

# Streamlining the Production of Clean Energy: Proposals to Reform the Hydroelectricity Licensing Process

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## Streamlining the Production of Clean Energy: Proposals to Reform the Hydroelectricity Licensing Process

Travis Kavulla\* and Laura Farkas\*\*

*Hydroelectric power is an efficient and clean source of power. In an era when air emissions dominate public concern about the environmental effects of the energy sector, it is a paradox that among the most highly regulated energy projects are hydroelectric dams, which do not combust fuel. This is partly due to a failure of successive statutory enactments, which have transformed hydroelectric licensing from a regulatory “one-stop shop” with a single regulator, to a process chained to a bewildering number of often conflicting regulatory agencies, often riven with delay. Hydroelectric licensing has also failed because its capacious standard of review encourages special-interest groups with even a marginal interest to seek rents from regulated users. Even with the introduction of dispute resolution, and the possibility of obtaining exemptions, the barriers to hydroelectric permitting and relicensing are excessive. Fortunately, a number of reforms would ease the regulatory burden on hydroelectric power expansion, while still considering and addressing environmental concerns.*

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## I. THE STATUTORY FRAMEWORK OF HYDROELECTRIC LICENSING

### A. History

Hydropower regulation in the United States was born with the passage of the 1902 Reclamation Act. The Reclamation Act reversed the previous practice of exclusive state and local involvement in reclaiming land and created the Bureau of Reclamation.<sup>1</sup> After passage of the Act, the federal government funded irrigation projects across the country. Irrigation techniques advanced, including pumping, which would drive demand for future development of hydroelectric facilities.<sup>2</sup> The Reclamation Act ushered in the age of federal involvement in water projects, but the Federal Water Power Act of 1920 (FWPA), which

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1. Keith H. Beauchamp, *A History of Drainage and Draining Methods*, HISTORY, STATUS AND PROSPECTS 29, 34 (George A. Pavelis ed., 1987) available at <https://eric.ed.gov/?id=ED295043>.

2. *Id.* at 43.

codified regulation of hydropower projects, cemented federal jurisdiction.<sup>3</sup> In 1930, Congress established the Federal Power Commission, now known as the Federal Energy Regulatory Commission (FERC). In 1935, Congress passed the Federal Power Act (FPA), which granted to the Federal Power Commission and its successor agency, FERC, the authority to regulate interstate transmission and the sale of electricity at wholesale.<sup>4</sup> Under the FPA, FERC is also tasked with providing licenses for non-federal hydroelectric plants.<sup>5</sup>

Hydroelectric development by the federal government itself increased in the 1930s and 1940s. In 1933, the Tennessee Valley Authority was established.<sup>6</sup> The Great Depression, as well as flooding and drought in the West, prompted the building of large multipurpose water projects, including the Grand Coulee Dam, the Hoover Dam, and the Central Valley Project.<sup>7</sup> The impressive Fort Peck Dam, the first in a series of dams built on the Missouri River, was also constructed.<sup>8</sup> In 1937, the Bonneville Power Administration was established and the Bonneville Lock and Dam began operation.<sup>9</sup> In the 1940s, bolstered by the New Deal, hydropower accounted for 40 percent of electrical generation in the United States.<sup>10</sup> The momentum did not last, however, and by the 1960s, the preservation movement, emerging environmental concerns, and the

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3. Gifford Pinchot, *The Long Struggle for Effective Federal Water Power Legislation*, 14 GEO. WASH. L. REV. 9, 19 (1946).

4. *Id.* at 20.

5. 16 U.S.C. § 797(e) (1935).

6. Office of Energy Efficiency & Renewable Energy, Water Power Technologies Office, *History of Hydropower*, U.S. DEP'T. OF ENERGY, <https://energy.gov/eere/water/history-hydropower> (last visited Jan. 17, 2018).

7. Bureau of Reclamation, *Hydropower Program: The History of Hydropower Development in the U.S.*, <https://www.usbr.gov/power/edu/history.html> (last visited Jan. 17, 2018) [hereinafter *Hydropower Program*].

8. Bureau of Reclamation, *Lewis and Clark: Big Dam Era*, <https://www.usbr.gov/gp/lewisandclark/damera.html> (last visited Jan. 17, 2018).

9. Bonneville Power Admin., *History*, <https://www.bpa.gov/news/AboutUs/History/Pages/default.aspx> (last visited Jan. 17, 2018).

10. *Hydropower Program*, *supra* note 9.

diminishing number of available sites ended the era of big federal dams.<sup>11</sup> Today, most dams in the United States are privately owned.<sup>12</sup>

*B. The Co-Mingling of Environmental Law in the FERC Licensing Scheme*

The earlier era of hydropower was characterized by laws that promoted the widespread availability of electricity, and the place of FERC as an agency intended to promote the construction of energy infrastructure and the interconnection of customers to sources of supply at reasonable rates.<sup>13</sup> FERC was fundamentally an economic regulator favorably disposed to the abundance of supply. In the 1970s, however, growing distress regarding the natural environment led to the passage of a flurry of environmental laws. None of these laws were aimed specifically at hydroelectric development or regulation. Nevertheless, they have shaped hydroelectric project licensing and relicensing profoundly. One of the most iconic pieces of environmental legislation is the National Environmental Policy Act (NEPA). NEPA became effective in 1970, and was the first of a succession of environmental laws enacted during that time.<sup>14</sup> The three key features of NEPA include the requirement that federal agencies consider the environmental consequences of any proposed action; the requirement that federal agencies prepare an Environmental Impact Statement (EIS) examining the environmental effects of any major action; and the formation of the President's Council on Environmental Quality (CEQ).<sup>15</sup> The CEQ has since promulgated regulations that further articulate how the procedural provisions of NEPA

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11. Dan Tarlock, *The Legal-Political Barriers to Ramping Up Hydro*, 86 CHI.-KENT L. REV. 259, 267-268 (2011).

12. Fed. Emergency Mgmt. Agency, *Dam Ownership in the U.S.*, <https://www.fema.gov/dam-ownership-united-states> (last visited Jan. 17, 2018).

13. 16 U.S.C. § 824 et seq. (1935).

14. William V. Luneburg, *National Environmental Policy Act (1969)*, in 3 *Major Acts of Congress 16-20* (Brian K. Landsberg ed., 2004) available at [link.galegroup.com/apps/doc/CX3407400215/UHIC?u=j071909004&xid=657f8a07](http://link.galegroup.com/apps/doc/CX3407400215/UHIC?u=j071909004&xid=657f8a07).

15. *Id.* at 18.

are to be implemented.<sup>16</sup> Under NEPA and its associated regulations, FERC must undergo a review of environmental impacts and generally must prepare an environmental assessment (EA) or EIS before issuing a license for a hydroelectric project. Guidelines on the preparation of environmental documents illuminate the complex nature of the process.<sup>17</sup>

On the heels of NEPA came the Clean Water Act of 1972 (CWA), an impactful piece of legislation when it comes to FERC hydropower licensing and relicensing. Its significance stems from the requirement contained in Section 401 that an applicant for a federal license provide a certification from a state or tribe to certify that any discharges from the facility will comply with the CWA.<sup>18</sup> In *S.D. Warren Co. v. Maine Board of Environmental Protection*, the United States Supreme Court ruled that hydroelectric dams are subject to Section 401.<sup>19</sup> Thus, the legislation provides a vehicle for states to impose conditions on FERC-issued hydroelectric licenses.

Shortly after the CWA, Congress passed the Endangered Species Act (ESA) in 1973.<sup>20</sup> The ESA requires FERC to consult with other federal agencies, and ensure that the issuance of a hydroelectric license will not pose a risk to a threatened or endangered species.<sup>21</sup> Complying with the ESA when seeking a hydroelectric license is demanding.<sup>22</sup>

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16. 40 C.F.R. §§ 1500-1508 (2018).

17. Fed. Energy Regulatory Comm'n Office of Energy Projects, *Preparing Environmental Documents Guidelines for Applicants, Contractors, and Staff* (Sept. 2008), available at <https://www.ferc.gov/industries/hydropower/gen-info/guidelines/eaguide.pdf>.

18. Fed. Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 401, 86 Stat. 816, 877 (codified at 33 U.S.C. § 1341 (2018)).

19. 547 U.S. 370, 373 (2006).

20. 16 U.S.C. §§ 1531-1544 (2018).

21. Susan A. Moore, *Hydro Licensing and the Endangered Species Act: Implications of FERC's Current Approach* (June 1, 2007) available at <http://www.hydroworld.com/articles/hr/print/volume-26/issue-3/feature-articles/ferc-regulations/hydro-licensing-and-the-endangered-species-act-implications-of-fercs-quos-current-approach.html>.

22. Fed. Energy Regulatory Comm'n Office of Energy Projects, *Hydropower Licensing and Endangered Species: A Guide for Applicants*,

Through the ESA, other federal agencies have become *de facto* co-regulators in the FERC licensing and relicensing process.

Finally, despite its nominal irrelevance to environmental issues, the Electric Consumer Protection Act (ECPA) of 1986 opened the floodgates to the involvement of still other federal and state agencies, often with very different goals than those of FERC, who continue to wield major influence in the licensing process. Specifically, the statute added new language that requires FERC to seek out and consider input from state and federal agencies tasked with resource management.<sup>23</sup> They became powerful players in the process. The legislative history of the bill indicates that this was the intent; these amendments were intended to ensure that the recommendations received from resource management agencies would not be easily flouted.<sup>24</sup> The ECPA succeeded in removing a great deal of FERC's prior discretion.

The key pieces of legislation outlined above have each contributed to creating the decentralized FERC hydroelectric licensing and relicensing process that exists today. Yet, even these laws do not represent the entirety of legislation responsible for shaping the process that exists today. All told, seeking an original hydroelectric license, or a subsequent one, requires engaging in a process that is prolonged and onerous.

