Basin-wide Approaches to Hydropower Licensing

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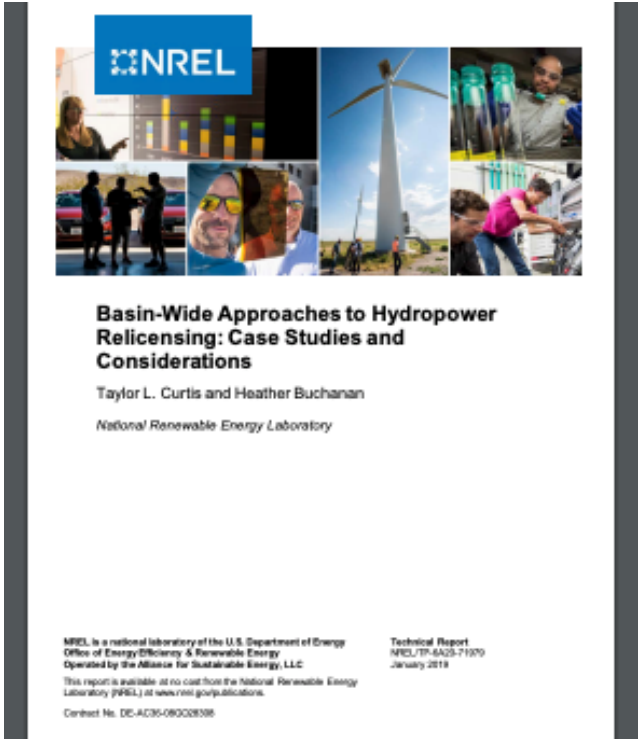
Relicensing and Coordinating FERC License Terms

Background and Motivation

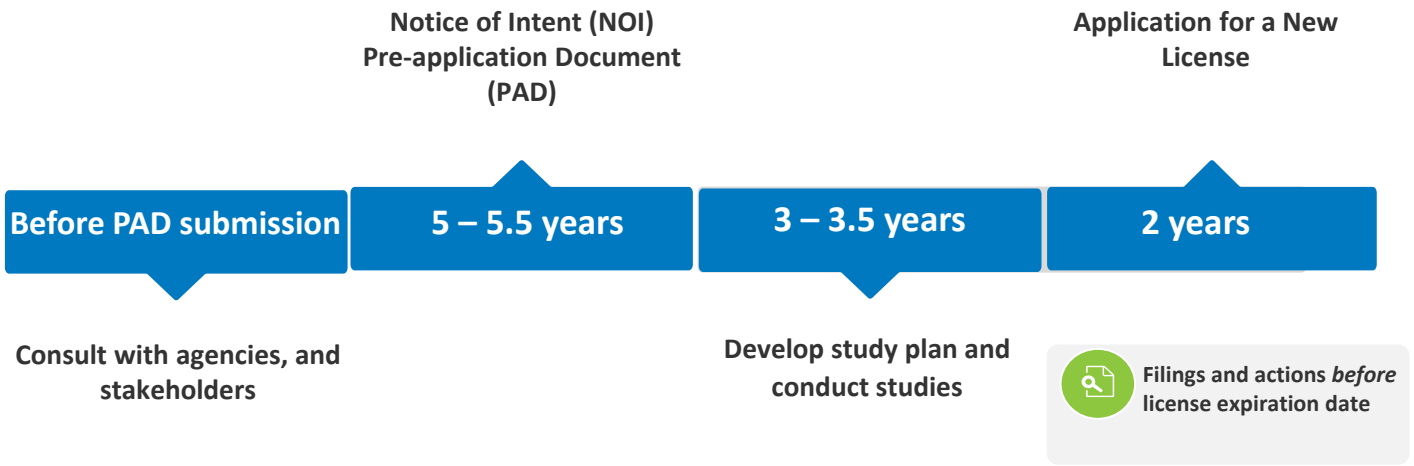
NREL Study

- Major steps in Federal Energy Regulatory Commission (FERC) relicensing process for non-federal hydropower projects
- History of basin-wide approaches to hydropower
- Analysis active FERC-licensed hydropower projects with license expiration dates from 2018-2037
- FERC's authority to coordinate license terms of hydropower projects within a shared river basin and examples of FERC exercising this authority
- Basin-wide case studies and considerations for FERC hydropower relicensing



