LOW IMPACT HYDROPOWER INSTITUTE

2018 Annual Report

Cover: Upper impoundment, Chicopee River at Collins Hydroelectric Project (LIHI #88), Wilbraham, MA. Owned by Ampersand Energy Partners, LLC.
This page: Lowell Hydropower (LIHI #142), Merrimack River, Lowell, MA. Owned by Boott Hydropower, LLC., a subsidiary of Enel Green Power North America, Inc.

2018 HIGHLIGHTS

Lawrence Hydroelectric (LIHI #121) dam, Merrimack River, MA. Owned by Essex Company, LLC, a subsidiary of Enel Green Power North America, Inc.

8% growth in 2018. 136 active certificates in 22 states on 83 rivers, representing 11% of eligible US hydropower.

8

1/3

Nearly one third of Certificate holders go above and beyond their regulated requirements.

Applications processed in 2018. 29 reached decision - 10 new projects certified and 19 re-certified.

48

93

93% of certificate holders have renewed since 2000.

Total MWh generated annually by Certified hydropower facilities, powering 1.7 million average US homes and avoiding 1.3 million metric tons of carbon emissions.

15,455,254

LIHI Governing Board, Advisory Board Members and staff, 2018 Annual Meeting in Rockport, MA

LIHI BOARD MEMBERS

LIHI GOVERNING BOARD MEMBERS

John Seebach (VA), Chair
Shawn Seaman (MD), Vice Chair
Jack Palmer (DE), Treasurer
Nick Niiro (CA), Secretary
Julie Gantenbein (CA)
Rick Glick (OR)
T.J. Heibel (MD)
Kate Miller (VA)
Tara Moberg (PA)
Brenda Pracheil (TN)
Vicki Taylor (NC)
Laura Wisland (CA)
Mark Zakutansky (PA)
Lisa Zarek (NH)

LIHI ADVISORY BOARD MEMBERS

Elizabeth Ablow, Seattle City Light (WA)
Jonathan Burnston, Karbone (NY)
Robert Deibel (CO)
Sean Faulds, Brookfield Renewable (QC)
Sarah Hill Nelson, Bowersock Hydro (KS)
Maya Kelty, 3 Degrees (CA)
Andrew Locke, Essex Hydro (MA)
Deb Malin, Bonneville Power (OR)
Jennifer Martin, CRS (CA)
Brendan McCarthy, PGE (OR)
Dan Parker, Eagle Creek Renewable Energy (NY)
Jon Petrillo, Gravity Renewables (NY)
John Ragonese, Great River Hydro (NH)
Philip Raphals, Helios Centre (QC)
Richard Roos-Collins, Water and Power Law Group (CA)
Todd Wynn, Hull Street Energy (MD)
Dave Youlen, (retired) Eagle Creek Renewable Energy (NY)

STRENGTH THROUGH AWARENESS

Since its inception, the Low Impact Hydropower Institute (LIHI) has had a three-part mission to (1) develop low impact criteria for hydropower, (2) execute a low impact certification program, and (3) educate the public about low impact hydropower. In the past, we have focused, and had much success, on the first two parts of the mission. In 2018, we made a concerted effort to better incorporate the third part of our mission into our work so that more people understand the critical role that low impact hydropower plays at the intersection of renewable energy, the hydropower industry, and environmental quality.

As climate change continues to take top billing in political debates, drive public policy, and be a cornerstone of corporate responsibility, LIHI must continue to be a strong voice for the importance of both hydropower and healthy rivers. LIHI began to expand its outreach activities to provide guidance for anyone wanting to engage with a low impact, reliable, renewable power source. Through these efforts we are working to bring increased awareness, and therefore value, to our Certificates.

LIHI strengthened and diversified the perspective of our governance in 2018. While bidding goodbye to Patrick O'Connor who moved to a new role within the hydropower industry, we welcomed Lisa Zarek, formerly CFO of Brookfield Renewable Energy Group, and Rick Glick, an attorney with extensive experience in the hydropower world to our Governing Board. Andrew Locke of Essex Hydro and Jon Petrillo of Gravity Renewables joined our Advisory Board. Early in 2019, we also welcomed Brenda Pracheil, a fisheries biologist at Oak Ridge National Labs to the Governing Board and Todd Wynn of Hull Street Energy to our Advisory Board. All of these new and existing board members serve on active and engaged committees that provide our staff with substantive support.

