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"A Recipe from the Field for Dam Removal Agreements"

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Introduction

In 1998, Secretary of the Interior Babbitt remarked that, "Americans don't look at dams simply as engineering marvels" as we did decades earlier.[1] Secretary Babbitt also once commented that "[d]ams are instruments, not monuments: we evaluate them by the health of the watersheds to which they belong."[2] He was right on both counts. But, dam removal is not always the right outcome, and it is rarely an easy outcome when right. Dam removal scenarios present complicated factual, legal and policy circumstances from the evaluation whether to remove a dam, the negotiation to prepare and execute a removal agreement, to the numerous steps necessary for successful implementation of such agreements. This paper analyzes these ingredients based on the assumption that the decision to remove has been made, and presents a practitioner's recipe for developing and implementing dam removal agreements.

This paper is organized in three parts. Part One provides a baseline overview of dams and natural resources issues. Part Two draws particular attention to the Federal Power Act, because many removal agreements emerge from Federal Energy Regulatory Commission hydropower relicensing proceedings. Part Two also discusses several removal agreement examples. Part Three illustrates core components to building a productive atmosphere for negotiated removal settlements. Finally, Part Three outlines and discusses four specific and necessary ingredients for a successful dam removal agreement and effort.

Successfully negotiating a durable dam removal agreement typically represents an incredible accomplishment against great odds. Dam removal challenges history. Dam removal is a verb. It is action against the odds. Always. Successful agreements require careful attention to science, law, economics and market forces, policy, risk-management, and public relations. No one factor can be overlooked. However, this paper concludes that success mostly depends on commitment and comprehensiveness complimented by creativity and collaboration.

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[1] Secretary of the Interior, Bruce Babbitt, Remarks at a Federal Energy Regulatory Commission Distinguished Speakers Series Lecture, *in* U.S. Newswire, July 8, 1998 (*available in* 1998 WL 13603508).
[2] *Id.*

I. The Dam, Water, and Fish Baselines

A. *Dams Matter.*

There should be no dispute that dams are important. America grew because of its national waterways. Not surprisingly, of America's 150 largest cities, 130 are located along rivers.[3] Dams facilitated that growth providing for flood-control, water storage, and water conveyance. Just consider the water backbone of California: the Central Valley and State Water Projects. Together they are one of the world's largest water transport systems, delivering water to tens of thousands of farms across millions of acres, and to southern California's municipalities.[4] Dams also provide significant navigability and commerce benefits.

Relatively recently dams still played a leading role in nationalism. For example, Lyndon Johnson, while a senator, argued that "water management is . . . a decisive tool in our mighty struggle for national security and world peace."[5] Dams do represent historic accomplishments. It is easy to feel a sense of awe at the size and scale of America's hydraulic society.

To take just one example, Pacific Gas & Electric Company's hydroelectric system controls Sierra rivers from Mount Shasta to the Kings River Basin near Bakersfield, and it is mammoth in scale and complexity, consisting of 250 dams and diversions, 99 reservoirs with 2.3 million acre-feet of storage capacity and 200,000 acre-feet of consumptive water rights, and 68 powerhouses with 3,896 megawatts of generation capacity.[6] To take another example, Grand Coulee Dam is 5,223 feet long, making it one of the world's biggest concrete structures.[7]

Dams also play an important role in the Nation's energy strategy. For example, FERC-licensed hydropower dams account for approximately one-half of the country's hydroelectric capacity.[8] In California, the combined total hydroelectric capacity is over 14,000 megawatts.[9] Such capacity is important in a climate challenged world.

B. *Water Matters Even More.*

The baseline analysis, however, really starts with water. Water is liquid gold. It is the West's most precious resources. It defined the past. It defines the present. It will define the future. Times are good when it is abundant, but bad when it is scarce.

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[3] Tim Palmer, Lifelines: The Case for River Conservation 8 (1994).

[4] *See State Water Resources Control Board Cases*, 39 Cal. Rptr.3d 189 (Cal. Ct. App. 2006); *see also United States v. State Water Resources Control Bd.*, 182 Cal. App.3d 82 (1986).

[5] Christine A. Klein, *On Dams and Democracy*, 78 Or. L. Rev. 641, 647 (1999) (quoting Donald Worster, Rivers of Empire: Water, Aridity, and the Growth of the American West 264 (1985)).

[6] *See Pacific Gas and Electric Company's Application for Authorization to Divest its Hydroelectric Generating Facilities and Related Assets, Application 99-09-053, Draft Environmental Impact Report* (Nov. 2000).

[7] John E. Bonine, *William H. Rodgers, Jr., and Environmental Law: Never Give Up, Keep On Going*, 82 Wash. L. Rev. 459, 461 (2007).