### *C. The Three FERC Licensing Processes*

There are technically three processes available to obtain a new hydroelectric license, or to obtain a relicense. These processes are: the Integrated Licensing Process (ILP); the Traditional Licensing Process (TLP); and the Alternative Licensing Process (ALP).<sup>25</sup> The default process

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*Contractors, and Staff* (2001) available at [https://www.ferc.gov/industries/hydropower/gen-info/guidelines/esa\\_guide.pdf](https://www.ferc.gov/industries/hydropower/gen-info/guidelines/esa_guide.pdf).

23. Echeverria, John D. "The Electric Consumers Protection Act of 1986," 8 Energy L.J. 61, 72 (1987).

24. *Id.*

25. Fed. Energy Regulatory Comm'n., *Licensing Processes*, <https://www.ferc.gov/industries/hydropower/gen-info/licensing/licen-pro.asp> (last visited Jan. 17, 2018).

is the ILP, but with FERC approval, one can pursue either the TLP or ALP.<sup>26</sup>

The TLP is the oldest of the three. It requires a consultation process to be completed before an application can be filed, however it is the least front-loaded of the three.<sup>27</sup> There is little involvement from FERC prior to an application being submitted.<sup>28</sup> Reduced to a handful of steps, FERC represents the regulatory procedure in a deceptively simple form.<sup>29</sup> Ironically, the lack of heavy FERC involvement, especially at points at which the applicant must deal with stakeholders, allows interested parties to slow the process considerably.

FERC issued regulations in 1997 establishing alternative licensing processes.<sup>30</sup> In contrast to the TLP, the ALP's regulatory process is far more front-loaded. It is intended to be more collaborative and flexible. FERC acts as the adult in the room, requiring progress reports and playing the role of arbiter by resolving disputes during the pre-filing consultation phase.<sup>31</sup> The ALP, unlike the TLP, also combines into one process the consultation phase, the environmental review process required by NEPA, and the administrative processes associated with the CWA and other statutes.<sup>32</sup>

Finally, the ILP is the newest process.<sup>33</sup> It was intended to

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26. *Id.*

27. 18 C.F.R. §§ 4.38(a)(1), 16.8(a)(1) (2018).

28. Fed. Energy Regulatory Comm'n., *Processes for Hydropower Licenses: Traditional Licensing Process: Applicant's Pre-Filing Process*, <https://www.ferc.gov/resources/processes/flow/hydro-1.asp> (last visited Jan. 17, 2018).

29. U.S. Dep't of Energy, *Processes for Hydropower Licenses: Traditional Licensing Process: FERC Application Process*, FED. ENERGY REGULATORY COMM'N., <https://www.ferc.gov/resources/processes/flow/hydro-2.asp> (last visited Jan. 17, 2018).

30. Fed. Energy Regulatory Comm'n., *Guidelines to Consider for Participating in the Alternative Licensing Process* iv, [https://www.ferc.gov/industries/hydropower/indus-act/itf/alp\\_final.pdf](https://www.ferc.gov/industries/hydropower/indus-act/itf/alp_final.pdf) (last visited Jan. 17, 2018).

31. 18 C.F.R. § 4.34(i)(2)(ii).

32. *Id.* § 4.34(i)(1).

33. Fed. Energy Regulatory Comm'n., News Release: *Commission Adopts New Hydro Licensing Process With Promise of Faster, More Informed*

streamline hydro project licensing.<sup>34</sup> The ILP, like the ALP, is also heavily front-loaded. Applicants face many requirements, with tight timeframes, prior to filing an application.<sup>35</sup> These quick turnaround times are meant to drive the process forward, but pose a significant burden on applicants. The pre-filing consultation requirements are detailed. Similar to the ALP's dispute resolution provision, in the ILP, FERC will insert itself into the process if formal resolution of a study<sup>36</sup> dispute is necessary.<sup>37</sup> However, this leaves other potential disputes without an arbiter. The ILP's almost exclusive focus is on avoiding the need for superfluous and post-filing studies, which is admirable. This goal is one of the reasons the introduction of the ILP was met with some optimism.<sup>38</sup> However, upon examination, the ILP, like the ALP, simply shifts the lion's share of the labor from later in the process, to earlier. The ILP is less collaborative than the ALP. The ILP entails an approximately five-year process before an applicant can even file for a license. During this period, the applicant's time is largely spent pacifying stakeholders. The hope is that disputes will be worked out prior to filing, expediting the wait time for the issuance of a license. Yet despite the significant effort expended at the start, the post-filing process is still rather extensive.<sup>39</sup> Moreover, applicants still face the likely need for an EA after filing, which opens the process up to further

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*Decisions*, <https://www.ferc.gov/industries/hydropower/indus-act/order-2002/press-release.pdf> (last visited Feb. 9, 2018).

34. *Id.*

35. Fed. Energy Regulatory Comm'n., *Processes for Hydropower Licenses: 5-5.5 years before expiration for relicense*, <https://www.ferc.gov/resources/processes/flow/hydro-5.asp> (last visited Jan. 18, 2018).

36. Studies are requested by interested parties and conducted by FERC as part of FERC's consultation requirements under Section 7 of the ESA and Section 401 of the CWA, pursuant to 18 C.F.R. § 5.9.

37. 18 C.F.R. § 5.14 (2018).

38. Michael A Swiger, and Megan M. Grant, *Creating a New FERC Licensing Process* (May 2004) available at <http://64.106.168.122/webfiles/MAS.HydroReview.May.2004.pdf>.

39. Fed. Energy Regulatory Comm'n., *Processes for Hydropower Licenses: 2 years before expiration for relicense*, <https://www.ferc.gov/resources/processes/flow/hydro-6.asp> (last visited Jan. 18, 2018).

public participation.<sup>40</sup>

Regardless of which process applicants choose, they can expect to invest considerable time and resources, and in the case of the ALP and ILP large resource expenditures will occur before one can even submit an application. In certain situations, a project may qualify for an exemption from licensing.<sup>41</sup> However, an exempted project is still subject to mandatory terms and conditions set by federal and state fish and wildlife agencies.<sup>42</sup>

*D. The Decline in FERC's Exclusive Authority Over Hydroelectric Licensing*

FERC has authority under the FPA to issue licenses for non-federal hydroelectric projects.<sup>43</sup> FERC's hydroelectric licensing power was initially all-encompassing. In 1954, the United States Supreme Court determined that in the FPA "there is a separation of those subjects which remain under the jurisdiction of the states from those subjects . . . over which Congress vests the Federal Power Commission with authority to act."<sup>44</sup> The Court further found that "[w]here the Federal Government supersedes the state government there is no suggestion that [the federal government and states] both shall have final authority."<sup>45</sup> In sum, "provisions of the [Federal Power Act] providing for the federal plan of regulation leave no room or need for conflicting state controls."<sup>46</sup> This landmark case acknowledged FERC's preemption of authority over hydroelectric project licensing. FERC's power was further affirmed in

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40. 18 C.F.R. § 5.25 (2018).

41. Fed. Energy Regulatory Comm'n., *Exemptions from Licensing*, <https://www.ferc.gov/industries/hydropower/gen-info/licensing/exemptions.asp> (last visited Jan. 18, 2018).

42. *Id.*

43. 16 U.S.C. § 797(e) (2005).

44. *First Iowa Hydro-Elec. Co-op. v. Federal Power Commission*, 328 U.S. 152, 167 (1946).

45. *Id.* at 168.

46. *Id.* at 181.

*California v. FERC*, where the United States Supreme Court ruled that California's lower stream flow requirements on a river where a FERC licensed hydroelectric project was located were preempted by the FPA.<sup>47</sup>

However, FERC's abundant hydroelectric licensing power has eroded over the years. The flurry of environmental laws enacted in the 1970s, and the ECPA, which amended the FPA, drastically reduced FERC's authority over hydroelectric licensing. Significant power was placed in the hands of the states, via the CWA's "401 certificate" requirement.<sup>48</sup> Without one, no license can be granted.<sup>49</sup> Essentially, a state's conditions become part of a FERC hydroelectric license. Prior to the environmental legislation of the 1970s and the ECPA, FERC was already required to consider "the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife . . . the protection of recreational opportunities, and the preservation of other aspects of environmental quality."<sup>50</sup> Certain federal agencies had the power to prescribe conditions on projects located in or affecting federal reservations.<sup>51</sup> The ECPA then required FERC to consider the recommendations of federal and state agencies on matters of "flood control, navigation, irrigation, recreation, cultural and other relevant resources."<sup>52</sup> Further, the ECPA directed that hydroelectric licenses "shall include conditions for such protection, mitigation, and enhancement" of fish and wildlife.<sup>53</sup> To that end, such conditions must be based on recommendations from the National Marine Fisheries Service (NMFS),

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47. 495 U.S. 490, 506 (1990).

48. 33 U.S.C. § 1341 (1977).

49. 33 U.S.C. § 1341(a).

50. 16 U.S.C. § 797(e) (2005).

51. 16 U.S.C. § 796(2) ("Reservation" means "national forests, tribal lands embraced within Indian reservations, military reservations, and other lands and interests in lands owned by the United States, and withdrawn, reserved, or withheld from private appropriation and disposal under the public land laws; also lands and interests in lands acquired and held for any public purposes; but shall not include national monuments or national parks.")

52. 16 U.S.C. § 803(a) (1992).