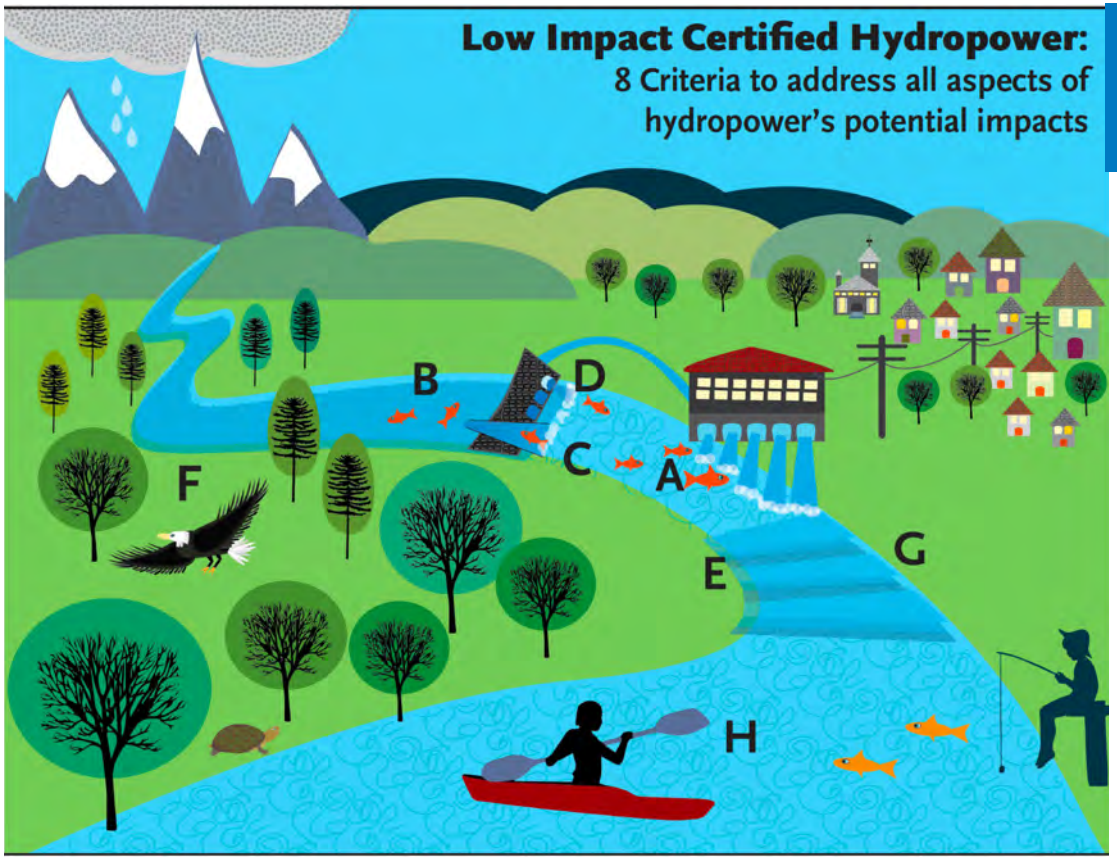
As we look toward the future, we inevitably reflect on our past. A big part of LIHI's current success is directly attributable to Mike Sales who served our organization in many capacities – from Executive Director to valued advisor. Mike passed on January 1, 2019 surrounded by his family. He is missed, but his contributions and dedication to LIHI and our mission live on in our work.

LIHI continues to be a strong organization fiscally as well as structurally. We look forward to building on this in 2019 and beyond.