[8] *See* Matthew D. Manahan & Sarah A. Verville, *FERC and Dam Decommissioning*, 19 Nat. Resources & Env't. 45 (Winter 2005).

[9] California Energy Commission, 2003 Environmental Performance Report, Appendix D, "California Hydropower System: Energy and Environment," 100-03-018, p. D-6 (Mar. 2003).

Dams exist because water is so precious. Ancient Mesopotamian records of irrigation canals suggest dams were being built in 6000 B.C.[10] Californians use the most water in the Nation, and the state is expected to add approximately the current population of Pennsylvania in less than twenty-two years.[11] Dams have been one strategic response to such numbing facts. Viewed from this perspective, the pervasiveness of dams in America is arguably understandable. If the country's dams were amassed as one gigantic piece of concrete, it could store in a reservoir approximately one billion acre-feet of water.[12] That reservoir would flood an area the equivalent of the entire state of Texas beneath six feet of water.[13] The capture and control of water by dams is, of course, a part of the public interest, even though the scale might shock.

C. *But Fish Matter Too*.

Disputing the importance of dams or the public interest benefit of managing water for maximum beneficial use would be an unwise use of time. Unfortunately, too often, too much time is spent arguing about the impacts of dams to natural resources, when the evidence is clear and overwhelming. Simply put, the benefit of dams come with a cost.

The worldwide estimate of the number of dams is 840,000, with about 40,000 of those larger in height than a four-story building.[14] That is enough storage capacity to hold all of the world's rivers five times over.[15] There are between 68,000 and 75,000 dams on rivers in the United States.[16] If the survey includes dams less than six feet in height, this number likely grows exponentially. There are approximately 595,000 miles of what once was free-flowing water now behind concrete in the United States.[17]

It is well accepted that dams have done considerable damage to the Nation's rivers and their fish populations.[18] On the face of it, "[t]he ecology of a river is different from the ecology of a reservoir built behind a dam."[19] Every dam that creates an impoundment also destroys natural river habitat.[20] A dam replaces a river's riffles, swiftly flowing water, rapids, and pools

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[10] *See* Michael P. Lawrence, *Damming Rivers, Damming Cultures*, 30 Am. Indian L. Rev. 247, 248 (2005).
[11] *See* Charlton H. Bonham, *Perspectives from the Field: A Review of Western Instream Flow Issues and Recommendations for a New Water Future*, 36 Envtl. L. 1205, 1214 (2006).
[12] *See* Klein, *supra* note 5, at 646 (citing James V. DeLong, Dam Fools; Federal Dam Building Program, Reason April 1, 1998, at 42).
[13] *Id*.
[14] *Id*. at 645.
[15] *Id*.
[16] *See* Charlton H. Bonham, *The Condit Dam Removal and Section 18 of the Federal Power Act: A Coerced Settlement*, 14 J. Envtl. L & Litig. 97, 109 (1999).
[17] *See* Michael T. Pyle, Note, *Beyond Fish Ladders: Dam Removal as a Strategy for Restoring America's Rivers*, 14 Stan. Envtl. L.J. 97, 102 (1995).
[18] *See, e.g.*, *American Rivers v. FERC*, 372 F.3d 413, 416-17 (D.C. Cir. 2004) ("It is not disputed that hydropower projects have contributed to declining populations of anadromous fish -- namely, salmon and steelhead trout species -- in the Snake River and the Columbia River basin.") (citations omitted); National Research Council Committee on Atlantic Salmon in Maine, *Atlantic Salmon in Maine* 70 (2004) (noting "[d]ams are a major cause of salmon declines worldwide").
[19] *Udall v. FPC*, 387 U.S. 428, 440 (1967) (requiring review of alternatives during licensing decision for new project).
[20] *See Atlantic Salmon in Maine*, *supra* note 18, at 70; *see also* H. John Heinz Center, *Dam Removal Science and Decisionmaking* 137-38 (2002) [hereinafter "*Dam Removal Science and Decisionmaking*"]; National Research Council Committee on Protection and Management of Pacific Northwest Anadromous Salmonids, *Upstream: Salmon and Society in the Pacific Northwest* 9-10, 231 (1996) [hereinafter "*Upstream: Salmon and Society in the Pacific Northwest*"].

with deep, slow-moving water. The natural is lost to the artificial, and a biological community more tolerant of the new, lake-like conditions supplants the river's native biological community.[21] That is an ecological transformation very rarely reversed.