Relicensing Process: Pre-Filings

Obtaining a new license for continued operation (30 to 50 years) is a complex multi-year regulatory process that typically requires review by federal and state regulators, Indian tribes, and the public



- PAD must include information about the project facilities, operation, known and potential impacts on the environmental quality, including protection, mitigation, and enhancement measures
- Study plan should include studies that supplement existing information including water flow data and modeling results; impacts on fish species; wetlands, riparian, and littoral habitat; rare, threatened and endangered species, recreation, and land use, aesthetics and cultural resources

18 C.F.R. §4.1 – 50.11; Curtis and Buchanan, 2019; Levine, Pracheil, Curtis et al. 2021

Relicense: NOI/PAD to license issuance ~ 7.6 years

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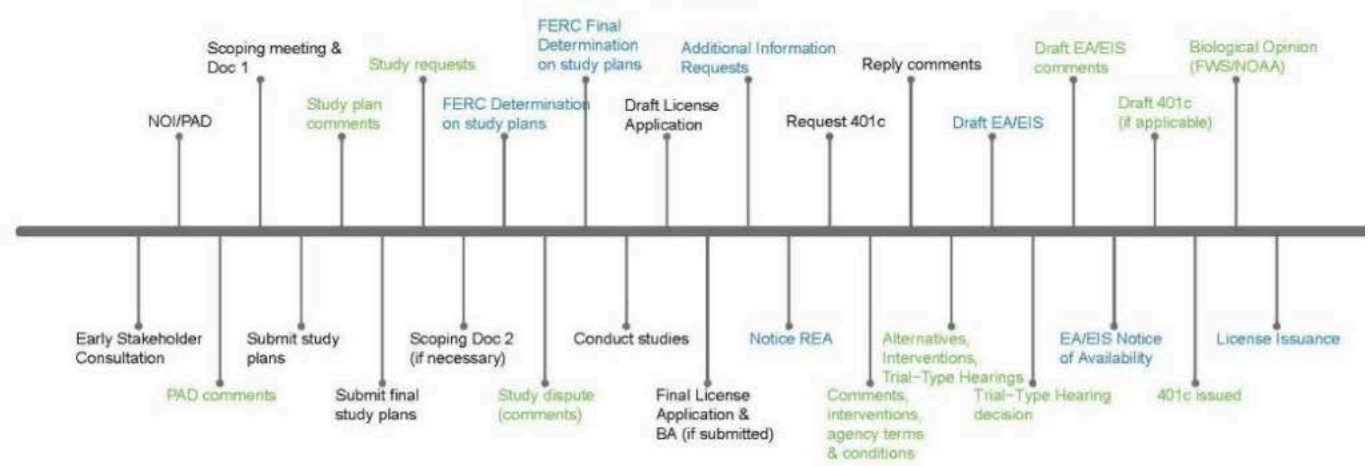
Original License: NOI/PAD to license issuance ~ 5 years