John Seebach, President

Shannon Ames, Executive Director

LIHI'S MISSION AND GOALS



A. River Flows
Hydro projects send water through turbines to generate electricity. Hydro projects can alter the behavior, timing, and volume of water below a dam and/or powerhouse. Water discharged from a hydro powerhouse or through a dam must provide healthy flows that are sufficient to support fish and wildlife in and around the river.

B. Water Quality
Hydropower can affect the health of a river, such as oxygen levels which if too high or too low can negatively affect fish or mussel species. To meet LIHI Criteria, the owner must ensure the water quality can sustain life in the river.

C. Upstream Fish Passage
Dams can block or hinder fish, such as striped bass, American eel, and Pacific salmon from reaching historical spawning and rearing areas. Structures such as fish ladders can restore access to these areas. LIHI Criteria ensure that projects incorporate measures to facilitate or restore fish passage.

D. Downstream Fish Passage
Safe downstream passage through or around hydropower facilities is important to avoiding fish injuries and fatalities, and for species like American eel and Pacific salmon to maintain or restore their populations. Project operators can implement many measures to provide safe passage so that fish can safely move downstream to complete their life cycles.

E. Shoreline Protection
Water that moves up and down quickly can erode a river's shoreline. LIHI Criteria ensures that proper protection is being taken to preserve shorelines within the project's control.

F. Threatened and Endangered Species
Since hydropower often exists in rural, wild locations, interactions with animals and plant life is expected. LIHI Criteria require owners to adequately protect any threatened and endangered species from their operations.

G. Cultural and Historic Resources
Rivers have been the lifeblood of indigenous peoples for millennia. Hydropower has had a sometimes devastating effect on these cultures. LIHI Criteria acknowledges that impact, ensuring that access is available to indigenous peoples and ensures safeguards for artifacts, structures, and lands with historic significance.

H. Recreation
Rivers are everyone's resource providing water for sustenance but also for enjoyment. LIHI Criteria ensure that access to rivers for fishing, boating, or other enjoyment is provided free of cost to all, while taking into account safety in and around a powerhouse. When desired, things like timed flow releases can create and sustain recreational economies, often critical to rural communities.

LOW IMPACT HYDROPOWER INSTITUTE

The Low Impact Hydropower Institute (LIHI) is a non-profit 501(c)(3) organization dedicated to reducing the impacts of hydropower generation through the certification of hydropower projects that have avoided or reduced their environmental impacts pursuant to LIHI's eight science-based criteria.

Hydropower dams are located on many of our most important rivers and streams. These dams can create renewable energy, but can also produce significant adverse impacts on fish, wildlife and other resources. Our goal is to improve river systems through our Hydropower Certification Program, a voluntary program recognizing hydropower that engages in environmental, recreational and cultural stewardship.

PROJECT SPOTLIGHT

- **Ice House Hydro**
- LIHI Certification #44
- Ice House Partners, Owner
- Certified, 2009
- Ayer, MA

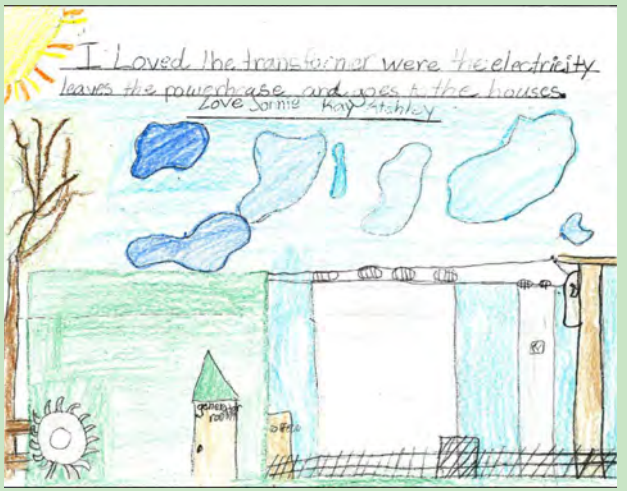
Sometimes a hydropower project is a labor of love. The Ice House dam has been in use since the 1790s and was used as a reference marker in laying out the towns. In 1907, an electrical powerhouse was installed at the dam that operated trolley cars until the 1920s, and subsequently, ice-making machinery. During the 1970s, the powerhouse was destroyed by fire. Due to poor economic conditions in the residential ice business, the Project ceased operations in the 1940s. The powerhouse was restored by a father-daughter team. An example of pre-operation certification, the project was certified in 2009 but commenced operations in 2012. With its Certification, the 280 KW facility profits from the Massachusetts Renewable Portfolio Standard qualifying as a Class I resource. The power generated goes to the town of Ayer. Ice House is a good example of the importance of the revenue from programs like Massachusetts' RPS and a prime example of how beautiful hydropower can be.