Dams block access to historical habitat for migratory fish to devastating effect. For example, "[d]ams and impoundments, including hydropower and multiuse dams, have led to the loss of 90 percent of the historic salmonid habitat in the Sierra Nevada."[22] The effect of a dam without fish passage is clear and direct: the upstream habitat is lost. This effect can be dramatic, because the proliferation of dams is so stunning. For example, "[h]ydro projects are installed on *all but one* of the Sierra Nevada's major river systems."[23] Most of the pacific salmon runs have dams constructed across the migratory path.[24] The Columbia River federal hydropower system and its dams cause about eighty percent of the annual loss of salmon from historical population numbers in the basin.[25]

A dam's central purpose is to control water. That control can lead to water quality impairment and alteration of streamflows. One of the most comprehensive studies of the Sierra Ecosystem found that, "[d]ams and diversions . . . have profoundly altered streamflow patterns (timing and amount of water) . . . , with significant impacts to aquatic biodiversity."[26] Control of downstream flow can produce extreme daily fluctuations in river flows to catastrophic effect. It can also result in diversion of most or all of the natural flow from the natural river bed.[27] Dams may discharge unnaturally warm or cold water, because the reservoir behind the dam has created artificial water quality conditions.[28] For trout and salmon, increased temperature adversely influences spawning behavior, may delay upstream migration, decreases growth, and may indeed cause death.[29]

II. The Federal Power Act, FERC, and their Progeny

A. *The Federal Power Act and FERC*

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[21] *See Dam Removal Science and Decisionmaking*, *supra* note 20, at 137-38.

[22] California Energy Commission, *Staff Report, California Hydropower System: Energy and Environment, Appendix D, 2003 Environmental Report*, D-15 (Oct. 2003).

[23] California Energy Commission ("CEC"), Environmental Performance Report of California's Electric Generation Facilities: A Report to the State Legislature 32 (July 2001) (emphasis added).

[24] *See Upstream: Salmon and Society in the Pacific Northwest*, *supra* 20 note, at 226

[25] *Northwest Resource Info. Ctr. v. Northwest Power Planning Council*, 35 F.3d 1371, 1376 (9th Cir. 1994). Construction of dams has utterly eliminated salmon from thirty one percent of their historical habitat (measured in stream miles) in the Columbia Basin. *Upstream: Salmon and Society in the Pacific Northwest*, *supra* note 20, at 63.

[26] University of California, Davis, Center for Water and Wildland Resources, *Status of the Sierra Nevada: Summary of the Sierra Nevada Ecosystem Project Report, Final Report to Congress, Executive Summary* 8 (1996).

[27] *See, e.g.*, *Lower Valley Energy, Inc.*, 92 F.E.R.C. ¶ 62,222, 64,322 (2000) (bypass reach for project on Strawberry Creek in Wyoming largely devoid of water approximately 200 days a year);

[28] *See Dam Removal Science and Decisionmaking*, *supra* note 28, at 127-28.

[29] *See, e.g.*, Peter B. Moyle, *Inland Fishes of California* 51, 255 (2002) ("In some regulated streams, a small change in temperature regime can result in a major change in fish fauna.") (describing effects of FERC-licensed project on the North Fork Feather River). "Thermal alterations [of water] potentially affect the survival and growth of virtually *every* stage of the freshwater life cycle." *Upstream: Salmon and Society in the Pacific Northwest*, *supra* note 20, at 192 (emphasis added).

Under the Federal Power Act (FPA), 16 U.S.C. §§ 791-821, the Federal Energy Regulatory Commission (FERC) licenses nonfederal hydroelectric projects on waterways.[30] The term of a FERC license can be no less than 30 years and no more than 50 years.[31] FERC's jurisdiction extends to approximately 1,600 hydropower projects, which involves regulation of over 2,000 dams.[32] Relicensing is the FERC regulatory process whereby a FERC-licensed owner and operator of hydroelectric dams must apply and receive a new license before expiration of their old license.

FERC has limited options under the FPA on expiration of an existing license: (a) issue a new license to the existing licensee; (b) accept surrender of the license, (c) issue a non-power license; (d) require decommissioning; or, (e) authorize federal takeover of the project.[33] It has issued a non-power license once, never ordered federal takeover, and rarely pursued decommissioning.[34] However, FERC is not obligated to issue an economical new license, and in the face of an uneconomical license a licensee may decline to accept the new license.[35]

For the Progressive Conservation Movement, the FPA may have been the crowning achievement. The Progressives opposed Congress granting individual authorization for hydroelectric projects, and instead advocated for broad federal regulation by a federal agency. After twenty years of argument, two effective spokespersons for this view emerged in Gifford Pinchot and President Theodore Roosevelt.[36] President Roosevelt in heated debate at the time said "[t]he public must retain control of the great waterways."[37] This belief is the central basis for fixed terms for hydropower licenses.

