Fall 2009

Tension Between Hydroelectric Energy's Benefits as a Renewable and its Detrimental Effects on Endangered Species

Janet M. Hager

Sustainable Development Law & Policy

Volume 10
Issue 1 *Fall 2009: Sustainable Development in the Courts*

Article 13

Tension Between Hydroelectric Energy's Benefits as a Renewable and its Detrimental Effects on Endangered Species

Janet M. Hager

Tension Between Hydroelectric Energy's Benefits as a Renewable and its Detrimental Effects on Endangered Species

*by Janet M. Hager**

Renewable energy has come to the forefront politically as one of the means of achieving energy independence, addressing the problem of climate change, and restoring the economy.[1] Although renewable energy sources will be a crucial tool in the fight against climate change, they often create other environmental problems.[2] A recent Ninth Circuit Court of Appeals decision, *National Wildlife Federation v. National Marine Fisheries Service*, exemplifies how one form of renewable energy, hydroelectric power, has been challenged by the environmental community for its detrimental effect on endangered fish species.[3] The case demonstrates that, as Congress moves to incentivize hydroelectric power, there may be a temptation for Congress to exploit a judicial loophole to make the Endangered Species Act ("ESA") inapplicable to dam operations.

Hydroelectric power is created by converting the kinetic energy of flowing water into electricity, typically through the release of river water held in a reservoir behind a dam through a turbine.[4] Although hydroelectric power is the most prevalent form of renewable electricity production in the United States,[5] currently only about three percent of America's dams have the capability to generate electricity.[6] In 2007, hydroelectric power constituted 5.8% of the net generation of electric power,[7] while all other forms of renewable energy combined were only 2.5% of the net generation of electric power.[8]

Hydroelectric power has garnered increasing political support as the nation's interest in clean energy has gained momentum. U.S. Department of Energy ("DOE") recently announced that it would dedicate up to thirty-two million dollars in funding received from the American Reinvestment and Recovery Act of 2009 to add new turbines and control technologies to existing non-federal hydroelectric power projects.[9] Additionally, the Act extends eligibility for the renewable energy production tax credit by three years.[10] Hydroelectric energy is also included as one of the qualified renewable energy sources that would count toward an electric utility's federal renewable electricity credit in federal global warming legislation currently under consideration.[11]

Although hydroelectric power has gained support politically, hydroelectric projects raise significant environmental concerns, such as frustration of fish migration and reduced oxygen levels in downstream water.[12] As a recent article in the Los Angeles Times dramatically explained: "The emerging boom in hydroelectric power pits two competing ecological perils against each other: widespread fish extinctions and a warming planet."[13] Fish mortality resulting from passage through turbines at hydroelectric facilities can be as much as 30%, although the use of the best existing turbines can reduce that to 5-10%.[14] Some of the affected fish, such as species of salmon and steelhead, are listed on the federal list of endangered or threatened species under the ESA.[15]

The ESA has provided a mechanism for challenges to hydroelectric power projects in the courts when an endangered or threatened species is put at risk by dam development

The ESA has provided a mechanism for challenges to hydroelectric power projects in the courts when an endangered or threatened species is put at risk by dam development. The seminal opinion by the Supreme Court of the United States in *Tennessee Valley Authority v. Hill* demonstrates that the ESA has the power to defeat a major construction project if necessary to save an endangered species.[16] In *Tennessee Valley Authority*, the Court enjoined the operation of the Tellico Dam, a project to which Congress had appropriated over one hundred million dollars, because of the potential risk to the survival of the endangered snail darter.[17] The authority for such a powerful result comes from the unequivocal language of section 7 of the ESA, which requires that each federal agency "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species . . . ."[18]

**Janet M. Hager is a J.D. Candidate, May 2010, at American University Washington College of Law.*

Similar to the decision of the Supreme Court in *Tennessee Valley Authority*, the recent opinion of the United States Court of Appeals of the Ninth Circuit in *National Wildlife Federation v. National Marine Fisheries Service* shows the power of the ESA to affect the development and operation of hydroelectric facilities. The National Wildlife Federation ("*NWF*") claimed that the National Marine Fisheries Service failed to adequately prepare a biological opinion ("BiOp") for the operations of the Federal Columbia River Power System dams.[19] At issue in *NWF* were various species of salmon and steelhead in the Columbia River that must migrate downstream through a series of dams.[20] The court determined that the 2004 BiOp issued by the National Marine Fisheries Service "contained structural flaws that rendered it incompatible with the ESA."[21]

