map that locates those in relation to the facility and indicate which are owned by the applicant's parent company or other affiliated company.

   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 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.

4. Using the standards selected, cut/paste the corresponding numbered rows in Tables 3 through 10 (and the PLUS standard if applicable) into the application and provide detailed narrative references and supplementary documentation that demonstrates satisfaction of the applicable bulleted

instructions. Group the tables by LIHI Criterion (e.g., discuss Criterion A – Ecological Flow Regimes for each ZoE and its selected standard, then discuss Criterion B – Water Quality for each ZoE, and so on). 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. Do not simply reference supporting documentation but summarize relevant information from it and provide references to page numbers in the supporting documents. 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. Complete the Attestation and Waiver Form and the facility and agency/stakeholder Contacts Forms.

7. 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. 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. If any Critical Energy Infrastructure Information (CEII)[1] is included in an application, it should be placed in a separate document. Similarly, any privileged information (i.e., locational information about threatened and endangered species or cultural and historic resources) should be provided separately. All confidential documents should be submitted in pdf format and be clearly marked "Confidential". 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.

Assemble all parts into a single document 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 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 that includes all required information for each facility.

[1] See https://www.ferc.gov/legal/maj-ord-reg/land-docs/ceii-rule.asp

- Provide the total installed capacity and 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 rather than 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. Ecological Flows, 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. Shoreline and Watershed Protection, 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. Recreational Resources, use applicable portion for Table 10 for each ZoE
5. Signed Attestation and Waiver Form
6. Completed Facility and Stakeholder Contact Forms (Tables 11 - 13)
7. Appendices/Attachments
    a. Additional figures, maps, photographs
    b. Supporting letters, emails from resource agencies and/or stakeholders, if available
    c. Supporting documents or hyperlinked list of documents available online

***NOTE:** 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.

***NOTE:** 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.

Item	***Information Requested***	***Response (include references to further details)***
Name of the Facility	Facility name (use FERC project name or other legal name)	
Reason for applying for LIHI Certification	1. 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) 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer's purchasing requirement 4. To satisfy the facility's own corporate sustainability goals 5. For the facility's corporate marketing purposes 6. Other (describe)	(select and describe only applicable reasons)
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	
Location	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: https://water.usgs.gov/wsc/map_index.html	
	Nearest town(s), county(ies), and state(s) to dam	
	River mile of dam above mouth	
	Geographic latitude and longitude of dam	
Facility Owner	Application contact names	
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the effective date of the change.**	

Item	*Information Requested*	*Response (include references to further details)*
	FERC licensee company name (if different from owner)	
Regulatory Status	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[2] ***(or provide a separate list)***	
Powerhouse	Date of initial operation (past or future for pre-operational applications) Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	
	Trashrack clear spacing (inches) for each trashrack	
	Approach water velocity (ft/s) at each intake if known	

[2] 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, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

Item	*Information Requested*	*Response (include references to further details)*
	Dates and types of major equipment upgrades ***(or provide a separate list)*** **For recertifications: Indicate only those since last certification**	
	Dates, purpose, and type of any recent operational changes ***(or provide a separate list)*** **For recertifications: Indicate only those since last certification**	
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments ***(or provide a separate list)***	
Dam or Diversion	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.)	
Conduit Facilities Only	Date of conduit construction and primary purpose of conduit	
	Source water	
	Receiving water and location of discharge	
Impoundment and Watershed	Authorized maximum and minimum impoundment water surface elevations **For recertifications: Indicate if these values have changed since last certification**	
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	

Item	*Information Requested*	*Response (include references to further details)*
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	
	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.	
Hydrologic Setting	Average annual flow at the dam, and period of record used	
	Average monthly flows and period of record used	
	Location and name of closest stream gaging stations above and below the facility	
	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)	

Item	*Information Requested*	*Response (include references to further details)*
Designated Zones of Effect	Numbers and names of each zone of effect (e.g., "Zone 1: Impoundment")	
	River mile of upstream and downstream limits of each zone of effect (e.g., "Zone 1: RM 6.3 - 5.1")	
Pre-Operational Facilities Only		
Expected operational date	Date generation is expected to begin	
Dam, diversion structure or conduit modification	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. Date the modification is expected to be completed	
Change in water flow regime	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: _____**