The passage of time greatly has greatly influenced relicensings. Most projects were originally licensed in the early to middle 1900s. It was not until the 1960s and 70s that the body of environmental law truly took shape. Then in 1986, Congress amended the FPA with the Electric Consumer Protection Act (ECPA) to include consideration of the attendant environmental consequences of relicensing projects.[38] Since inception of the FPA in 1920, Congress also took special note of the serious damage projects may cause to federal lands and other resources, and granted prescriptive authority to the Secretaries of the Interior and Commerce.[39] State agencies wield considerable power pursuant to the Clean Water Act.[40]

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[30] *See* 16 U.S.C. § 797(e).
[31] *See* 16 U.S.C. § 808(e).
[32] FERC, *Report On Hydroelectric Licensing Policies, Procedures, & Regulations, Comprehensive Review & Recommendations Pursuant to Section 603 of the Energy Act of 2000* at 7 (May 2001).
[33] *See* 16 U.S.C. §§ 807, 808(a), (f); *see also* FERC, Project Decommissioning and Relicensing: Policy Statement, 60 Fed. Reg. 339 (1995) (codified at 18 C.F.R. § 2.24).
[34] *See* Sarah Richardson, *The Changing Political Landscape of Hydropower Project Relicensing*, 25 Wm. & Mary Envtl. L. & Pol'y Rev. 498, 511 (2000); *see also Wisconsin Electric*, 96 F.E.R.C. ¶ 61,009 (Order Issuing Non-power License and Approving Decommissioning Plan).
[35] *See Wisconsin Pub. Serv. Corp. v. FERC*, 32 F.3d 1165, 1168 (7th Cir. 1994); *see also City of Tacoma, Wash.*, 84 F.E.R.C. ¶ 61,107 (July 30, 1998).
[36] *See* Pinchot, *The Long Struggle for Effective Federal Water Power Legislation*, 14 Geo. Wash. L. Rev. 9 (1945).
[37] Pyle, *supra* note 17, at 123 (quoting Message From the President to the Speaker of the House (Apr. 13, 1908), *reprinted in* H.R. Rep. No. 507 at 11-12 (1986)).
[38] *See* Electric Consumer Protection Act of 1986, Pub. L. No. 44-495, 100 Stat. 1243 (codified in various sections of 16 U.S.C. §§ 792-828(c)); *see also American Rivers v. FERC*, 201 F.3d 1186, 1192 n.6 (9th Cir. 2000).
[39] *See* 16 U.S.C. §§ 797(e), 811.
[40] *See* 33 U.S.C. § 1341.

B. *The Progeny: FERC Dam Removal Agreements*

FERC analyzes license renewal using 21st century knowledge and law. Dams under Bureau of Reclamation and Army Corps of Engineer jurisdiction and operation have perpetual statutory authorizations. The many smaller, non-federal, and non-FERC dams and diversions around the West operate pursuant to state water law and other authorities, which do not typically include renewal review. Therefore, FERC-licensed dams are the only category of dams whose regulatory approvals expire. Consequently, a majority of dam removal agreements are products of FERC-relicensing negotiated outcomes.[41] A brief review of some of these agreements is below.

Edwards Dam, on the Kennebec River in Maine, is a landmark event in the evolving world of dam removal agreements. In 1997, FERC took the remarkable step of denying the relicensing of the dam and ordered it removed.[42] It has not so ordered removal since. In a shot heard round this particular world, the Commission had the following to say: "We deny the application for new license, and we direct . . . [the licensees] to file a plan to decommission the hydroelectric generating facilities and remove the project dam."[43] This action was not tested in court, because, in May 1988, all parties active in the relicensing negotiated a settlement agreement transferring the dam to the State of Maine for removal. In the summer and fall of 1999, the dam was removed to national fanfare.

More recently, but still on the east coast, in June 2005, a collection of parties, including Trout Unlimited, American Rivers, the Penobscot Indian Nation, the State of Maine, and the Department of the Interior, joined with a FERC-licensee (PPL Corporation) to file a settlement with FERC for restoring the Penobscot River, in Maine.[44] This agreement broke new ground. The non-governmental and Tribal parties have created a trust to purchase three dams from the licensee for removal of two and decommissioning of one after instillation of fish passage. In exchange, the licensee will be able to increase generation at six other dams while undertaking substantial fish passage improvements at four of them.

Among other things, the agreement creates a purchase option for the dams for the Trust. On December 21, 2007, Congress passed the fiscal year 2008 Omnibus Appropriations Bill, which includes ten million dollars for the acquisition.[45] President Bush signed the Bill. This ten million of federal investment will be coupled with an additional ten million in private funds and already secured public funds, moving the Trust closer to purchase of the dams in 2008.