One issue in *NWF* that will continue to be relevant in other actions against dam projects is whether the Congressional mandate of flood control, irrigation, and power production created a nondiscretionary duty.[22] Nondiscretionary duties of agencies need not meet the requirements of section 7 of the ESA.[23] In *NWF* the Ninth Circuit determined that, while the broad Congressional goals were mandatory, Congress did not mandate that the goals be accomplished in any particular way; thus the agency actions in implementing the goals were discretionary and subject to requirements of the ESA.[24] Thus, Congress could exempt the actions of an agency engaged in dam operations from the ESA by specifically dictating by statute the manner in which the agency is to carry out the construction and operation of the dam.[25]

As a result of the recent growing political interest in hydroelectric power, there will likely be a substantial increase in the nation's hydroelectric energy capacity.[26] Although Congress could facilitate its goal of increasing hydroelectric power by exempting the operation of hydroelectric facilities from the ESA, the better solution would be to mitigate the effects of hydroelectric facilities on fish populations with advanced technology.[27] The DOE's decision to incorporate the reduction of environmental impacts into its plan for the modernization of the nation's hydropower infrastructure lends hope that the DOE will make environmental mitigation a priority during the expansion of hydroelectric projects.[28]

Endnotes:

1 Organizing for America, New Energy for America, http://www.barackobama.com/issues/newenergy/index.php (last visited Oct. 20, 2009).
2 *See* U.S. Department of Energy, Advantages and Disadvantages of Hydropower, http://www1.eere.energy.gov/windandhydro/hydro_ad.html (last visited Oct. 20, 2009).
3 Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917 (9th Cir. 2008).
4 U.S. Department of Energy, How Hydropower Works, http://www1.eere.energy.gov/windandhydro/hydro_how.html (last visited Oct. 20, 2009); U.S. Department of Energy, Types of Hydropower Plants, http://www1.eere.energy.gov/windandhydro/hydro_plant_types.html (last visited Oct. 20, 2009).
5 Energy Information Administration, U.S. Department of Energy, Electric Power Annual 2007 2 (2007), *available at* http://www.eia.doe.gov/cneaf/electricity/epa/epa.pdf.
6 *Id.*
7 *Id.*
8 *Id.*
9 U.S. Department of Energy, Recovery Act Announcement: Obama Administration Announces up to $32 Million Initiative to Expand Hydropower (June 30, 2009), http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=195.
10 Internal Revenue Service, Energy Provisions of the American Recovery and Reinvestment Act of 2009, http://www.irs.gov/newsroom/article/0,,id=206871,00.html (last visited Oct. 20, 2009); World Resources Institute, *Renewable Energy Tax Credits*, Issue 4, The Bottom Line On . . . 1, *available at* http://pdf.wri.org/bottom_line_renewable_energy_tax_credits.pdf.
11 Pew Center on Global Climate Change, Pew Center Summary of H.R. 2454: American Clean Energy and Security Act of 2009 (Waxman-Markey) 4 (2009), *available at* http://www.pewclimate.org/docUploads/Waxman-Markey%20summary_FINAL_7.31.pdf.
12 U.S. Department of Energy, *supra* note 2.
13 Kim Murphy, *A Hydroelectric Future Faces a Fish Predicament,* Los Angeles Times, July 27, 2009, http://articles.latimes.com/2009/jul/27/nation/na-hydro-power27.
14 Idaho National Laboratories, Hydropower, http://hydropower.inel.gov/turbines (last visited Oct. 20, 2009).
15 U.S. Fish & Wildlife Service, Species Report, http://ecos.fws.gov/tess_public/SpeciesReport.do?groups=E&listingType=L&mapstatus=1 (last visited Oct. 20, 2009).
16 Tenn. Valley Auth. v. Hill, 437 U.S. 153, 173 (1978).
17 *Id.* at 172.
18 Endangered Species Act of 1973 § 7(a)(2), 16 U.S.C. § 1536(a)(2) (2008).
19 Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917, 922 (9th Cir. 2008).
20 *Id.* at 923.
21 *Id.* at 927.
22 *Id.* at 928.
23 Nat'l Ass'n of Home Builders v. Defenders of Wildlife, 551 U.S. 644, 673 (2007).
24 Nat'l Wildlife Fed'n, 524 F.3d at 928.
25 Clay R. Smith, *Salmon, Dams and the Endangered Species Act Jeopardy Standard*, Advocate, May 2009, at 23, 24.
26 *See* Murphy, *supra* note 13 (noting that the National Hydropower Association has set out to double the nation's capacity for hydroelectric energy by 2025).
27 *See* Idaho National Laboratories, *supra* note 14 (explaining the benefits of advanced turbine technology).
28 U.S. Department of Energy, *supra* note 9.