Relicensing Process: Authorizations



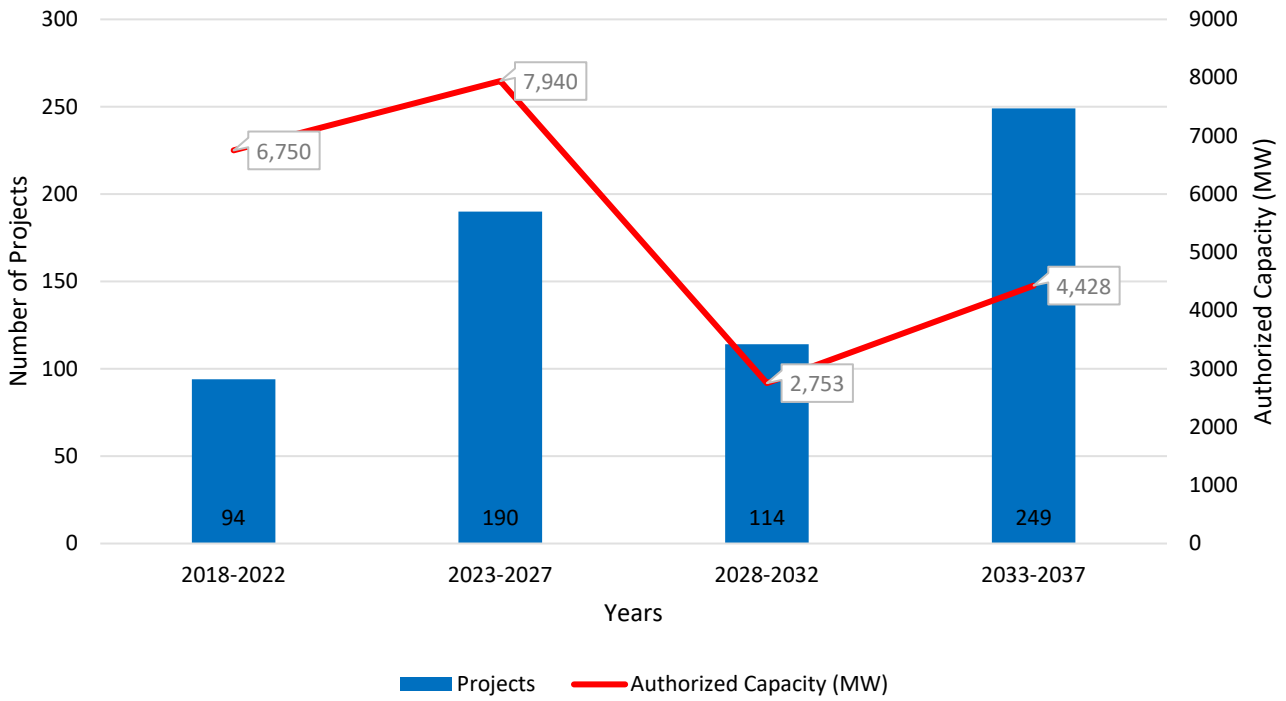
Graphic credit: Levine, Pracheil, Curtis et al. 2021

Projects that have not been relicensed since the passage of the 1986 Electric Consumers Protection Act (EPCA) amendments to the FPA tend to have longer NOI/PAD to license issue timelines

- Major steps and authorizations include compliance with: Federal Power Act (FPA), National Environmental Policy Act, Clean Water Act, Endangered Species Act, National Historic Preservation Act, Coastal Zone Management Act, Wild and Scenic Rivers Act

- Federal agencies with jurisdiction to issue mandatory conditions
- Federal agencies, state agencies, and Indian tribes with jurisdiction to issue recommendations
- Other authorizations may include: Lease of Power Privilege (BOR), Section 408 Authorization (USACE), ROWs, Take Permits, 402 and 404 Permits