The Northwest is arguably home to the most FERC dam removal agreements in recent years. One reason is that the typical fact pattern of relicensings in this region involves dams blocking or impairing the upstream migration of salmon listed under the Endangered Species Act. Compare this situation to California, where the majority of FERC-licensed dams in California are found above large mainstem dams, which are typically terminal barriers to salmon migration and are owned and operated by the state or federal government.

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[41] *See FERC and Dam Decommissioning*, *supra* note 8, at 49.
[42] Edwards Mfg. Co., 81 F.E.R.C. ¶ 61,255, at 62,199 (1997).
[43] *Id*.
[44] *See* http://www.penobscotriver.org/.
[45] *Id*.

Relatively quick on the heels of Edwards, in September 1999, a FERC-licensee (PacifiCorp) reached a comprehensive settlement agreement with agencies, the Yakima Nation, and conservation groups to remove Condit Dam, on the White Salmon River, a Washington tributary to the Columbia River.[46] New removal aspects emerged in the Condit agreement. First, the agreement specified an aggressive timeline for removal and necessary permitting.[47] Second, the agreement allowed for the licensee to apply revenue from the generation of power during the planning and permitting period to pay for removal costs.

The Condit agreement was not new in one important aspect. Like in Edwards, the federal fish agencies in Condit prescribed fish passage requirements as a condition of FERC-relicensing that made removal a cheaper alternative.[48] At that time, PacifiCorp would have had to spend over $30 million to install modern fish passage versus less than $20 million to remove.[49] However, Condit has not been removed according to schedule, and today represents a dam removal effort from which many lessons can be learned.[50]

After Condit, PacifiCorp subsequently produced a draft decommissioning plan in 2002 for its FERC-licensed Powerdale Project, on the Hood River, in Oregon, after the Environmental Assessment set forth terms and conditions making the project uneconomical. In 2003, the licensee and parties enter into a settlement agreement addressing removal, and defining the interim measures for project operation until decommissioning. In November 2005, FERC adopted the agreement and issued a removal order requiring removal by February 2012.

Elsewhere in the Northwest, Portland General & Electric (PGE) reached agreement with parties in 2002 for decommissioning and removal of its FERC Bull Run Project, in the Sandy River watershed outside Portland, Oregon. PGE actively pursued decommissioning as an alternative. The remarkable element of this removal effort was the pace. In October 2002, parties reached agreement; in November 2002, PGE filed a surrender application; and, *eighteen* months later FERC issued an order approving the application.[51] This fall PGE completed the removal of Marmot Dam, making it the biggest removal in Oregon in 40 years.[52] The Marmot agreement and effort sets a high-bar for pace, outcome, and process.

III. The Recipe for Successful Dam Removal Agreements and Efforts

From time to time, a dam removal agreement emerges after the evaluation of a dam in the context of its role in a watershed. These agreements come with much fanfare, hand-ringing, and scrutiny. These agreements are historically rare, but increasingly common. Legal and practical challenges exist. Below are a few ideas to address these challenges.

A. *Setting the Stage; Getting Everything Ready*

1. Relationships Influence Outcomes

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[46] *See* David H. Becker, *The Challenges of Dam Removal: The History and Lessons of the Condit Dam and Potential Threats from the 2005 Federal Power Act Amendments*, 36 Envtl. L. 811, 813-14 (2006).
[47] *See id*.
[48] *See id*.; *see also* Bonham, *supra* note 16, at 126-34.
[49] *Id*.
[50] *Id*.; *see also FERC and Dam Decommissioning*, *supra* note 8, at 49.
[51] Portland General Electric Co., 107 F.E.R.C. ¶ 61,158 (2004).
[52] *See* http://www.portlandgeneral.com/community_and_env/hydropower_and_fish/sandy/dam_removal.asp?bhcp=1.

Setting the stage to create a successful dam removal agreement requires relationship building. A negotiation table should create a new opportunity to resolve old issues.[53] A dam removal agreement is an agreement to solve a problem. The problem will have many issues. A connection will exist between all issues. Relationships are the social mechanism to manage such connection. Better relationships translates to better solutions. When parties start listening to each other and working with each other, the necessary negotiation space is more likely to emerge for building a successful agreement. The importance of building partnerships and bridges to uncommon allies cannot be overestimated. It is very difficult and time consuming, but it is an absolutely necessary ingredient in the dam removal agreement recipe.

2. Taking Ideology Out; Putting Civil Discourse In

Dam removal is often a policy decision. The cornerstone of a dam removal agreement may be the pursuit of a collective outcome for the broader public good. However, in the absence of a commitment to civility, a collective outcome will be more difficult to reach. Far too often, dam owners are cast a leading role as the villain. Far too easily, negotiation reverts to condemnation of positions rather than collaboration to advance interests. Finding solutions is tough. An upfront acknowledgement of the need for and commitment to civil discourse is a special ingredient often lacking in negotiations, but required for successful dam removal agreements. Like it or not, parties to a successful dam removal agreement are in it together.