53. 16 U.S.C. § 803(j)(1).

part of the U.S. Department of Commerce, the United States Fish and Wildlife Service (FWS), part of the U.S. Department of Interior, as well as state fish and wildlife agencies.<sup>54</sup> Finally, both NMFS and FWS gained the authority to prescribe facilities for fish passage, such as fish ladders, and other conditions that they deem necessary in order to effectuate successful fish passage.<sup>55</sup> This is in addition to the federal agency participation necessitated by NEPA, the CWA, and the ESA. The environmental laws of the 1970s and the ECPA turned FERC's role from sole arbiter to a mere first among equals.

FERC resisted its shrinking control of the hydroelectric licensing process, but was dealt a series of blows by the federal courts. The United States Supreme Court ruled unequivocally that FERC is required to accept, without modification, conditions that the Secretary of Interior deems necessary for the protection of Indian reservations.<sup>56</sup> In *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, the Court affirmed a state's ability to include water quality standards in a FERC hydroelectric license.<sup>57</sup> Then, the Second Circuit Court of Appeals affirmed that FERC cannot exclude state CWA certification conditions from hydroelectric licenses.<sup>58</sup> Finally, the Ninth Circuit Court of Appeals determined that FERC lacks authority to reject fishway prescriptions as conditions upon reissued hydroelectric licenses.<sup>59</sup> All of these cases served to cement the involvement of state and federal resource agencies in the FERC hydroelectric licensing process. Despite the fact that, as the United States Supreme Court acknowledged, "Congress passed the Federal Water Power Act in order to eliminate the inefficiency and confusion caused by the 'piecemeal, restrictive, negative approach' to

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54. *Id.*

55. 16 U.S.C. § 811 (2005).

56. *Escondido Mut. Water Co. v. La Jolla, Rincon, San Pasqual, Pauma, and Pala Bands of Mission Indians*, 466 U.S. 765, 773-776, (1984).

57. 511 U.S. 700 (1994).

58. *Am. Rivers, Inc. v. FERC*, 129 F.3d 99 (2nd Cir. 1997).

59. *Am. Rivers v. FERC*, 201 F. 3d 1186, 1206 (9th Cir. 2000).

licensing,”<sup>60</sup> relevant federal law and case law has essentially achieved a return to the “inefficiency and confusion” that the FWPA was originally intended to resolve.

## II. HYDROELECTRIC LICENSING’S FALSE PROMISE OF REGULATION IN THE ‘PUBLIC INTEREST’

### *A. The Ever-Expanding Public Interest*

The U.S. Department of Energy has observed that “the hydropower regulatory environment has evolved over time rather than having been planned and implemented at one point in time as a unified, fully efficient, integrated process.”<sup>61</sup> This is an understatement. The generation of electricity by hydropower is perhaps the purest example of Ronald Coase’s observation that the products “traded on the market are not, as is often supposed by economists, physical entities but the rights to perform certain actions[,] and the rights which individuals possess are established by the legal system.”<sup>62</sup> Hydroelectric licensing is governed by a capacious “public interest” standard under Section 10 of the FPA, and a series of other standards that the subsequent acts described above have given rise to. While licenses are issued bureaucratically by a single agency, FERC, they require the imprimatur of a variety of federal and state natural-resource agencies, each of which have their own institutional interests which are narrower than the public interest writ large. Other than government agencies, many stakeholders also claim to have interests

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60. *Escondido Mut. Water Co. v. La Jolla, Rincon, San Pasqual, Pauma, and Pala Bands of Mission Indians*, 466 U.S. 765, 773 (1984) (quoting *First Iowa Hydro-Elec. Co-op*, 328 U.S. at 180).

61. U.S. Dept. of Energy, *Hydropower Vision*, <https://www.energy.gov/sites/prod/files/2016/10/f33/Hydropower-Vision-Chapter-4-10212016.pdf> (last visited Jan. 18, 2018).

62. Ronald H. Coase, The Sveriges Riksbank Prize in Economic Science in Memory of Alfred Nobel 1991: Prize Lecture (Dec. 9, 1991) *available at* [https://www.nobelprize.org/nobel\\_prizes/economic-sciences/laureates/1991/coase-lecture.html](https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1991/coase-lecture.html).

entailed by “the public interest” along or besides waterways. FERC, the regulator, is responsible for enmeshing this accumulation of claims within a license as conditions. Each condition weighs against the wider economics of the project—the requirement for fisheries, or waterfowl brood areas, or recreational boating sites all imposing costs on the licensee—so that the hydroelectric licensing process is also a fine example of what Richard Posner called “taxation by regulation.”<sup>63</sup> Since customers typically bear the licensee’s costs through public utility regulation, the many conditions attendant to licensing can be understood to “compel members of the public to support a service that the market would provide at a reduced level, or not at all.”<sup>64</sup> Finally, these licenses are time-limited by statute,<sup>65</sup> and they cannot be transferred except through a similar regulatory process.<sup>66</sup>

These three regulatory features—a capacious standard of review, the many cooks in the kitchen, and the always looming prospect of a decade-long relicensure process—have resulted in a temporary, non-transferable, and conditional property right for the licensee. A highly attenuated *right to perform a certain action* of the type Coase describes, an interested party obtains this license only through a significant outlay associated not just with the cost to build and operate a project, but also with the transaction costs associated with obtaining that right by satisfying conditions whose value usually lacks an objective yardstick. This regulatory process serves the whole of the public interest to an only questionable extent, as a real-life example of it demonstrates.

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63. Richard A. Posner, *Taxation by Regulation*, 2 Bell Journal of Economics and Management Science 22, 29 (1971).

64. *Id.*

65. 16 U.S.C. § 799 (1980).

66. 18 C.F.R. § 9.1 et seq.

*B. Case Study: The Kilarc-Cow Creek Project*

The two small dams that together comprised the 4.6-megawatt Kilarc-Cow Creek project in California are a case study in the convoluted regulatory process that exists for small hydroelectric facilities. When the century-old project faced another license renewal in the early 2000s, Pacific Gas & Electric (PG&E)'s preliminary investigation concluded that the project would face substantial opposition from federal agencies and environmental interest groups unless conditions associated with fish were attached to the relicense. Instead, the utility, California's largest, opted to propose to decommission the project.<sup>67</sup>

Although hydroelectric relicensing is intended to be a highly public process, the mere prospect of the conditions that might arise out of this process led PG&E to pre-emptively elect to not even attempt obtaining Kilarc-Cow Creek's renewal. Instead, PG&E decided on a course to surrender it.<sup>68</sup> Paradoxically, the public nature of the relicensing process appears to have foreclosed its occurrence at all and deprived members of the public a significant opportunity to urge the project's continuation.<sup>69</sup>

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67. Pac. Gas and Elec. Co., *Kilarc-Cow Creek Hydroelectric Project Preliminary Proposed Decommissioning Plan* (Sept. 10, 2007), [http://www.kilarccowcreek.com/Lists/Announcements/Attachments/4/3008806\\_PGandE\\_Kilarc%20cow\\_PPDP\\_09-10-07.pdf](http://www.kilarccowcreek.com/Lists/Announcements/Attachments/4/3008806_PGandE_Kilarc%20cow_PPDP_09-10-07.pdf)

68. Letter from Annette Faraglia to Fed. Energy Regulatory Comm'n. (Mar. 30, 2005), Pac. Gas and Elec. Co., *available at* [http://www.kilarccowcreek.com/Document%20Library/Decommissioning%20Documents%20and%20Comments%20Received/Decommissioning%20Agreements/CC\\_033105AgreementFERCFiling.pdf](http://www.kilarccowcreek.com/Document%20Library/Decommissioning%20Documents%20and%20Comments%20Received/Decommissioning%20Agreements/CC_033105AgreementFERCFiling.pdf).

69. One member of the public commented during the EIS process to examine PG&E's decommissioning proposal, "I was very saddened by the suggestion of closing Kilarc. Our daughter and granddaughter both caught their first fish at Kilarc. It was the one place that my mother could walk into to fish, which she dearly loved to do... I do hope this decision is reconsidered." The utility responded: "The FERC licensing process does not allow PG&E a further opportunity to renew its operating license. PG&E elected not to apply for a new license and the deadline for relicensing the Kilarc-Cow Creek Project has passed." Fed. Energy Regulatory Comm'n, *Draft Responses to Comments Received on Preliminary Proposed Decommissioning Plan*, 2 (Sept. 12, 2007) *available at* <http://www.kilarccowcreek.com/Document%20Library/Decommissioning%20Documents%20and%20Comments%20Received/C>

Although not readily accessible, the utility's assumptions about what it would cost to renew the license must have been very substantial because the ultimate cost to PG&E and its ratepayers to *decommission* the project amounted to \$9 million, or nearly \$2,000 per kilowatt of installed capacity, plus whatever amount it spent to replace the lost generation.<sup>70</sup> The decommissioning cost alone exceeds the capital cost of a new natural-gas fired plant on a per-kilowatt basis.<sup>71</sup> In other words, it likely cost PG&E more to *decommission* a hydroelectric plant than to build a new gas plant, and yet the utility nonetheless elected not to seek a renewal of the project license, suggesting the extremely high cost predicted to relicense the facility.

Once PG&E submitted its application to surrender the license, FERC assembled a draft EIS pursuant to NEPA. After receiving comments, it dismissed a proposal from a firm apparently more ambitious than PG&E to receive the license and preserve the facility for future hydroelectric generation. It issued a final EIS that granted PG&E its request to surrender its license and ordered work to be done to remove facilities that impeded fish passage along the waterways.

The Final EIS can be understood as the locus of regulation for this project. The document is a strange amalgam of highly nuanced analysis of certain aspects of hydroelectric operations, with almost a blind eye to others. Notably, in a document spanning 342 pages, regulators spent all

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omment%20Response%20Table/Kilarc-Cow\_Creek\_PPDP\_Comment\_Response\_Table.pdf (last visited Jan. 18, 2018).