		Alternative Standards				
	Criterion	***1***	***2***	***3***	***4***	***Plus***
A	**Ecological Flow Regimes**					
B	**Water Quality**					
C	**Upstream Fish Passage**					
D	**Downstream Fish Passage**					
E	**Watershed and Shoreline Protection**					
F	**Threatened and Endangered Species Protection**					
G	**Cultural and Historic Resources Protection**					
H	**Recreational Resources**					

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:				
Criterion		***Standard Selected (type in one numbered standard and PLUS if applicable)***		
A	Ecological Flows			
B	Water Quality			
C	Upstream Fish Passage			
D	Downstream Fish Passage			
E	Shoreline and Watershed Protection			
F	Threatened and Endangered Species			
G	Cultural and Historic Resources			
H	Recreational Resources			

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.

		CRITERION ***(type in one numbered standard and PLUS if applicable)***							
Zone Name	**River Mile at upper and lower extent of Zone**	***A*** **Ecological Flows**	***B*** **Water Quality**	***C*** **Upstream Fish Passage**	***D*** **Downstream Fish Passage**	***E*** **Shoreline and Watershed Protection**	***F*** **Threatened and Endangered Species**	***G*** **Cultural and Historic Resources**	***H*** **Recreational Resources**
ZoE 1.									
ZoE 2.									
ZoE 3.									
ZoE 4.									
ZoE 5.									
ZoE 6.									
ZoE 7.									
ZoE 8.									
ZoE 9.									
ZoE 10.									

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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 that the selected numbered standard 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 demonstrate how the facility meets the LIHI standards, criteria, and goals. Refer to Appendix A for definitions of terms.

- 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 in Section 3.2 then explain how the goal and the selected numbered standard are satisfied in 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 related to the LIHI criteria including FERC license or exemption articles, water quality certification terms and conditions, and other state, tribal, and federal authorizations and permits. Any issues surrounding the facility's regulatory compliance and current status of the issues should be discussed in applicable sections of the application.

B.2.1 Ecological Flow Standards

Required regardless of standard selected:

1. Identify any deviations that have occurred in the past 10 years; 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 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).

Table 3. Ecological Flows Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
A	1	Not Applicable / De Minimis Effect: • 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. • 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 that discharge to a natural waterbody. • 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.
A	2	Agency Recommendation (see Appendix A for definition): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).

Criterion	*Standard*	*Instructions*
A	3	Limited Storage: • Explain the calculation of active storage capacity and retention time (storage/flow), including data sources. • Provide the name and published reference for the methodology used, including developer of the methodology and several successful, recent applications, and how it has been regionally accepted. • Provide the calculations used to derive the final flow, including data sources and any pre-processing applied.
A	4	Site-Specific Studies: • Describe the site-specific, habitat evaluation technique that was used to define the ecological flow regime and how the results satisfy the goal of this criterion. • 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. • Describe the target fish and wildlife resources that were considered and how the resultant flow regime supports their habitat over their life cycles.
A	PLUS	Bonus Activities: • If an adaptive management program is in place, provide sufficient information to describe the program, the current status of implementation and consultation, and how it is expected to achieve the desired results; or • 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.

B.2.2 Water Quality Standards

Required regardless of standard selected:

1. Specify the state's water quality classification and designated uses for the river at the facility or for each zone if they differ. For instance, "*The impoundment is a Class B water designated 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 state's 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(s) therein that apply to facility waters or state that the facility waters are not included on any list.

Table 4. Water Quality Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
B	1	<u>Not Applicable / De Minimis Effect:</u> • Explain the rationale for why the facility does not alter water quality characteristics below, around, and above the facility.
B	2	<u>Agency Recommendation:</u> • Provide a copy of the most recent 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 letter or email from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.
B	3	<u>Site-Specific Studies:</u> • Document consultation with the appropriate water quality agency to determine what water quality parameters and sampling methods are required. • Present recent water quality data from the facility or from other sources in the vicinity of the facility (e.g., data collected from the state, 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 or other regulatory agency accepting the data.

Criterion	*Standard*	*Instructions*
B	PLUS	Bonus Activities: • 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 • 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.

B.2.3 Upstream Fish Passage Standards

Required regardless of standard selected:

1. Provide a list all migratory fish species (anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the facility.

Table 5. Upstream Fish Passage Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
C	1	Not Applicable / De Minimis Effect: • 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. • Document available fish distribution data and the lack of migratory fish species in the ZoE. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.
C	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).