3. Open Minds Bring Fascinating Results

Working together to find a solution in the form of a dam removal agreement makes good business sense *and* good sense for natural resources. A negotiated outcome can lead to remarkable creativity and unprecedented approaches to meeting traditional dam owner and operator, or licensee concerns like liability, future generation needs, and revenue. Willingness to discuss and consider creative options can produce better business certainty and business decisions. Secretary of the Interior Gale Norton's characterization of the Penobscot dam removal agreement proves this point in spades. "The power company . . . will receive $25 million in reimbursement for the dams and the right to increase production to make up for the lost power" by focusing generation emphasis to dams on smaller tributary streams.[54] In exchange, the agreement creates the opportunity to improve access to 500 miles of critical Atlantic salmon habitat.

B. *Necessary Ingredients for Success*

1. Specificity Balanced With Contingencies

The list of potential permits and approvals for a dam removal is lengthy. For example, the following permits, review, or approval may be necessary:

- Clean Water Act section 402 or 404 permits regarding discharge and dredge-and-fill issues respectively;
- National Environmental Policy Act and state environmental review;

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[53] *See* Barbara Cosens, *Water Dispute Resolution in the West: Process Elements for the Modern Era in Basin-Wide Problem Solving*, 33 Envtl. L. 949, 956 (2003).

[54] *See* Sec. Gale A. Norton, Opinion-Editorial, *The Potomac and the Penobscot: A Conservation Lesson for America*, Bangor Daily News (Nov. 19, 2003).

- Rivers and Harbors Act section 10 permit for federal action affecting structures in navigable waters;
- Action under the Comprehensive Environmental Response, Compensation, and Liability Act, if contaminated sediments or hazardous substances are involved;
- For FERC dams, Commission approval of license surrender and project decommissioning and removal;
- Endangered Species Act section 7 consultation, and the prospect of section 9 take;
- State certification of discharges pursuant to section 401 of the Clean Water Act;
- Fish and game agency authorization to alter streambeds, or otherwise affect wildlife and aquatic species;
- Coastal zone impacts under the Coastal Zone Management Act; and,
- Local county ordinances.

A dam removal agreement must address not only this list but also the science of removal. Behind every permit or approval is a scientific issue. The first step in a removal agreement is to base negotiated decisions to the maximum extent possible on rigorous scientific investigation, analysis, and understanding. That knowledge should in turn help shape the permit and approval universe.

However, some scientific issues may be unresolved at the time of agreement negotiation. In such a scenario, parties can leverage a permitting and review strategy within the dam removal agreement to address this possibility. The agreement can specify an approach, sequence, and timeline for pursuing additional and necessary analysis and investigation during the permitting and approval phase. An agreement can also take a similar approach to removal plans, and propose to the permitting and approving agencies a consensus preferred approach for removal. Employing an agreement this way is an effective strategy to manage future disputes, increase the likelihood that the dam owner is not exposed to additional requirements, and develop certainty for an implementation timeline.

Managing future circumstances through a negotiated removal agreement is smart. For example, such a strategy can reduce a FERC licensee's exposure. FERC requires a surrender application in order to decommission and remove a project. The Commission retains authority to condition a surrender application,[55] and will not let a licensee "simply walk away."[56] A licensee can potentially influence surrender conditions by seeking consensus with settlement parties, which often include state and federal agencies. An agreement can even propose a preferred package of mitigation conditions as well as a timeline for removal. Moreover, parties can negotiate as a condition of agreement a mutually-agreeable scientific process. Such process could address concerns like sediment impact from removal, water quality alterations, changes in flow pattern, and mitigation for short-term impact to natural resources and protected species, all of which might arise from the action of removal. These are the necessary elements of a dam removal plan.

A well thought out agreement will recognize the value of a comprehensive and defensible permitting and approval approach. Such an approach can help insulate a removal agreement from potential collateral attack during implementation. However, because some issues may be unresolved at the moment of removal negotiation, parties must include contingency mechanisms

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[55] 18 C.F.R § 6.2.

[56] *FERC and Dam Decommissioning*, *supra* note 8, at 48 (quoting FERC Decommissioning Policy Statement).

within the agreement too. To take one example, it is possible that pursuant to additional investigation parties determine that removal is no longer in the public interest. Or, additional investigation may uncover new issues that are manageable but at greater expense than originally estimated. In order to be successful in the long-run, a dam removal agreement must make best efforts to anticipate such outcomes. Parties should pursue as much scientific, permitting and implementation specificity as possible in their dam removal agreement, but not forget to do sufficient contingency thinking too.