70. Final Envtl. Impact Statement for Hydropower License Surrender, Kilarc-Cow Creek Hydroelectric Project, FERC Project No. 606, xxiv (Aug. 2011) available at <https://www.ferc.gov/industries/hydropower/enviro/eis/2011/08-16-11.asp>.

71. For example, Montana's NorthWestern Energy reports a combined cycle combustion turbine, used to produce energy on a more consistent basis, costs \$1,400 per kilowatt of capacity, while a flexible peaking unit that uses an internal combustion engine, costs \$1,280. MONT. PUB. SERV. COMM'N, *NorthWestern Energy: 2015 Electricity Supply Resource Procurement Plan*, PSC. MT.gov, Docket No. N2015.11.91, p. 9-3 (Mar. 2016) available at <http://psc.mt.gov/Docs/Electronic Documents/pdfFiles/N20151191-AbsarokaEnergyCommentsNWE2015Plan.pdf> (last visited Jan. 18, 2018).

of 45 words on their analysis of the emission effects of the power plant's continued operations.<sup>72</sup> Despite putative concern with environmental effects, the regulatory process selectively concentrated on fisheries and land use issues. The process, in this way, was the opposite of "think globally, act locally."

In the case of Kilarc-Cow Creek, the regulator waived off concerns about emissions as *de minimus*. The project was, the Final EIS found, a mere 0.2% of PG&E's overall power generation portfolio, and only 0.12% of the state's hydroelectric generation.<sup>73</sup> It is true that, in the scope of power generation, Kilarc-Cow Creek was a small project. However, to undertake a small measure of the work which the regulator did not do, we estimated that this very small project's continued operation would have abated about 16,000 tons of carbon-dioxide annually, the equivalent of the emissions of 3,000 cars per year.<sup>74</sup>

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72. Fed. Energy Regulatory Comm'n., *supra* note 70, at 209.

73. *Id.* at 208-09.

74. The authors made this calculation using 2016 data within the EPA's AVERT tool, which is an Excel-based model that allows users to input the estimated production of a renewable resource to show which emissions from the portfolio of power plants in a region—in this case California—are avoided by the renewable plant's operation. Notably, EPA's model has built-in production profiles for wind, utility-scale, and roof-top solar, yet it seems not even to countenance the role hydropower might play in abating emissions.

The authors derived a round-the-clock estimate of megawatt production in an average hour by dividing the project's reported annual production of 31,100 megawatt-hours by 8,760 (the number of hours in the year). The quotient is the sole variable that the AVERT model requires to make an estimate of emissions, although the authors could undertake a significantly more refined estimate if they were to use the project's hourly production profile. Since our point is that none of its regulators studied these effects at all, we found a flyspeck analysis such as this unnecessarily burdensome for this demonstrative point.

A hydropower project's avoided emissions, of course, will be both a product of the amount of energy it produces, when it produces that energy, and where in the nation's grid it produces it, since each region has a different set of resources creating emissions. For example, the iteration of AVERT tool we used has a 2016 data set for California. If one assumes that California is less reliant on emitting resources today than it had been when Kilarc-Cow was decommissioned, the avoided carbon emissions of the project would have been higher.

Imagine, however, the regulator's logic being extended to the myriad other issues which arise in the context of hydroelectric licensing, from recreation, to fish passage, to the effect on irrigation, to the preservation of historic landmarks. The entirety of the project's negative *and* positive effects could have been said to be *de minimus* because the project impacts only a small area which has no endemic species or particularly unique features. Yet the project's effects on biological and cultural resources received, throughout the Kilarc-Cow Creek EIS, a detailed, flyspeck analysis that includes many lengthy discussions of the optimal water temperatures for various non-endangered fish species and the amount of stocking of these species that has occurred for recreation. Were one to have extended the *de minimus* excusal that is the centerpiece of the regulator's analysis on carbon emissions to this substance, it would have been just as easy to conclude: Go protect the fish elsewhere.

In reading the EIS thoroughly, it becomes obvious that the regulator failed to engage in a cost-benefit analysis that considered the trade-offs between the positive and negative effects of the project. The regulator made no effort to calculate the value to consumers of avoiding replacement generation or the value of the positive environmental benefits the project created. In doing so, despite the EIS's page count, the regulator could not have made an educated guess about the trade-offs of the various alternatives the EIS considered, which included one to preserve the project's powerhouse for a future licensee's use.

To be clear, we are not necessarily arguing that FERC should have relicensed the Kilarc-Cow Creek project. Instead, we merely submit that a utility's preemptive decision to surrender the license is indicative of how

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The annual production of Kilarc-Cow was reported in a trade press account of the project's decommissioning. *Final FERC EIS endorses removal of 4.6-MW Kilarc-Cow Creek*, <http://www.hydroworld.com/articles/2011/08/final-ferc-eis-endorses-removal-of-4-6-mw-kilarc-cow-creek.html> (Aug. 25, 2011). The comparison estimate for vehicles derives from the EPA's estimate of an average annual carbon-emissions of a passenger vehicle. Env'tl. Protection Agency, *Greenhouse Gas Emissions from a Typical Passenger Vehicle*, <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle-0> (last visited Feb. 9, 2018).

poorly the process works. It likely disadvantages members of the public such as the grandfather who reminisced about fishing access—people that the U.S. Department of Energy euphemistically labels “non-technical stakeholders” in its review of hydroelectric licensing.<sup>75</sup> The hydroelectric regulatory process may also lose sight of the public interest as a whole, with respect to carbon-dioxide emissions, in favor of interest groups that purport to represent the public, but who may merely represent a narrower interest.<sup>76</sup> Similarly, the Kilarc-Cow Creek case study is a fine example of NEPA’s implementation flaws, where the EIS is a document which silos individual aspects of the project’s positive and negative effects, not effectively engaging in any economic analysis to trade them off against one another. It also focuses laser-like on some effects, while essentially ignoring others. The EIS, as a whole, is a testament to the institutional subjectivity of a regulator who possesses an overly broad mandate to consider “the public interest,” where, ironically, the whole goes largely unconsidered because of institutional preferences to focus on certain effects over others.

*C. When the ‘Public Interest’ Isn’t the Public’s Interest*

Kilarc-Cow Creek is not the only example of a licensing process which loses sight of the big picture. In February 2017, Oroville Dam’s spillway catastrophically ruptured in the wake of significant rainfall in California, water spilled over the top of the project’s weir, and an emergency spillway had to be used for the first time since the project’s construction five decades before.<sup>77</sup> While the events unfolded over several days’ time, the threat of the spillway eroding or collapsing led to the risk

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75. U.S. Dep’t. of Energy, *supra* note 56, at 387.

76. *Supra* note 71 (for the public comment this observation alludes to); *supra* note 69 (for the letter to FERC, which indicated that PG&E’s agreement to pre-emptively and voluntarily surrender its license had only two non-governmental, public groups, which were Trout Unlimited and Friends of the River).

77. Independent Forensic Team Report: Oroville Dam Spillway Incident 9 (Jan. 5, 2018) [https://damsafety.org/sites/default/files/files/\\_Independent%20Forensic%20Team%20Report%20Final%2001-05-18.pdf](https://damsafety.org/sites/default/files/files/_Independent%20Forensic%20Team%20Report%20Final%2001-05-18.pdf).

of an enormous flood. Authorities ordered an evacuation of the area downriver, inhabited by 188,000 people.<sup>78</sup>

Oroville's license expired more than a decade ago, in January 2007, and the project has been in limbo ever since, subject to periodic, temporary renewals. This is despite the fact that a final settlement agreement was signed by 51 different institutional stakeholders, a veritable playground of special interests from bicyclists, to canoers, to horseback riders, to environmentalists, to the Rotary Club, and the U.S. Department of Interior.<sup>79</sup> The project's relicensing website even has videos showing the fanfare of the March 2006 celebratory signing ceremony.<sup>80</sup> Despite an EIS having been completed in the same year as the settlement agreement, the project's relicense has remained pending due to other federal agencies' lackadaisical work flow, including a biological opinion from the NMFS, a 439-page opus that was released only in December 2016.<sup>81</sup> The license continues to await final federal approval. Like other settlements and licensing orders, the still-pending settlement agreement for the relicense is a hodgepodge of conditions representing the interests of those agreeing to settlement, whose interests may not necessarily be synonymous with a perspective on the whole of the public interest. It is noteworthy, given the recent events at Oroville Dam, that the settlement contains more detail in its discussion of the four waterfowl brood ponds, which are to be a condition of the license, than it does on the new requirement for an "early warning system" to coordinate the assortment of federal agencies and

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78. Tony Bizjak, *Mass chaos of Oroville evacuation prompts worry over exit strategy*, Sacramento Bee (Feb. 18, 2017), <http://www.sacbee.com/news/local/transportation/back-seat-driver/article133485154.html>.

79. Cal. Dep't. of Water Res., *Final Settlement Agreement* (Mar. 21, 2006), [http://www.water.ca.gov/orovillerelicing/settlement\\_agreement.cfm](http://www.water.ca.gov/orovillereicensing/settlement_agreement.cfm).

80. *Id.*

81. US DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, *Oroville Facilities Biological Opinion* (Dec 5, 2016), available at [http://www.water.ca.gov/hlpco/docs/2017/20161205\\_NMFS\\_P2100\\_Aquatic%20Biological%20Opinion.pdf](http://www.water.ca.gov/hlpco/docs/2017/20161205_NMFS_P2100_Aquatic%20Biological%20Opinion.pdf).

emergency responders “before and during flood emergency events.”<sup>82</sup> Unlike the meticulous detail it specifies for other conditions, the settlement calls for the details of the early warning system to be worked out later—one year after the license’s issuance.<sup>83</sup> Since the license has been pending for 11 years, it apparently has never been consummated.