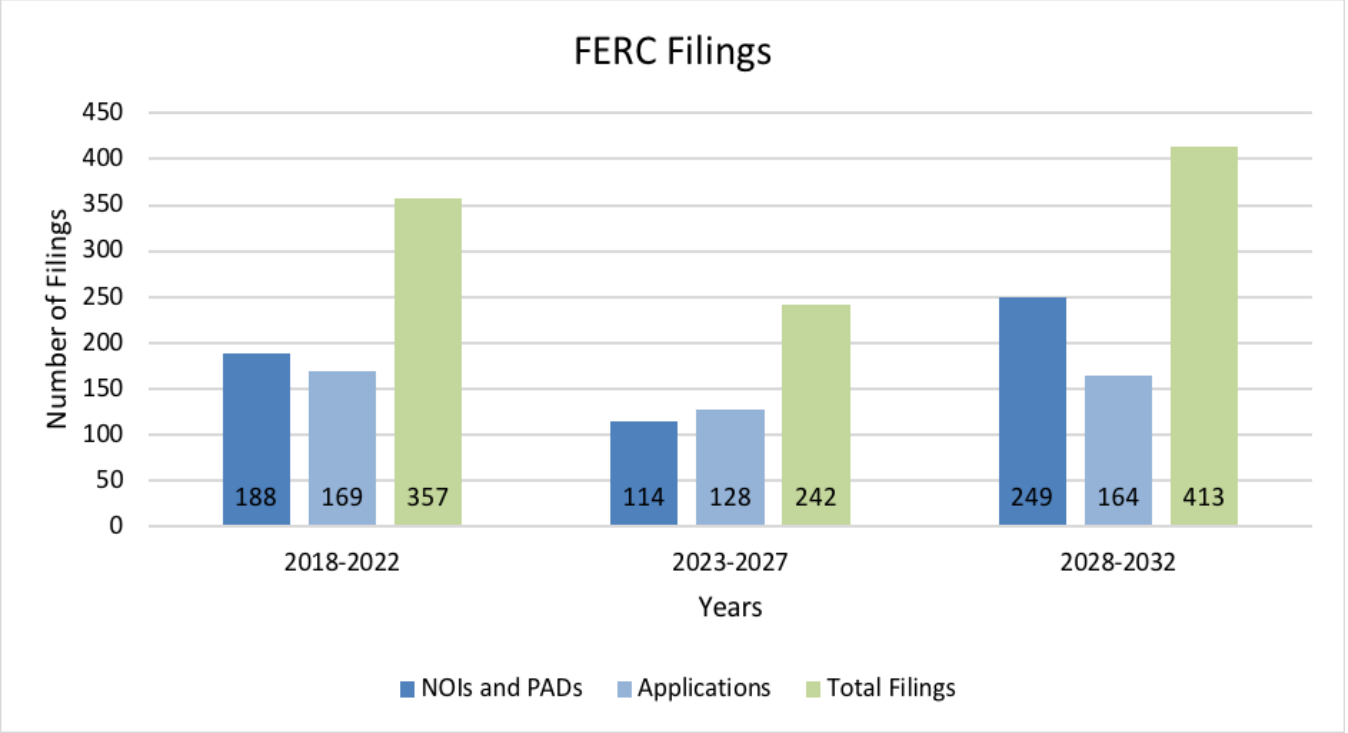
18 C.F.R. §4.1 – 50.11; Curtis and Buchanan, 2019; Levine, Pracheil, Curtis et al. 2021



FERC-licensed projects due to expire

- 1,043 active FERC licenses with a total capacity of 56,097 MW (as of 2019)
- 647 projects with a total capacity of 21,870 MW have license expiration dates from 2018-2037
- Highest volume of expiration dates is in 2034 with 59 projects