Criterion	*Standard*	*Instructions*
C	3	<u>Best Practice / Best Available Technology:</u> • 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. • Identify the migratory fish species in the area and explain how the upstream fish passage facilities provide adequate and safe passage for them. • Describe the monitoring and effectiveness activities that have been or are being conducted for the upstream passage facilities.
C	4	<u>Acceptable Mitigation:</u> • Describe the alternative mitigation measures being deployed in lieu of upstream fishways and provide documentation of agency approval of them. • Explain how the total benefits of the mitigation provided equals or exceeds 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). • Explain how the alternative mitigation measures sustain the abundance and diversity of fish stocks in the river system.
C	PLUS	<u>Bonus Activities:</u> • If advanced technology has been or will be deployed, explain how it will increase fish passage success relative to other options; or • 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 • 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.

B.2.4 Downstream Fish Passage and Protection 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.

Table 6. Downstream Fish Passage Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
D	1	Not Applicable / De Minimis Effect: • 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. • 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 • Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.
D	2	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).
D	3	Best Practice / Best Available Technology: • 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. • Explain how the downstream fish passage facilities provide adequate and safe passage for fish species that are present and require passage. • Describe the monitoring and effectiveness activities that have been or are being conducted for the downstream passage facilities.

Criterion	*Standard*	*Instructions*
D	4	<u>Acceptable Mitigation:</u> • Describe the alternative mitigation measures being deployed in lieu of downstream fish passage and/or protection strategies and provide documentation of agency approval of the measures. • Explain how the total benefits of the mitigation strategy equals or exceeds 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). • Explain how the alternative mitigation measures sustain the abundance and diversity of fish stocks in the river system.
D	PLUS	<u>Bonus Activities:</u> • If advanced technology has been or will be deployed, explain how it will increase fish passage success relative to other options; or • 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 • 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.

B.2.5 Shoreline and Watershed Protection 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, conservation lands surrounding the impoundment: state or local regulatory restrictions: critical or core habitats for sensitive species, etc.)

Table 7. Shoreline and Watershed Protection Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
E	1	<u>Not Applicable / De Minimis Effect:</u> • 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 protected species). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.
E	2	<u>Agency Recommendation:</u> • Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans). • Provide documentation that the facility is in full compliance with applicable agency recommendations or management plans.
E	3	<u>Enforceable Protection:</u> • Demonstrate that there is an approved and enforceable shoreline buffer or equivalent watershed protection plan (including state or local regulations) in place for conservation purposes, including buffered shoreline along river corridors; or • 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.
E	PLUS	<u>Bonus Activities:</u> • Provide documentation that the facility has a formal site-specific conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline; or • In lieu of a formal conservation plan, provide documentation that the facility has established a 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.

B.2.6 Threatened and Endangered Species Standards

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

1. Identify all federal and state listed 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.

Table 8. Threatened and Endangered Species Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
F	1	Not Applicable / De Minimis Effect: • Document that there are no listed species in the designated ZoE; or • If listed 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. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.
F	2	Finding of No Negative Effects: • Identify all federal and state listed species that are or may be in the immediate area of the designated ZoE based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency; or provide documentation that habitat for the species does not exist within the designated ZoE or is not impacted by facility operations.
F	3	Recovery Planning and Action: • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the facility area.
F	4	Acceptable Mitigation: • If newly listed 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 newly listed species. • Document that the mitigation measures for newly listed species are being implemented to the interim satisfaction of applicable resource agencies.

Criterion	*Standard*	*Instructions*
F	PLUS	Bonus Activities: • Describe any enforceable agreement that the facility has with resource agencies to operate the facility in support of rare species or endemic species; or • Describe any enforceable agreement that the facility has with resource agencies to take proactive measures in the vicinity of the facility to substantially minimize impacts on species that are at risk of becoming listed species; or • Describe any enforceable agreement that the facility has with resource agencies to be a significant participant in a species recovery effort.

B.2.7 Cultural and Historic Resources Standards

Required regardless of standard selected:

1. Identify the cultural and historic resources 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.

Table 9. Cultural and Historic Resources Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	*Standard*	*Instructions*
G	1	Not Applicable / De Minimis Effect: • Document that there are no cultural or historic resources located on facility lands associated with the designated ZoE that can be affected by construction or operations of the facility; or • Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands in the designated ZoE; and • Provide a letter from the state and tribal (if applicable) historic preservation office that confirms no effect (this may be newly obtained or issued during prior FERC licensing or exemption proceedings).
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.
G	PLUS	Bonus Activities: • Document any substantial commitment that the facility has made to restoring one or more significant cultural or historical resource in the facility vicinity, beyond what is required in existing plans such as a Historic Resources Management Plan; or • Document any significant new educational opportunity about cultural or historical 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.