The whole process is even more surreal when one considers that the licensee is not a private party, but the State of California. One would think the state sovereign would be capable of representing the public interest on its own, and yet oddly, its license is a vehicle for rent-seeking within a federal process. While FERC has a rigorous dam safety regime, and its response to the Oroville near-catastrophe has been commendable, the dam’s licensing saga is another notable example of a process that loses sight of truly important features of the project’s most significant public impacts. The dawdling approach to the relicense freezes many improvements in the pendency of a long regulatory proceeding.

In balancing the many interests present within the licensing process, the regulator has an assortment of federal law to look to. For example, the ESA places an almost incalculably high value on the preservation of listed species. It would not be lawful for a regulator, on its own authority, to countermand a listing decision made (by another regulator) pursuant to this statute. Elsewhere, the mandate for “the public interest” is vague. How, for example, to calculate the social value of recreational opportunities, which feature prominently in many hydro licenses? Problematically, FERC has not created any real metric for this style of regulation, instead relying on stakeholders merely to raise their hand in order to extract a condition.

Montana’s Mystic Dam, for example, is required by a U.S. Forest Service licensing condition to establish a “whitewater flow plan to

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82. Settlement Agreement for Licensing of the Oroville Facilities, FERC Project No. 2100 (March 2006), *available at* [http://www.water.ca.gov/orovillereicensing/settlement\\_agreement.cfm](http://www.water.ca.gov/orovillereicensing/settlement_agreement.cfm) (Compare pp. A36-37 (waterfowl brood ponds) to A41-42 (early warning system).

83. *Id.*

improve whitewater boating opportunities.”<sup>84</sup> FERC’s order does not describe why such a condition is in the public interest. Yet, the tacit premise appears to be that the condition restores a recreational opportunity that kayakers would have availed themselves of had a dam not been constructed in 1925 and had kayaking been an undertaking enjoyed during the turn of the last century. The resulting plan for whitewater release is highly convoluted: the licensee measures downstream flows in cubic-feet per second (cfs) on Wednesday at noon and if the flow is between 286 and 400 cfs, the licensee will “endeavor to release” 500 cfs for five hours on the following Saturday and Sunday, *except* if inflows are rapidly decreasing at an upstream gauge, in which event it will do so only on Saturdays, *but* if flows are between 250 and 285 cfs, the flows will also be limited to Saturday *unless* the upstream flows are lower than 250 cfs, in which event there will be no release at all, *which is also the case* if the flows reported downstream are greater than 400 cfs.<sup>85</sup> It is, the reader will observe, rather precise—but the same cannot be said of the decision to include this requirement in the first place. As with the Kilarc-Cow Creek Project, the licensing order does not even attempt to engage in cost-benefit analysis to reason whether the foregone, emissions-free power generation is worth more, or less, than whatever the whitewater benefits may be.

Perhaps unlike certain biological requirements that may be truly an issue of the commons, one should assume there is a particularized compensable value to recreational and certain other interests. In other words, what would these whitewater kayakers be willing to pay? In such circumstances, even if the eventual service is going to be subsidized to some degree by a hydroelectric licensee, it seems reasonable to attempt to test the market for a willingness to pay rather than putting a regulator in a position of having to hypothesize the demand for these services and their

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84. *Order Issuing New License*, Project No. 2301-022, 9 (Dec. 17, 2007) 121 F.E.R.C. ¶ 62,198, p. 9 (This condition was imposed by the U.S. Forest Service’s authority to impose conditions which FERC must adopt, under § 4(e) of the Federal Power Act.).

85. NorthWestern Energy, *Protocol for West Rosebud Creek Whitewater Flow Enhancement*, [http://www.mysticlakeproject/pdf\\_2015/mystic-whitewater-protocol-NWE.pdf](http://www.mysticlakeproject/pdf_2015/mystic-whitewater-protocol-NWE.pdf).

value to the user.

The next part of this paper discusses how the regulatory process could be streamlined and become less arbitrary. It suffices here to observe that there are inevitably trade-offs between positive and negative consequences of any particular hydroelectric project, just as there are with any piece of the energy industry. There are also trade-offs *between* pieces of the complex electric system; less supply from one project will be backfilled by another. Therefore, it is important to treat hydroelectric production to no greater, or lesser, scrutiny than other impactful parts of that industry receive.

As it exists today, FERC and its sister agencies' regulation is a nitpicky style of central planning, subsuming each small detail of a project's existence. This amoebic regulation may purport to balance divergent interests, but on close examination, such an undertaking is really a series of blind guesses in the absence of a clear price signal that values each aspect of the trade-offs. In economic terms, "there is no objective basis for balancing off distributive benefits against allocative costs."<sup>86</sup> This is a recipe for subjective decision-making—albeit, thanks to the EIS page count, it wears a veneer of documentation.

Both regulators and policymakers should more clearly articulate what "the public interest" entails in terms of the granularity of regulatory consideration. Should it entail the preservation of a species? Yes. Should it entail making sure the water is a few degrees colder so that a species prevalent in other areas can overcome inter-species competition in this project's reservoir? Perhaps not. In this regard, procedural reforms that either streamline the regulatory approvals needed for certain projects, hasten the process, or extend the lifespan of the license are detailed in the next section. They would be welcome, albeit tacit, declarations that the public interest is not well served if transaction costs make smaller projects unviable. Likewise, as the final section of this paper details, statutory reforms should minimize transaction costs by imposing on regulatory

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86. Posner, *supra* note 59, at 44.

agencies, not licensees, requirements that the processes be more timely, as well as less subjective.

### III. REGULATORY SOLUTIONS

The difficulties associated with the hydroelectric licensing processes are notorious. They have become only more complex over time. In 1998, FERC and other federal agencies formed an Interagency Task Force to Improve Hydroelectric Licensing Processes (ITF).<sup>87</sup> The ITF recognized the need for more straightforward hydroelectric licensing, and issued a series of reports and recommendations in 2001.<sup>88</sup> Ultimately, the ITF resulted in the creation of FERC's current default licensing process, the ILP, which as previously discussed, is still lengthy and burdensome to applicants. It is apparent that more improvements are necessary. While major changes will be necessary to prompt significant improvement in the efficiency of the process, certain smaller changes can be achieved now, to more immediate effect.

In 2017, the President issued the Executive Order on Promoting Energy Independence and Economic Growth, which recognizes that it is in the national interest to promote development of energy resources, including electricity derived from flowing water.<sup>89</sup> The Executive Order called on federal agencies, including FERC, to identify existing regulations that potentially burden the development and use of domestic energy resources.<sup>90</sup> In response, FERC recently issued a report whereby it identified three areas where "material burdens" may exist for applicants

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87. *Interagency Task Force*, Fed. Energy Regulatory Comm'n. (Jun. 28, 2010), available at <https://www.ferc.gov/industries/hydropower/indus-act/itf.asp>.

88. *Id.*

89. Presidential Exec. Order on Promoting Energy Independence and Economic Growth, Exec. Order No. 13,783 (2017) available at <https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/>.

90. *Id.*

seeking a hydroelectric license.<sup>91</sup> These include the licensing process, exemption process, and determinations on deficient applications.<sup>92</sup> FERC also proposed possible solutions. In addition to the solutions proposed by FERC in its report, collaboration and delegation within the licensing process and conditioned licensing offer additional opportunities for increased efficiency.

#### A. Streamlining FERC's Licensing Process

In its report, FERC asserted that eliminating the need to seek permission prior to pursuing the TLP or ALP may save time and reduce costs to applicants.<sup>93</sup> Allowing applicants to pursue the licensing processes that best fits their specific situation, whether that be the TLP or ALP, without seeking FERC's approval first, is a small change, but a step in the right direction. FERC should also consider the necessity of having three separate licensing processes in the first place. None of the processes are particularly streamlined, including the default ILP, which was meant to alleviate concerns regarding the burdensome nature of licensing. Choosing between the three processes only increases confusion on the part of applicants, and forces applicants to weigh the potential costs of attempting to pursue one process over another. Ideally, a single, streamlined process would exist. That is perhaps easier said than done, however, and in the absence of such a process, allowing applicants to freely pursue the most appropriate process, without the additional procedure of seeking FERC's blessing, would be beneficial.

FERC also proposed making optional the draft license application or preliminary licensing proposal.<sup>94</sup> A draft application must respond "to any comments and recommendations made by any resource agency and

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91. *Review of Federal Energy Regulatory Commission Agency Actions Pursuant to Executive Order 13,783, Promoting Energy Independence and Economic Growth*, 82 Fed. Reg. 50,517 (Nov. 1, 2017).

92. *Id.* at 50,519.

93. *Id.*

94. *Id.*

Indian tribe either during the first stage of consultation,<sup>95</sup> or to any requests for studies or information that are made after the first stage of consultation.<sup>96</sup> A preliminary licensing proposal describes the project, describes the operation and maintenance plans, and includes a draft environmental analysis.<sup>97</sup> Releasing applicants from the obligation to provide either a draft license application or a preliminary licensing proposal would certainly help an applicant cut through the licensing morass. However, there are a few reasons why this proposal would not be as beneficial to applicants as it may appear. First, there is already a provision which allows for an applicant to receive a waiver of the draft license application or preliminary licensing proposal requirement.<sup>98</sup> Removing the need to seek the waiver does relieve some burden. Yet, making the draft license application or preliminary licensing proposal optional only defers inevitable conflict. Additionally, FERC suggested that the ILP may be burdensome in terms of the schedule established for the pre-filing process.<sup>99</sup> Its proposed solution is to reduce certain timeframes, including the time frame in which an applicant must file a revised study plan, for example.<sup>100</sup> Such a change would hardly relieve burden on the applicant. The time frames that should be shortened are the timeframes for stakeholders to submit comments, which FERC does suggest.<sup>101</sup> Only then will the burden on the applicant be relieved. The applicant's obligations are already so numerous that forcing applicants to adhere to stricter timeframes does not provide relief. In addition, the time saving that results from shortening some timeframes in the ILP is a mere three months. For a process that currently takes years, three months are negligible.