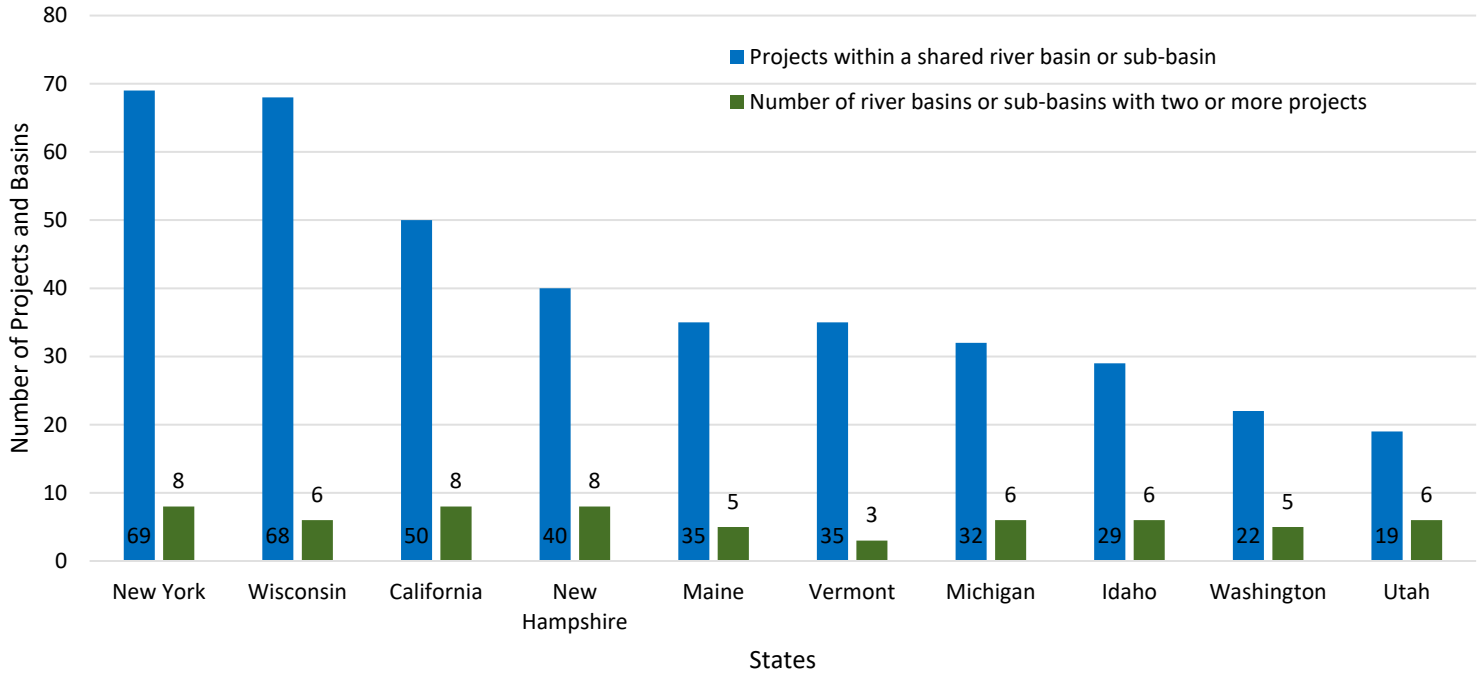
18 C.F.R. §4.1 – 50.11; Curtis and Buchanan, 2019; Levine, Pracheil, Curtis et al. 2021



Expected FERC relicensing filings from 2018-2032

- 1,012 expected relicensing filings through September 2032 (as of 2019)
- 551 Notice of Intents (NOIs) with Pre-application Documents (PADs)
- 461 applications for a new license (relicense)
- Highest volume of filings is expected between 2028 and September 2032

18 C.F.R. §4.1 – 50.11; Curtis and Buchanan, 2019; Levine, Pracheil, Curtis et al. 2021



FERC-licensed projects with license expiration dates from 2018-2037 within a shared river basin

- 399 projects within shared river basin or sub-basin in the 10 states with the highest number of FERC licenses due to expire through 2037

Motivation for basin-wide approaches for hydropower relicensing

399 FERC-licensed projects within a shared river basin or sub-basin in the 10 states with the highest number of projects that have FERC licenses due to expire through 2037

- Time, cost, and complexity associated issuing a single new license (relicense)
- Volume of FERC licensed projects due to expire within a shared river basin or sub-basin
- Expected workload for federal and state regulators
- Relicensing delay could harm the environment by postponing refurbishments or operation changes to mitigate environmental harm (like 1994 influx of relicenses)
- FERC has the authority and there is a long history of precedent

18 C.F.R. §§4.1 – 50.11; Curtis and Buchanan, 2019; FERC 1994

Accelerating or Extending License Terms

FERC may set a license term to coordinate with other projects in the same waterway or a licensee may request a license term extension or acceleration to align a project's expiration date with other projects in a shared basin (18 C.F.R. §2.23; FERC 1994)

- New license for a term of 30-40 years (default is 40)
- FERC may set a license term to coordinate with other projects in the same waterway
- A licensee can request an extension or extension to align the project's license expiration date with other projects in the same basin
- FERC can establish a shorter or longer license terms (not less than 30 or more than 50) if
  - Issuing a shorter or longer term would align license terms for projects in the same river basin
  - Stakeholders explicitly agreed to a shorter or longer term in a "generally supported" comprehensive settlement agreement, provided it does not conflict with coordination
  - A longer license term is consistent with other license terms in the same basin