B.2.8 Recreational Resources Standards

Required regardless of standard selected:

1. Identify and briefly describe all recreational amenities associated with the facility, identify which are owned by the facility, and which not owned or operated by the facility.
2. 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. If there was no inspection, please state that.
3. Provide representative photos of recreational facilities and amenities taken within the last 12 months, and a map showing locations.
4. If applicable, provide a weblink to any public website or describe signage informing the public about the facility's recreational amenities.

Table 10. Recreational Resources Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	***Standard***	***Instructions***
H	1	Not Applicable / De Minimis Effect: • Document that the facility does not occupy lands or waters in the designated ZoE to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.
H	2	Agency Recommendation: • Document any resource agency recommendations and any enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility in the designated ZoE is in compliance with all such recommendations and plans.
H	3	Assured Accessibility: • In lieu of existing agency recommendations or management plans for recreational uses, document the facility's current and future commitment to accommodate reasonable requests from recreation interests for adequate public access for recreational use of facility lands and waters, including appropriate recreational water flows and levels, without fees or charges.
H	PLUS	Bonus Activities: • Document any new public recreational opportunities that have been created on facility lands or waters beyond those required by agencies (e.g., campgrounds, whitewater parks, boating access facilities and trails); and • Document that such new recreational opportunities did not create unmitigated impacts to other resources.

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.

Table 11. Applicant-related contacts

Facility Owner:	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Facility Operator (if different from Owner):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Party responsible for accounts payable:	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	

Table 12. Current relevant state, federal, and tribal resource agency contacts.

(copy and repeat the following table as needed)

Agency Contact		***Area of Responsibility (check applicable boxes)***
Agency Name		☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title		
Phone		
Email address		
Mailing Address		

Table 13. Current engaged stakeholder and tribal contacts.

(copy and repeat the following table as needed).

Stakeholder Contact		***Area of Responsibility (check applicable boxes)***
Organization Name		☐ Flows ☐ Water Quality ☐ Fish/Wildlife ☐ Watershed ☐ T&E Species ☐ Cultural/Historic ☐ Recreation
Name and Title		
Phone		
Email address		
Mailing Address		

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B.5 Assignment and Assumption Form

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 a LIHI Certificate holder. This can be demonstrated in one of the following ways: or by providing LIHI with a copy of an Assignment and Assumption Agreement between the seller and purchaser of the facility which is subject to the acceptance of LIHI; by the purchaser executing a separate CMLA with LIHI; or by adding the subject facility as an Exhibit to a CMLA executed by the purchaser and LIHI that is already in effect (if applicable).

The text below is suggested language for interested parties to modify and use, should a purchaser of a Certified facility wish to maintain LIHI Certification of a facility they have purchased. This Assignment and Assumption agreement must be accompanied by evidence of the transfer of ownership, which can include the purchase agreement and/or a FERC Order documenting the transfer.

FACILITY NAME: _____
LIHI CERTIFICATE NUMBER: _____

SELLER OF FACILITY:

Company Name: _____
Authorized Representative Name: _____
Title: _____

BUYER OF FACILITY:

Company Name: _____
Authorized Representative Name: _____
Title: _____

This Assignment and Assumption Agreement (the "Assignment and Assumption Agreement") is made and entered into as of _____ 20____, by and among _____, a _____ corporation ("Assignor"), and _____, a _____ corporation ("Assignee").