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95. 18 C.F.R. § 4.38(c)(4)(i).

96. 18 C.F.R. § 4.38(c)(ii).

97. 18 C.F.R. § 5.16 (2017).

98. 18 C.F.R. § 5.16(f).

99. *Review of Federal Energy Regulatory Commission Agency Actions Pursuant to Executive Order 13,783, Promoting Energy Independence and Economic Growth*, 82 Fed. Reg. 50,517 at 50,519.

100. *Id.*

101. *Id.*

Current licensing practice is to set a thirty-year license term, even when there is little redevelopment, construction, or environmental mitigation and enhancement.<sup>102</sup> Pursuant to the FPA, FERC can issue a hydroelectric license “for a period not exceeding fifty years.”<sup>103</sup> FERC should immediately begin issuing licenses for no less than 50 years. This change in policy is easily implemented and will result in enormous positive impact for applicants. Reducing the frequency of relicensing, a process which, as discussed, is extremely convoluted and slow, will provide one of the most tangible improvements from the applicant’s perspective.

Minimum applicant filing requirements is another area where FERC identified a burden that could be reduced. Presently, FERC regulations allow for a less grueling licensing process for small water projects with 5 megawatts (MW) or less installed capacity.<sup>104</sup> Projects with an installed capacity of greater than 5 MW are subject to more requirements and a more complex process.<sup>105</sup> FERC asserted that this 5 MW distinction was the result of the Public Utility Regulatory Policies Act (PURPA), which was implemented in part to encourage hydroelectric power production at existing small dams.<sup>106</sup> PURPA mandates “simple and expeditious licensing procedures . . . for small hydroelectric power projects in connection with existing dams.”<sup>107</sup> PURPA called for exemptions from licensing requirements for small hydroelectric power projects with an installed capacity of 5 MW or less.<sup>108</sup> However, PURPA was amended and now a small water project is one with an installed capacity of 10 MW or less.<sup>109</sup> FERC posits that updating its regulations to treat a 5-10 MW project the same as a 5 MW or less project could alleviate

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102. *Id.* at 50,520.

103. 16 U.S.C. § 799 (2012).

104. 18 C.F.R. §§ 4.60-4.61 (2017).

105. 18 C.F.R. §§ 4.40-4.41 (2017); 18 C.F.R. §§ 4.50-4.51 (2017).

106. 16 U.S.C. § 2701.

107. 16 U.S.C. § 2705(a).

108. Pub. L. 96-294, title IV, § 408(b).

109. 16 U.S.C. § 2705(d); *Review of Federal Energy Regulatory Commission Agency Actions Pursuant to Executive Order 13,783, Promoting Energy Independence and Economic Growth*, 82 Fed. Reg. 50,517.

burden on applicants. This is an obviously reasonable reform. Smaller, less impactful projects should not be subject to the same licensing process and requirements as large projects which have a greater impact on the surrounding environment and communities. Subjecting small projects to extensive processes is inefficient and unnecessary. The process should be tailored to fit the size and potential impact of the project. FERC's regulations should be updated to reflect the amendment of PURPA.

*B. Increasing Availability of Exemptions and Second Chances*

Regarding the exemption process, FERC has identified the requirement that a project add new capacity in order to qualify for an exemption as a potential burden.<sup>110</sup> Specifically, FERC had previously determined that to qualify for a particular license exemption, a project must be one “in which capacity will be installed or increased” to a “total installed capacity of not more than 10 MW.”<sup>111</sup> FERC proposes revising the regulations to remove the requirement of installing or increasing capacity to be eligible for this particular exemption. FERC should do this and more. Increasing the availability of exemptions, and making it easier to seek and obtain them, will also aid in ending the one-size-fits-all approach to licensing. Certain projects, specifically those that are smaller or unlikely to have a significant impact, should be granted exemptions. The requirement to add new capacity is arbitrary and results in excluding otherwise appropriate projects from exemptions. In many cases a faster, simpler process with minimal participation from other entities is appropriate. Such a process especially makes sense when seeking to relicense. In such situations, stakeholders likely had the opportunity to weigh in earlier. Exemptions can help ensure that the process fits the project. Additionally, FERC has suggested allowing dismissed exemption applications to be converted into an application for a license, eliminating extra work on the part of the applicant.<sup>112</sup> This proposal is an obvious and

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110. *Id.*

111. 18 C.F.R. § 4.30(b)(31); see also 18 C.F.R. § 4.103 (2017).

112. 82 Fed. Reg. 50,517.

easy solution. Along those same lines, when it comes to deficient applications, FERC has raised the possibility of changing the regulations that prevent an applicant from refiling a rejected application.<sup>113</sup> If an applicant corrects deficiencies, refiling should be permitted. Likewise, to be relicensed, applicants must follow specific requirements, and failure to do so results in a rejected application that cannot be refilled.<sup>114</sup> Such a situation represents a disastrous turn of events for a project attempting to obtain a subsequent license. Applicants undergoing the relicensing process should be permitted to correct deficiencies. The consequences of an existing hydroelectric resource being unable to correct an application for a subsequent license far outweigh the fault of making a mistake in the application.

*C. Collaboration, Delegation, and the Promise of Conditioned Licenses*

Increasing regulatory efficiencies would be easier if FERC acted as the sole authority in matters of hydroelectric licensing. However, as we know from statutory law and case law, this is not the reality. Multiple federal agencies now wield considerable influence in the process. Rather than serving in a mere advisory role, certain agencies, pursuant to laws discussed above, are empowered to impose mandatory conditions. Therefore, no improvements can be made without the cooperation of these agencies. Some progress on this front has already occurred. FERC has entered into a number of memoranda of understanding (MOU) with other entities, which aim to improve teamwork and process efficiency.<sup>115</sup> One MOU, executed in 2016 between FERC and the Army Corps of Engineers, is intended to streamline the process required to authorize hydroelectric

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113. *Id.* at 50,519–20.

114. 18 C.F.R. § 16.9(b)(4) (2017).

115. FEDERAL ENERGY REGULATORY COMMISSION, *Memoranda of Understanding* (Apr. 10, 2017), <https://www.ferc.gov/legal/mou.asp> (last visited Feb. 4, 2018).

development at Corps dams.<sup>116</sup> MOUs between FERC and federal resource agencies, especially the ones empowered to place conditions on licenses, could increase early and effective cooperation, which potentially results in an easier and faster process. As discussed, states, largely due to the CWA, are also powerful stakeholders in licensing of dams. An MOU between FERC and the California State Water Resources Control Board coordinates pre-application activities, such as consultation, environmental scoping, study planning, and commenting on the applicant's preliminary licensing proposal for proposed hydroelectric projects.<sup>117</sup> The consultation requirements, environmental scoping, and studies are perhaps the largest impediments to an efficient licensing process. It is encouraging that this MOU addresses these problem areas in the process. FERC has also entered into an MOU with the State of Colorado, to simplify the authorization of small scale hydroelectric projects.<sup>118</sup> The MOU delegates certain tasks to the state, including prescreening projects for eligibility, and consulting with federal and state agencies, tribes, and the public.<sup>119</sup> Further delegation of authority to states may be a viable method of increasing the efficiency of the licensing process. States are more aware of local attitudes toward hydroelectric development.<sup>120</sup> States typically

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116. FED. ENERGY REGULATORY COMM'N, *Memorandum of Understanding between United States Army Corp of Engineers and Federal Energy Regulatory Commission on Non-Federal Hydropower Projects* (July 21, 2016), available at <https://www.ferc.gov/legal/mou/2016/07-21-16.pdf>.

117. FED. ENERGY REGULATORY COMM'N, *Memorandum of Understanding between the Federal Energy Regulatory Commission and the California State Water Resources Control Board Concerning Coordination of Pre-Application Activities for Non-Federal Hydropower Proposals in California* (Nov. 2013), available at <https://www.ferc.gov/legal/mou/mou-caswb-11-2013.pdf>.

118. FED. ENERGY REGULATORY COMM'N, *Memorandum of Understanding between Federal Energy Regulatory Commission and the State of Colorado Through the Governor's Energy Office to Streamline and Simplify the Authorization of Small Scale Hydropower Projects* (Aug. 24, 2010), available at <https://www.ferc.gov/legal/mou/mou-co.pdf>.

119. *Id.*

120. Gina S. Warren, *Hydropower: It's a Small World After All*, 91 NEB. L. REV. 925, 976 (2013).

have a better handle on local environmental conditions.<sup>121</sup> States may also be less cumbersome than the federal government and can implement policies faster.<sup>122</sup> A possible solution, one which furthers the objective of abolishing the one-size-fits-all approach to licensing, is simply to cede authority for the regulation of small hydroelectric projects entirely to the states.<sup>123</sup> Recalling the history of hydroelectric regulation, the federal government consolidated the federal preemption of hydroelectric regulation with the FWPA and the subsequent FPA.<sup>124</sup> The environmental legislation of the 1970s served to decentralize FERC's authority over hydroelectric regulation, spreading it out amongst other federal agencies, as well as states. Perhaps, in the name of a more case specific and less arduous licensing process, this trend should continue full circle with significant regulatory authority granted to the states.