2. Economics Cannot Be Overlooked

Dam removal costs money. Who pays? And, how much? These are removal questions that any agreement must answer. The answer, however, can be greatly influenced by other economics, particularly for FERC dam removal agreements. In August 2006, the D.C. Circuit of the Court of Appeals confirmed that the FPA neither guarantees a profitable project nor the issuance of a new license.[57]

In the Condit example, PacifiCorp would have had to spend over $30 million to install modern fish passage versus less than $20 million to remove.[58] Recently, FERC released a Final Environmental Impact Statement for PacifiCorp's Klamath Project, finding that with staff and mandatory agency conditions a new license would cost the company approximately $20 million a year.[59] Such findings, and the D.C. circuit's decision, implicate cost-benefit balancing and risk management issues during the negotiation of dam removal agreements, which must be adequately addressed for an agreement to be successful.

Other economic factors influence how parties might manage, structure, and allocate removal costs in a dam removal agreement. Specifically, time equals money. The Condit dam removal agreement included a cap on the FERC-licensee's removal cost responsibility. But, as implementation was delayed, costs rose.[60] Because the agreement was silent on this contingency, parties were forced to negotiate a supplemental agreement.[61]

In addition, at the time of settlement, removal costs are often estimates. Escalation is a contingency wildcard. For example, in 1999, parties in California reached agreement to remove dams on Battle Creek, a tributary to the Sacramento River, near Red Bluff. In 1999, CALFED approved the Battle Creek Salmon and Steelhead Restoration Project using an estimate that the project would cost approximately $50 million. By 2003, agency cost estimates had increased to at least $108 million.[62] The prospect of rising costs must be managed in a dam removal agreement. An agreement might precisely allocate cost responsibility, or it could cap costs. Another strategy might be to tie resolution of the cost issue to additional analysis and investigation. Science can greatly assist in narrowing and better defining costs and risks.

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[57] *See City of Tacoma v. FERC*, 460 F.3d 53 (D.C. Cir. 2006).
[58] *Id*.
[59] Final Environmental Impact Statement for Hydropower License, Klamath Hydroelectric Project, FERC Project No. 2082-027, 4-2 (table 4-3) (Nov. 2007).
[60] *See* Becker, *supra* note 46, at 843 (noting that parties renegotiated the cost cap to account for among other increases and anticipated increase in permitting costs of $3.3 million).
[61] *See id*.
[62] California Hydropower Reform Coalition, Analysis of Dam Removal Alternative B, Battle Creek Salmon and Steelhead Restoration Project 3 (Apr. 23, 2004). *See* http://www.delta.dfg.ca.gov/erp/docs/signature/CHRCbattlecreekreport(final).pdf.

Designing a joint scientific process to address cost and incorporating it within a removal agreement can be a prudent step.

Different strategies exist to cover removal costs. An agreement should incorporate the best strategy for the particular facts involved. Some dam removals are funded through state or federal means. For example, in 1992, Congress passed the Elwha River Ecosystem and Fisheries Restoration Act authorizing the funding to acquire for purposes of removal the Elwha and Glines Canyon hydroproject dams, on the Elwha River, just below Olympic National Park in Washington.[63] In 2004, the Park Service reached an agreement with parties for completion of the $182 million project.[64] Whereas in FERC dam removal agreements the licensee is typically responsible for costs. Some of these agreements have included cost caps. Other licensees have agreed to take full responsibility, even with an express understanding costs might increase. For example,

> PGE will pay all costs associated with the decommissioning and removal of the Bull Run Project. These costs are currently estimated to total $17,060,000, but can be expected to change as specific decommissioning plans are completed and bids awarded. PGE's obligation to pay these costs is not subject to a "cap," and implementation of this Decommissioning Plan is not contingent upon the final cost.[65]

However, in the FERC context, removal costs are typically recoverable through rate recovery in state Public Utility Commissions rate proceedings. Consequently, such dam removal agreements often include special emphasis to increase the likelihood of the licensee's recovery of removal costs.

Cost management is a critically important bottom line ingredient for successful dam removal agreements. The decision to remove for the owner is a business decision. Cost certainty influences business decisions. Moreover, ratepayer contribution, public financing, and the project bidding and engineering aspects of removal all require sound rationale to make wise policy decisions. Thus, all parties to a dam removal agreement share an interest in jointly creating a mutually-agreeable structure to manage cost.