Curtis et al., 2019; FERC 2017b; 18 C.F.R. §2.23; FERC 1994; *Public Utility District No. 1 of Chelan County*, 127 FERC ¶61,152 (2009)

Accelerating or Extending License Terms

FERC may grant license term extension or acceleration to allow for more comprehensive analysis of the cumulative impacts of the projects within the basin

- When issuing a new license FERC "will coordinate the expiration dates of the licenses to the to maximum extent possible, to maximize future considerations of cumulative impacts" of multiple projects within a single river basin
- FERC does not require "perfect" coordination but only "to the maximum extent possible"

Non-Default FERC License Term Example

- Williams Hydroelectric Project – FERC issued a 36.5-year license to align the expiration date with two projects downstream to "maximize consideration of cumulative impacts"

FERC License Term Extension Example

- Cloquet Hydroelectric Project – FERC granted a request to extend the license term 10 years to align with another project in St Louis River to "maximize the future consideration of cumulative and environmental impacts and improve efficiency in relicensing proceedings"

FERC License Term Acceleration Example

- Holyoke Projects – FERC granted request to accelerate license term 1 year and 4 months to align with two other projects downstream stating "combining the relicensing activities should assist the licensee, resource agencies, interested stakeholders, and FERC staff in participating and reviewing all three projects"

FERC License Term Extension and Acceleration Example

- Yaleville (extend 30 year license by 12 years) and Piercefield Projects (accelerate 40 year license by 10 years)

Curtis et al., 2019; FERC 2017b; 18 C.F.R. §2.23; FERC 1994; *Public Utility District No. 1 of Chelan County*, 127 FERC ¶61,152 (2009)

Basin-wide Relicensing Examples and Considerations

Examples

Planning, Studies, Analysis

- FERC, Tennessee Valley Authority, and U.S. Bureau of Reclamation have a history of planning and assessing hydropower at the basin level
- Licensees, federal and state agencies have used basin-wide studies and analysis for hydropower relicensing

Comprehensive Approaches

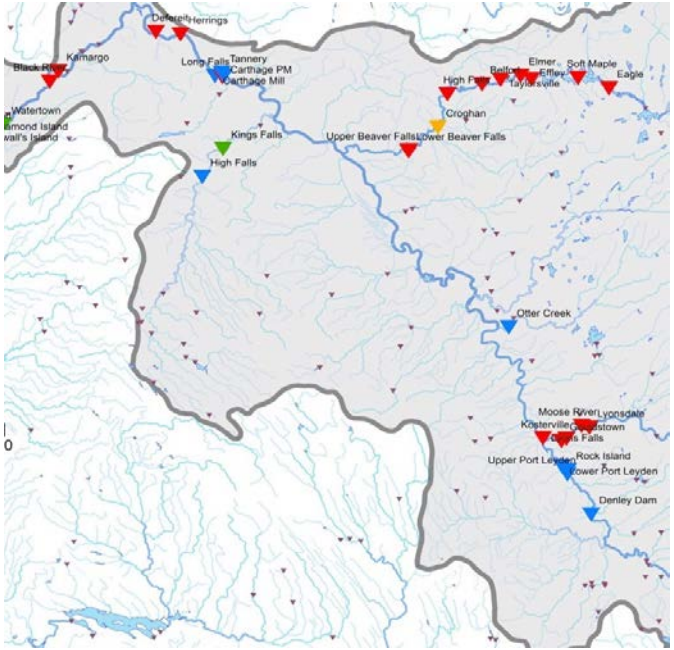
- New York – Black River
- Wisconsin – Wisconsin River

401 Water Quality Certification

- California – Big Creek Basin
- Maine – Penobscot River

Projects within a River Basin that Cross Multiple Jurisdictions

- Vermont and New Hampshire – Connecticut River, TransCanada Projects
- Maine and New Hampshire – Salmon Falls River, Lower Great Falls Project
- Oregon and Idaho – Snake River, Hells Canyon Project