PROJECT PLUS SPOTLIGHT

- **FALLS CREEK HYDRO**
- LIHI Certification #4
- Falls Creek H.P. Limited Partnership, Owner
- Certified, 2002
- Willamette National Forest, Oregon

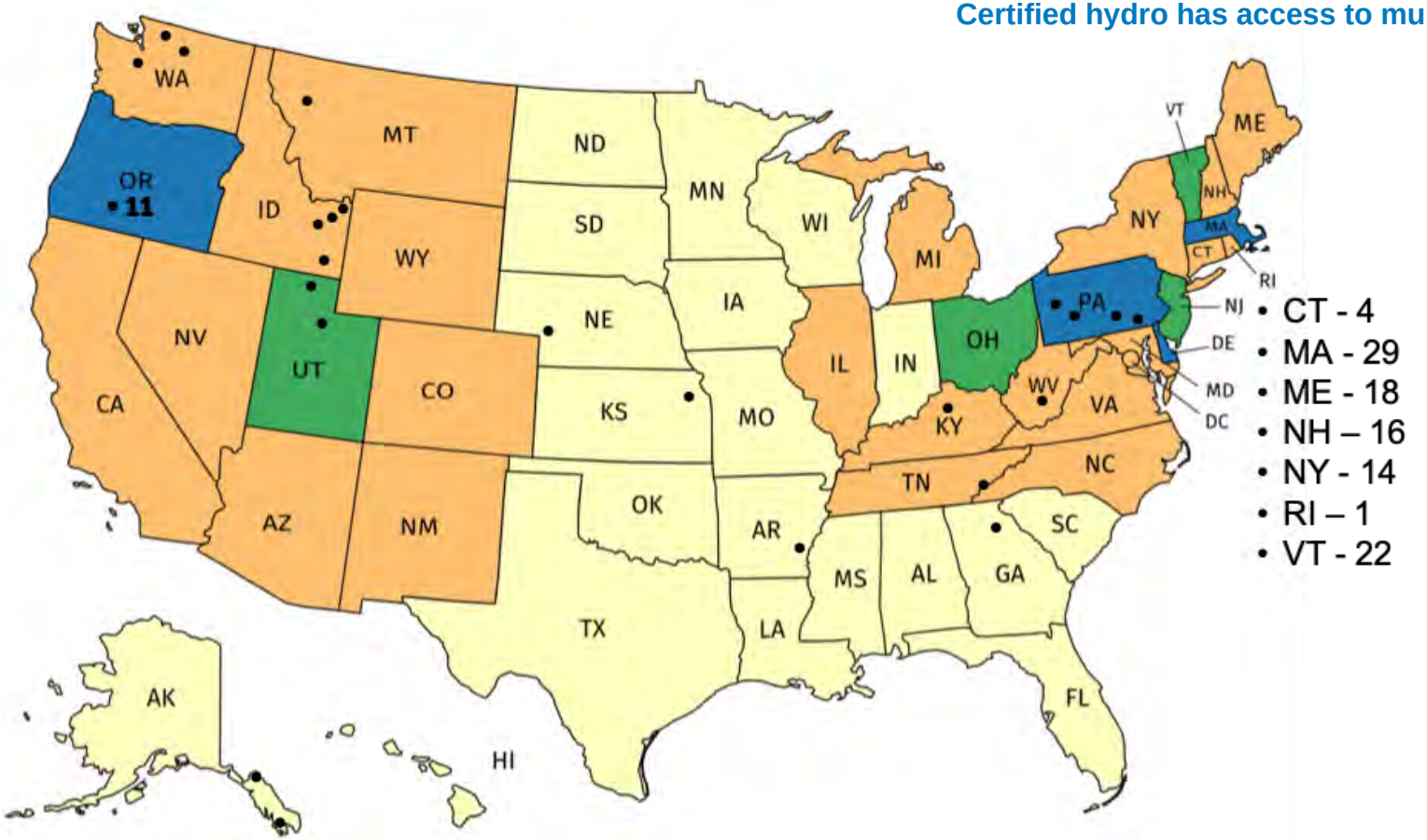
Falls Creek has a long history of proactive engagement with the community. For the last 25 years, staff have hosted area school children on a creative, fun tour of the Project, teaching about hydropower, environmental resources, energy conservation, and the history of the local area. Staff also conduct tours and campfire presentations for visitors to the nearby National Forest campground. As demonstrated by the touching thank-you cards received by Falls Creek every year, their efforts are a cherished part of the public school curriculum, and earned Falls Creek Hydro an additional 3 years of Certification.