Conditioned licenses are another highly effective way in which to improve process efficiency. In 2007, FERC issued a Policy Statement on Conditioned Licenses for Hydrokinetic Projects.<sup>125</sup> Essentially, FERC can issue a license once it has completed its processing of license applications, but while actions required of other entities are still pending.<sup>126</sup> Ideally, this policy should apply to all hydroelectric licenses. This would entirely remove the need to begin the protracted licensing process years ahead of the application deadline. Rather, the process of working with stakeholders could continue, while the process over which FERC has control could be completed more efficiently. It would also be advantageous for applicants and other entities to reach agreements amongst themselves, without the need of involving FERC at all. FERC's expertise does not include cultural resources or recreation. There is no reason for FERC to serve in a capacity

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121. *Id.*

122. *Id.*

123. George William Sherk, *Approaching a Gordian Knot: The Ongoing State/Federal Conflict over Hydropower*, 31 LAND & WATER L. REV., 1996, at 377-78.

124. Pinchot, *supra* note 5, at 19-20.

125. Fed. Energy Regulatory Comm'n, *Policy Statement on Conditioned Licenses for Hydrokinetic Projects* (Nov. 30, 2007), available at <https://www.ferc.gov/EventCalendar/Files/20071130153255-PL08-1-000.pdf>.

126. *Id.*

to enforce such agreements between the applicant and private interests. Such agreements should be excluded from the formal licensing process entirely, and should not take the form of conditions on FERC issued licenses. MOUs could accomplish the same goals much more efficiently in a manner far more rational.

On the other hand, as long as other agencies and private interests remain vital parts of hydroelectric licensing, the licensing processes themselves need improvement. The ALP and ILP clearly signify attempts by FERC to encourage collaboration between the masses of interested parties involved in hydroelectric licensing. They also represent an understanding by FERC that applicants, and the innumerable stakeholders, often cannot be left to their own devices. These processes represent an evolution over time from FERC as the expert evaluator of a license application, to becoming an entity tasked with guiding a group of demanding parties with potentially contradictory interests through a long, thorny process. FERC has signaled its preference that parties simply work things out amongst themselves.<sup>127</sup> However, the ALP, the most collaborative of the three processes, is not the default process; rather, the ILP is the default. As discussed above, the ILP only contemplates dispute resolution of study disputes, leaving many potential disputes with no alternative resolution mechanism to employ. Furthermore, in the ILP, rather than forcing parties to reach agreements, FERC essentially resolves disputes by, for example, formally approving study plans and serving as a binding arbitrator in cases of study disputes.<sup>128</sup> The ILP's attempt to reach a speedy resolution is simply the imposition of strict deadlines for everyone involved, which does not allow the necessary time to engage in settlement discussions. Conversely, the ALP's lack of formal decisions by FERC along the way, absence of binding dispute resolution, and nonexistence of strict deadlines means the process can be stretched even beyond the expected duration. Such an outcome may negate any of the

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127. Fed. Energy Regulatory Comm'n, *Policy Statement on Hydropower Licensing Settlements* (Sept. 21, 2006), available at <https://www.ferc.gov/whats-new/comm-meet/092106/H-1.pdf>.

128. 18 C.F.R. § 5.14.

benefits of cooperation and consensus that could be achieved. If FERC hydroelectric licensing is going to remain inundated by other agencies and private interests, a process that combines some of the structure of the ILP with the collaboration of the ALP would likely be the more effective. However, the best approach would be to reduce the power of other federal agencies and remove stakeholder interests as rent-seekers from the formal licensing process, which would allow a return to the simplicity of the TLP of earlier generations. There are a number of improvements to hydroelectric licensing that are within FERC's discretion that can be implemented relatively easily. Unfortunately, for larger improvements, such as the reduction in authority granted to other federal agencies, statutory changes will be required.

#### IV. STATUTORY SOLUTIONS

There are three goals toward which statutory reform should aim:

1. *Promoting efficiency as a goal of licensure regulation.* Congress should ensure that, in the regulatory process, the federal government acts more as a singular regulator for the purpose of licensing, cooperating within itself and doing so on a timely basis.
2. *Creating institutional checks against the subjectivity of licensure regulation.* Congress should curtail the power of resource agencies to unilaterally create conditions, promote a meaningful consideration of trade-offs within licensure analysis, and encourage private parties' assumption of responsibilities for compensable activities entailed by a public-interest consideration.
3. *Exemptions from the standard licensing process.* Congress should make a policy judgment that certain projects are likely to categorically deliver benefits net of costs or have *de minimus* impacts, and are therefore unsuited to the rigor and associated transaction costs of the intensive *status quo* of hydroelectric licensing regulation.

*A. Promoting Efficiency in Licensure Regulation*

Both economics and environmental concerns generally should promote the retention of existing, clean generation over newly capitalized, fossil-fuel burning generation. Yet, hydroelectric licensing process is second only to nuclear licensing in terms of the length and cost of the regulatory process attached to it. Randy Howard, the general manager of the Northern California Power Agency (NCPA), which serves publicly owned utilities, notes that hydroelectric projects now compare unfavorably to natural-gas-fired generating plants. For NCPA's existing 259-megawatt North Fork Stanislaus River project, Howard expects that "relicensing the project will take thousands of internal labor hours, a minimum of 10 years, and [a] cost exceeding \$50 million."<sup>129</sup> If one assumes that this \$50 million is evenly distributed throughout that decade, the total cost of this capital is tens of millions of dollars greater yet.<sup>130</sup> Because the investment is a re-license, it would not be offset by any incremental gains in production at the project. It is capital invested without the expectation of a return, apart from, the operator hopes, a preservation of the status quo. Even then, because many licensing conditions end up decreasing the production of a facility, re-licensing a facility is akin to investing capital for the sake of a negative marginal return. For those interested in *new* hydroelectric projects, the lack of a return on investment within a decade, together with the uncertainty about the project's eventual licensing conditions, would kill many projects in the due diligence phase. As the adage holds, time is money, and this is especially true for the capital-intensive power industry. A regulatory

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129. Randy Howard, General Manager, Northern California Power Agency, Address at the House Natural Res. Subcommittee on Water, Power and Oceans, (May 3, 2017), *available at* <https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=401856>.

130. For example, assuming a 7% cost of capital, an initial outlay of \$5 million followed by another \$5 million in each of the succeeding nine years—for a total \$50 million investment—has a total cost of \$82.6 million.

process that lasts a decade can be understood to be a categorical failure.

FERC itself, like many others, has observed that, “The most effective way to reduce the cost and time of obtaining a hydroelectric license would be for Congress to make legislative changes necessary to restore the Commission’s position as the sole federal decisional authority for licensing conditions and processes.”<sup>131</sup> Such a reform should be at the heart of any legislative proposal to reform hydroelectric licensing.

Since the passage of the FPA, which gave FERC the authority to issue hydroelectric power licenses to non-federal actors, what had been conceived of as a one-stop shop has evolved into a leviathan of multiple agencies. Rather than streamlining those agencies’ advice into a unified regulatory process, the process as it practically exists is highly balkanized. Indeed, the primary cause of delay in the licensing process is not the regulator with the ostensible responsibility to issue the license—FERC—but instead other government agencies that have a legal duty to evaluate the project but lack accountability over their share of the regulatory process.<sup>132</sup>

FERC, as the issuer of the license, should have the ultimate accountability, and thus responsibility, for seeing this process to a transparent, efficient conclusion that affords due process to the applicant. In order to accomplish this, FERC should be given the authority to impose mandatory schedules on its sister agencies who have only an adjunct role in licensure.

The most recent statutory reform proposal would do just that. Under the bipartisan omnibus energy bill that the leading Republican and Democrat on the U.S. Senate’s Energy and Natural Resource Committee have been working on for multiple sessions, FERC would “act as the lead

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131. Devin Hartman and Tom Russo, *Ebbing the Flow of Hydropower Red Tape*, *R Street Policy Study No. 105* (Aug. 2017), <http://www.rstreet.org/policy-study/ebbing-the-flow-of-hydropower-red-tape/> (citing *Report on Hydroelectric Licensing Policies, Procedures, and Regulations*, Fed. Energy Regulatory Comm’n (2001)).

132. Hartman and Russo identify water-quality certifications under CWA and biological opinions pursuant to the ESA as “the worst culprits.” *Id.* at 5.

agency for the purposes of coordination of all applicable Federal authorizations” and for the purpose of complying with NEPA.<sup>133</sup> While the legislative text is not particularly commanding—FERC “shall issue a rule establishing a process for setting a schedule”<sup>134</sup>—Sen. Lisa Murkowski and Sen. Maria Cantwell’s reforms would be the first significant action in many years to stand as a congressional mandate for cooperation, and its value should not be understated.<sup>135</sup> The draft legislation would require FERC to issue a scheduling order unique to each application, which would be binding upon FERC itself and also other agencies, the applicant, and stakeholders engaged in the process.<sup>136</sup> If a sister agency nonetheless did not follow the FERC-issued deadline, FERC could refer the matter to the presidential Office of Management and Budget for resolution.<sup>137</sup>

#### *B. Creating Institutional Checks Against Regulatory Subjectivity*

There are structural reforms that go beyond mere timeliness, however, which are necessary to ensure an appropriate regulatory process that does not unduly disadvantage hydropower among rival sources of electricity. As we have explained above, the current regulatory process merely purports to engage in a process of economic evaluation the trade-offs of an individual project’s benefits and costs, while falling short of actually doing so. Perhaps the main problem here is that multiple agencies—each with their own institutional interests and subjective lens of review—are all able to impose mandatory conditions on a licensee. The result is a process which easily loses sight of the whole of the public interest, as the case studies above serve to demonstrate.

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133. Energy and Natural Resources Act of 2017, S. 1460, § 3001 (July 2017) <https://www.congress.gov/bill/115th-congress/senate-bill/1460/text>.