New York Black River Basin pilot: map of hydropower projects

Potential Advantages to Basin-wide Approaches

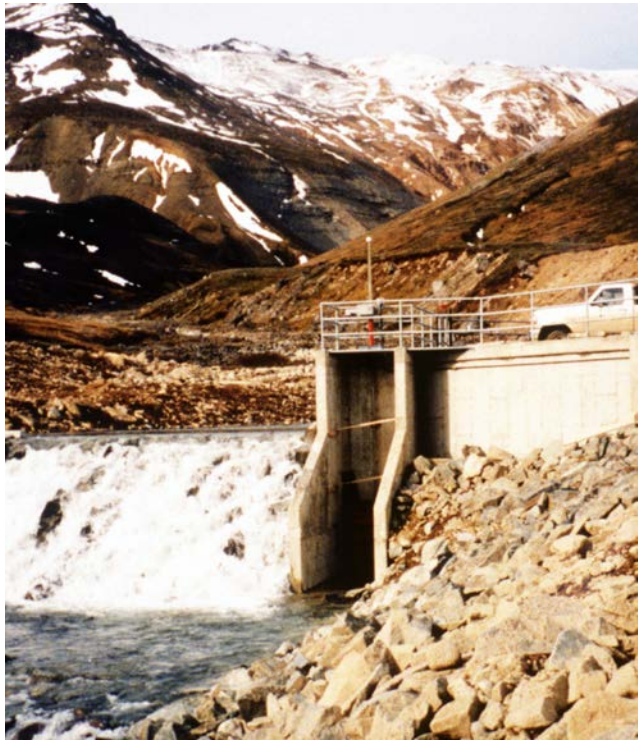
- Extended license terms for certain projects
- Comprehensive and ecologically sound environmental analysis
- Avoid potential harm to environment by relicensing delay that can postpone refurbishments or operational changes to mitigate environmental impacts
- Ability to collaborate and coordinate multiple demands on projects (e.g., whitewater releases)
- Ability to address complex resource balancing issues into a single process
- Information sharing between licensees
- Increased relicensing process efficiencies (e.g., conducting environmental studies, consolidated consultation processes, coordinated preparation of FERC filings)
- Increased economies of scale
- Upfront communication and coordination with stakeholders
- Consistency in study plan development and administration of studies for projects within basin
- Coordination and consistency of prescribed terms and conditions among projects
- Settlement agreement among licensees and stakeholders
- Offsets from external funding sources (e.g., grants)
- Opportunity to create holistic river basin management plans to reduce risk and increase resiliency
- Reduced workloads for FERC and federal and state resource agencies
- Reduced workloads for Indian tribes and other stakeholders
- Reduced costs in conducting studies, preparing documents and filings, and consultation—by pooling resources and spreading costs among licensees
- FERC can avoid using the reserved power of authority to reopen a license

Potential Challenges to Basin-wide Approaches

- Pioneering a comprehensive approach to relicensing—it has never been done before
- Accelerated licensed terms for some projects
- Coordination and collaboration among a large stakeholder group
- Licensees may have diverse interests and backgrounds
- Licensees may have differing levels of resources available
- Licensees may have differing levels of experience in the relicensing process
- Studies for projects may extend beyond FERC license boundaries
- May require a single consultant to prepare documents/organize studies
- Difficult to decide on a fair way to allocate costs among licensees
- Depends on willingness to collaborate and agreements prior to filing NOI and PAD or new license applications
- Additional coordination and collaboration required could increase the relicensing timeline for an individual project
- Conflict in the decision-making process (e.g., timeline, schedule, consultant to use)
- Conflict when negotiating the terms and conditions of the license—a term or a condition for one project may be at the detriment of another project
- Equity of the relicensing process—larger licensees dictating the relicensing process for smaller licensees, smaller licensees utilizing the resources of the larger licensees

Future of Basin-wide Approaches

- Could be a way to over come potentially relicensing delays
- Could be used for other studies, analyses, and authorizations (e.g., NHPA § 106)
- 401 certifications may be more difficult
- Michigan initiative



King Cove, Alaska (800 kW). Credit Duane Hippe

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