By going above and beyond basic criteria requirements, projects can meet PLUS standards and earn up to five additional Certification years.



Locations of LIHI Certified Hydropower and the markets they benefit from

Although often limited by factors such as size and age, LIHI Certified hydro has access to multiple markets across the US.



Regulatory and voluntary markets (Green-e, EPA's Green Power Partnership)
Regulatory markets with environmental standards similar to LIHI as well as voluntary markets
Voluntary markets and access to other state regulatory markets
Voluntary markets
● Locations of LIHI Certified Hydropower

Certificate Stats

Size:
65% Certified projects are <5MW, 18% 5-30MW, 10% 30-100MW, and 8% are >100 MW.

Place:
17% of Certs are in the West, 65% in New England, and 13% in the rest of the country.

Capacity:
45% of Certified Capacity is in the West.

FINANCIAL STATEMENTS

STATEMENT OF FINANCIAL POSITION

ASSETS	2018	2017
Current Assets		
Cash	$176,901	$107,103
Accounts Receivable	$34,624	$78,239
Prepaid Expenses and Other Assets	$972	$1,122
Total Current Assets	$212,497	$186,464
Other Assets		
Security Deposit	$1,300	$1,300
Website, Net	$4,642	$7,994
Total Other Assets	$5,942	$9,294
Total Assets	$218,439	$195,758
LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts Payable	$13,162	$12,461
Accrued Payroll	$5,404	$2,741
Accrued Expenses	$14,925	$6,228
Deferred Revenue	$31,510	$62,956
Total Current Liabilities	$65,001	$84,386
NET ASSETS - Without Donor Restrictions	$153,438	$111,372
Total Liabilities and Net Assets	$218,439	$195,758

STATEMENT OF ACTIVITIES

REVENUE AND SUPPORT	2018	2017
Annual Fees	$406,278	$397,186
Contributions	$19,140	$17,250
Application Fees	$150,591	$150,604
Interest Income	$6	$13
Other Revenue	$2,117	-
Total Revenue and Support	$578,132	$565,053
EXPENSES		
Program Services Expense	$445,310	$495,947
Total Program Services Expense	$445,310	$495,947
Support Services Expense		
Management and General	$90,756	$91,839
Total Support Services Expense	$90,756	$91,839
Total Expenses	$536,066	$587,786
CHANGE IN NET ASSETS FROM OPERATIONS	$42,066	($22,733)
Net Assets - Beginning of Year	$111,372	$134,105
NET ASSETS - END OF YEAR	$153,438	$111,372

2018 was a strong financial year for LIHI. As our audited financial statements (available on our website) demonstrate, we were able to reduce expenses while maintaining a strong program. Our resources are primarily directed to program related expenses (83%) and we continue to concentrate on ensuring robust financial systems and oversight.

Interior, Lowell Hydroelectric Project dam (LIHI #142), Lowell MA. Owned by Enel Green Power North America LLC.