WHEREAS Assignor and Assignee are parties to a certain Asset Purchase Agreement dated as of _____, _20____ (the "Purchase Agreement"), pursuant to which Assignee has purchased the _____ hydroelectric facility (the "Certified Facility") owned by Assignor; and

WHEREAS, pursuant to the Purchase Agreement, Assignor has agreed to assign certain rights and agreements to Assignee as a LIHI Certificate holder of the _____ hydroelectric facility, and Assignee has agreed to assume certain obligations of Assignor, as set forth herein, and this Assignment and Assumption Agreement is contemplated by Section _____ of the Purchase Agreement;

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants contained herein, and for other good and valuable consideration, the receipt, adequacy, and legal sufficiency of which are hereby acknowledged, the parties do hereby agree as follows:

1. Assignment and Assumption. Effective as of _____, 20_____ (the "Effective Date"), Assignor hereby assigns, sells, transfers, and sets over (collectively, the "Assignment") to Assignee all of Assignor's right, title, benefit, privileges, and interest in and to, and all of Assignor's burdens, obligations, and liabilities in connection with, the LIHI Certification of the facility. Assignee hereby accepts the Assignment and assumes and agrees to observe and perform all of the duties, obligations, terms, provisions, and covenants, and to pay and discharge all of the liabilities of Assignor to be observed, performed, paid, or discharged from and after the Closing, in connection with the LIHI Certification of the facility. Assignee assumes no Retained Liabilities, and the parties hereto agree that all such Retained Liabilities shall remain the sole responsibility of Assignor.

2. Terms of the Purchase Agreement. The terms of the Purchase Agreement, including but not limited to Assignor's representations, warranties, covenants, agreements, and indemnities relating to the LIHI Certification of the facility, are incorporated herein by this reference. Assignor acknowledges and agrees that the representations, warranties, covenants, agreements, and indemnities contained in the Purchase Agreement shall not be superseded hereby but shall remain in full force and effect to the full extent provided therein. In the event of any conflict or inconsistency between the terms of the Purchase Agreement and the terms hereof, the terms of the Purchase Agreement shall govern.

3. Further Actions. Each of the parties hereto covenants and agrees, at its own expense, to execute and deliver, at the request of the other party hereto, such further instruments of transfer and assignment and to take such other action as such other party may reasonably request to more effectively consummate the assignments and assumptions contemplated by this Assignment and Assumption Agreement.

[Insert provisions on choice of law, attorneys' fees, assignment, successors and assigns, counterparts, etc., which should be drafted to track the "boilerplate" language of the Purchase Agreement.]

IN WITNESS WHEREOF, the parties have executed this Assignment and Assumption Agreement as of the date first above written.

ASSIGNOR	**ASSIGNEE**
_____	_____
a _____ corporation	a _____ corporation
By: _____	By: _____
Title: _____	Title: _____

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

Type	***Amount/Method****	***Frequency***
Application Fees		
Intake Review	$950	Once – due with submittal of intake draft application
Certification Review	May range from $3,000 - $10,000+.	Once – due with submittal of final certification application
Recertification Review	Stage I: $2,000 Stage II: $0 - $8,000+	Stage I – due with submittal of recertification application. Stage II – due after recertification intake is completed
Certificate Maintenance Fees		
Annual Certificate Fee	Unless minimum fees apply, the product of average generation and applicable market category rate. $250 minimum - $33,660 maximum	Annually – due in the anniversary month of the Certificate's effective date
Condition Fee	By number and nature of conditions, ranges from $0 to $1000 per condition.	Annually – due in the anniversary month of the Certificate's effective date 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, and recertification 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 to review the initial application submitted in the Intake stage. 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 pay an 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 and LIHI staff time and other overhead costs. LIHI reserves the right to charge additional fees in circumstances where a review is more complex that 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 including generation installed in pre-existing conduits or in other situations where a facility can pass 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 end of the first anniversary month of the Certificate's effective date. Thereafter, annual fees will be due by the end of the

Certificate's anniversary month. Thus, annual fees are retroactive and cover the prior year of certification. Annual fees are imposed every year, including the year in which a Certified facility is undergoing recertification.

Annual Fee Amount and Rates: 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[3] 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 amount 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 and/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 are 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 Verified Market Participant categories with reasonable notice to certificate holders.

Annual Certificate Fee Minimum and Maximum Amounts: Regardless of the calculated annual Certificate fee amount using the $/MWh rate, no Certificate holder shall pay less than $1,000 per year if the installed generation capacity of the LIHI Certified® facility is less than 5 MW, not less than $1,500 per year if the installed capacity of the generation facility is between 5 MW and less than 10 MW, and no more than $33,000 per year for a LIHI Certified® facility of any size.

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.

[3] 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.

C.3 Recertification Application Review Fees

All applicants for recertification must pay a recertification review fee. The Stage I fee is a fixed amount of $2,000. If a Stage I recertification 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.