3. Running an Effort That Doesn't Run Over People Either Before or After the Agreement

Local communities cannot be overlooked in dam removal agreements or during implementation. Consider the Condit example. The removal agreement was reached in 1999. For seven years, the Washington counties of Klickitat and Skamania have opposed the agreement and removal.[66] In this case, the local counties allege that county floodplain, zoning, shoreline, and noise and road permits are necessary for the project.[67]

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[63] Elwha River Ecosystem and Fisheries Restoration Act -- Public Law 102-495, signed October 24, 1992 (106 Stat. 3173).
[64] Jim Downing, *Elwha dam removal gets final go-ahead*, Seattle Times (Aug. 6, 2004). *See* http://seattletimes.nwsource.com/html/localnews/2001998230_elwha06m.html.
[65] Decommissioning Plan for the Bull Run Hydroelectric Project, FERC Project No. 477, at 49 (Nov. 2002).
[66] Becker, *supra* note 46, at 814.
[67] *Id*. at 840.

These counties are the sole governmental entities in opposition to the removal agreement. Such opposition creates confusion, and risks agreements. On May 18, 2006, FERC issued an order in the Condit proceeding. According to FERC:

> It is well-established that the FPA preempts all state and local law concerning hydroelectric licensing apart from those adjudicating proprietary water rights. Furthermore, since the determination of whether a license should be surrender is an action taken pursuant to the FPA, and the Commission retains jurisdiction over the project until the license surrender is accepted and becomes effective, federal preemption applies to license surrender. However, federal preemption does not necessary mean that the Commission will not elect to require PacifiCorp to comply with those of the Counties' requirements that the Commission concludes will not interfere with the company's ability to carry out the Commission's orders. … We prefer for our licensees to be good citizens of the communities in which projects are located, and thus to comply with state and local requirements, where possible.[68]

In three short pages, the Commission delivered different signals, proving again that odd facts make odd law.

Preventative strategies are available to parties who are developing removal agreements. First, the negotiations to develop removal agreements should be inclusive not exclusive. A successful dam removal agreement will not face the criticism that local government was excluded from settlement talks.[69] Second, local community concerns can be factored in to the scientific and permitting process for removal. Here, local input should be solicited. Sometimes the creation of a local mitigation fund to address possible community impacts makes sense.

The most important strategy though is consistent, transparent, and honest outreach and education with local communities. In this regard, dam removal implementation efforts are generating some of the coolest applications of technology for community outreach. Removal provokes reasonable concern and sometimes fear. The unknown is scary. Removal can result in large-scale landscape change. GIS software and computer models can be utilized to create a visual image of future landscape conditions post-removal. For example, in the Elwha removal, the National Park Service along with conservation partners have helped citizens and local officials visualize the future through digital models of the Elwha River valley before, during, and after removal. This tool allows the local community to quite literally see it with their own eyes. [70] In the end, a successful removal agreement requires broad and consistent support from the day of agreement until the last aspect of physical removal is completed. Parties should not cut corners on this essential ingredient.

Conclusion

Nothing is ever as easy as it first appears. Dam removal is one clear example. Taking out the dam is the easy part. Developing the necessary removal agreement can be incredibly complicated and difficult.

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[68] 115 F.E.R.C. § 61,1194, 61,696-697 (May 18, 2006).
[69] Becker, *supra* note 46, at 828-29.
[70] *See* http://www.americanrivers.org/site/PageServer?pagename=AMR_elwhavision.

Science should drive removal permitting and planning. A successful dam removal agreement will embrace the permitting and planning process to address uncertainty and manage risk. For example, sediment management is an issue that must be correctly addressed in a removal agreement and during removal implementation. While successful removal agreements do include as much specificity as possible, parties must understand that some things will remain unknown on signing day. Contingency planning, therefore, becomes mandatory. Contingencies may be necessary from a biological or engineering perspective. They may also be the best strategy to deal with issues involving removal costs.

Optimism should be checked at the door when starting a dam removal agreement negotiation. But, hope should never be left behind. Negotiating a dam removal agreement requires more than blind faith that the most favorable construction of actions and outcomes will occur. Instead, it demands from the parties incredible effort rather than sitting back on "cruise-control;" serious willingness to grapple with tough realities instead of skirting over facts; and, much more dealing, strategizing, and directness about making change and compromise.

However, at the end of the day, an agreement will only be as successful as the parties' management of the agreement's implementation. It may take many years to remove, which requires a long-term to commitment to community outreach, education and involvement. This is why hope matters more than optimism in crafting a dam removal agreement and successfully implementing one over time. Once the decision to remove has been made, try following this recipe.

Recipe for One Successful Dam Removal Agreement

Prep time:	Enough to ensure cooking goes smoothly.
Cooking time:	As long as it takes to find a mutually-agreeable approach to removal.
Ingredients:	Broad range of experiences, skills, and interests; motivated individuals; hope; and, persistence, among others.
Directions:	Develop relationships; sprinkle on generous amounts of civility; heat oven to a setting of "an open-mind"; bake in a negotiation room; season with science, policy and economics.
Serves:	As many as want, including local communities if done right.