134. *Id.*

135. U.S. Senate Comm. on Energy and Natural Res., *Senators Murkowski and Cantwell Introduce Broad, Bipartisan Energy and Natural Resources Bill* (June 29, 2017), <https://www.energy.senate.gov/public/index.cfm/2017/6/senators-murkowski-and-cantwell-introduce>.

136. *Id.*

137. *Id.*

The U.S. Forest Service, the FWS, and the NMFS should all be limited to an advisory role, issuing opinions that guide a singular regulator's deliberation—namely, FERC's. The current process, codified as sections 4(e) and 16 of the FPA, is one which needlessly duplicates regulators and hamstrings an applicant's due process because it is seldom clear whether these agencies are acting as a stakeholder within FERC's licensing process, or as an adjudicator of mandatory licensing conditions. It is also the case that many aspects of a license that should likely be voluntary or reached through consensus are instead subject to a kind of bootstrapping, "me-too" regulation of the resource agencies; the Mystic Dam's whitewater requirement is one such example. One remedy for this would be to adopt a more adjudicatory approach in each agency venue, with more clearly defined roles and schedules. While such a reform could promote due process, it would have the deleterious effect of further siloing the process and do damage to an overall attempt to streamline licensure regulation.

Legislative proposals currently under consideration fall short of this reform. However, it is clear from their legislative text that the underlying problems are at least tacitly acknowledged. Senators Murkowski and Cantwell's proposal would require the Secretaries of Agriculture, Interior, and Commerce, or another high-ranking political appointee, to sign off on their respective resource agencies' mandatory license conditions.<sup>138</sup> The type of subjectivity identified earlier in this paper, we surmise, is in part the function of individual bureaucrats or groups of bureaucrats' predilections for certain narrow interests, permitted to them by an insular agency setting.<sup>139</sup> Requiring political accountability for license requirements at a higher level may cause the exercise of discretion to be more genuinely discretionary. Likewise, disaffected applicants under the draft legislation could rely on "trial-type hearings" to dispute a particular license condition, although the administrative law

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138. *Id.*

139. Here, we rely on our collective experience serving in such bureaucracies.

judge (ALJ) presiding over this process would be statutorily restrained from finding that “any condition or prescription should be adopted, modified, or rejected”; the decision would be the relevant Secretary’s.<sup>140</sup> The ALJ’s opinion, in other words, would be essentially advisory in nature, at best scolding an agency for an over-the-top license condition.

Regulation in the name of “the public interest” is the high water mark of legislative delegation; “as the sole bounds of administrative decision-making, the standard is so capacious as to permit consideration of virtually anything that appears before the regulators or stakeholders.”<sup>141</sup> As we note above, it is a paradox that a concept so whole, so broad as the public interest could be derogated to a flyspeck analysis of small things, in a process which in practical terms lacks an analysis of trade-offs that NEPA purports to codify. Remedying this flaw is, in the main, an administrative and not a statutory undertaking. However, Congress could permit, as the Murkowski-Cantwell legislation would, FERC to undertake *regional* studies that would speak to multiple licenses within a particular basin, watershed, or river.<sup>142</sup> Such studies would inform on a more whole basis the trade-offs of hydropower, and could render moot a needless series of ad hoc studies undertaken for individual, similar projects. Likewise, a requirement imposed on *the regulator* to compile best practices in methodologies for the studies antecedent to licensure would provide a trustworthy benchmark for applicants and the consultants who undertake biological and other studies.<sup>143</sup> The way bureaucracies are staffed is another important consideration. Agencies are people, at the end of the day, and rotating staff between responsible agencies and even tying personnel performance reviews to a staff member’s willingness to be seconded to a sister regulator is an innovative proposal to erase siloing—in any case, it could not make matters any worse.<sup>144</sup> Again, it bears

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140. *Id.*

141. Travis Kavulla, *There is No Free Market for Electricity: Can There Ever Be?*, 131 AMERICAN AFFAIRS, Vol. 1, No. 2 (Summer 2017).

142. Energy and Natural Resources Act of 2017, S. 1460, § 3004 (July 2017).

143. *Id.* § 3001.

144. *Id.*

mentioning that these statutory enactments' practical success relies primarily on agencies, and thus it should be contrasted to a deeper reform that puts FERC in a position as the singular arbiter of licensure.

The hydroelectric licensing process will always be subjective because of its character as a central planning exercise orbiting around a vague mandate. Nevertheless, there are ways that stakeholders could be expected to better define the value of a condition to them. This would allow the regulator to insist that stakeholders extracting a condition put their money where their mouths are, rather than allowing them to simply claim a public good in the regulatory process and having it attached by fiat to the license. Consider again the case of Mystic Dam. The whitewater kayakers whose interest group obtained a license condition at Montana's West Rosebud Creek are said to not even make particularly frequent use of their federally authorized entitlement of whitewater flows manufactured by foregoing hydroelectric production and passing water through the dam.<sup>145</sup> Regardless of whether this is true, surely it is the case that the value of this kind of recreational licensing requirement exists as a function of its use. It should be considered, like water rights are in the Western United States, a usufructory right whose existence depends on its use and which balances against other uses. In this case, the *other* use is the foregone hydroelectric generation, which has a more measurable value thanks to the commodity market for electricity. In other words, there are two compensable interests in tension with one another. Both should be monetized, and the recreationalist interest should be severable from the hydroelectric licensee to allow a real test in the demand for, and concomitant willingness to pay for, recreational opportunities. The goal of such experiments would not necessarily be to extract revenue for the public coffers or for the hydroelectric licensee from recreationalists, but instead to measure demand for the recreational opportunity in question. Only then can a meaningful cost-benefit analysis of this trade-off occur. A good regulator should be equipped with the statutory power to both create such a concession, and to eliminate it and the underlying use if it

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145. Personal conversations of author.

goes unused or has a demonstrably insignificant value compared to alternative uses. The bottom line is that, in the hydroelectric licensing process, not everything should be an irrevocable entitlement because an accumulation of stakeholders does not, in itself, equal the public interest. Statutory reform should promote regulation's making visible the trade-offs inherent in hydroelectric licensing.

### *C. Exemptions From the Standard Licensing Process*

Finally, we have seen how even small projects, such as Kilarc-Cow Creek, can be overwhelmed by the transaction costs of the relicensing process. Congress should radically simplify the relicensing process for smaller dams. If there are obvious and exceptional problems with their continued operation, the kind of politically accountable objection described above could be made to require a more detailed process. In addition to making license renewal more simple, upgrades to power-generating equipment and changes in operation undertaken for environmental reasons should not be subject to extensive regulatory review.<sup>146</sup> To continue the status quo in this regard creates a perverse incentive where public interest regulation acts as an effective block against both economic efficiency and environmental interests. It would be strange indeed if hydroelectric licensing had transaction costs so significant that only large dams' licensees would see the economic value in aggressively pursuing their continued operation, even though it is these large impoundment dams that have engendered the greatest consternation among environmentalists.<sup>147</sup>

Likewise, Congress should make a policy judgment that certain new hydroelectric projects are likely to categorically deliver benefits net of costs or have *de minimus* impacts. These include existing

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146. This sets up a "shot clock" style statute for objections to such improvements that puts the onus on the regulator and stakeholders to raise valid objections. Energy and Natural Resources Act of 2017, S. 1460, § 3002 (July 2017).

147. MARK REISNER, *CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER* (1986).

impoundments or hydro infrastructure, where most environmental damage is a consequence of this structure's existence, and not the mere addition of hydroelectric generating unit. Already, previous reforms have led FERC to categorically exempt new licensees who fit certain qualifications, such as being installed on existing conduits or non-powered dams.<sup>148</sup> The projects that qualify for the existing exemptions are likely to be especially useful for the kind of balancing and ramping products, a greater need for which weather-dependent renewables have imposed on the electric grid. As is contemplated in the Murkowski-Cantwell legislation, Congress should also make it easier and quicker to obtain a license at non-powered dams.<sup>149</sup> It should also require better cooperation between FERC and the federal agencies which own and operate certain dams for the purpose of increasing hydroelectric production.<sup>150</sup>

It is, ultimately, up to Congress to make a policy judgment about whether hydroelectric power—a clean, often dispatchable source which has no fuel-price risk and adds diversity of supply to the power sector—should be over-regulated, as it is today, or whether to take steps that rationalize its regulation in the context of the wider economy for electric power.

## V. CONCLUSION

Hydroelectric licensing was meant to be rigorous, as the original congressional decision to vest it in a single, powerful federal regulator makes plain. It was not, however, meant to be arbitrary and self-defeating. Today, the United States has moved far away from the original structure of hydroelectric regulation, and not for the better. It is nearly impossible to find a regulatory process that is more time-consuming, less streamlined, or more muddled in its public-interest objectives. This has happened not

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148. Fed. Energy Regulatory Comm'n., *Small/Low-Impact Hydropower Projects*, (January 9, 2018), available at <https://www.ferc.gov/industries/hydropower/gen-info/licensing/small-low-impact/get-started/exemp-licens.asp>.

149. Energy and Natural Resources Act of 2017, S. 1460 § 3003 (July 2017).

150. *Id.* S. 1460 § 3007 (July 2017).

because hydroelectric licensing has been the particular object of congressional reform, in which case Congress might have simply added new requirements to the pre-existing central regulator. Instead, the hydroelectric industry has had the misfortune of being swept up in the expansive congressional enactments of the 1970s and '80s. Additionally, tied to nothing but its original statutory mandate of public-interest regulation, hydroelectric licensing lacks a unifying principle, and it is a hostage to the institutional subjectivity of administrative agencies. The administrative and statutory reform proposals that have been enacted in recent years are a comment on this broken system, and would incrementally improve the practice of regulation. However, they do not go far enough to remedy the problems of duplication and ambiguity that are at the core of a problem that causes regulation of this sector to be almost irredeemably arbitrary and dilatory.