Subcommittee on Water and Power
Committee on Natural Resources
U.S. House of Representatives

Oversight Hearing on
"Hydropower: Providing 75% of America's Current Renewable Energy. Exploring its Role as a Continued Source of Clean, Renewable Energy for the Future"

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Chairwoman Napolitano, Ranking Member McMorris Rodgers, and Members of the Subcommittee, thank you for this the opportunity to testify on the present and future of hydropower.

I am Richard Roos-Collins. I am the Director of Legal Services for the Natural Heritage Institute (San Francisco), a public interest law firm which represents conservation groups and public agencies in efforts to resolve complex energy and water disputes for public benefit. I am Chairman of the Board of the Low Impact Hydropower Institute (Portland, ME), which certifies non-federal hydropower projects so as to provide market rewards for their exceeding regulatory requirements for environmental protection. And I am General Counsel to the Hydropower Reform Coalition (Washington, D.C.), a nationwide association of 140 groups (representing more than 1 million members) interested in the relicensing of non-federal hydropower projects to restore environmental quality consistent with reliable electricity generation.

Hydropower today provides an average of 96,000 megawatts of generation capacity. This consists of 42,000 megawatts at federal projects, and 54,000 megawatts owned and operated by non-federal licensees regulated by the Federal Energy Regulatory Commission (FERC). All told, hydropower is roughly 75% of all generation capacity which the DOE Energy Information Administration categorizes as renewable.

Hydropower capacity has not changed significantly in the past two decades. This oversight hearing allows us to focus on the future. Should hydropower capacity be increased as a deliberate strategy to meet growth in electricity demand and mitigate the climate change impacts of non-renewable generation?

My answer is: yes, done in a manner which will protect and enhance other beneficial uses of the affected waters. Rivers, estuaries and the oceans are public commons which have many beneficial uses. These include water supply, flood control, recreation, and fish and wildlife in addition to electricity generation. In the Federal Power Act of 1935, Congress required that each non-federal project must be best adapted to a comprehensive plan of development for all such beneficial uses. That bedrock principle is as vital today as 73 years ago. The laws authorizing federal hydropower projects contain similar requirements. I will

discuss the future of federal hydropower by first reporting lessons recently learned in non-federal hydropower.

Since the enactment of the Electric Consumers Protection Act (ECPA) in 1986, FERC has relicensed more than three hundred non-federal hydropower projects. As required by the 1935 Federal Power Act and ECPA, each new license must comply with current laws, including the Endangered Species Act and Clean Water Act. According to FERC's *Comprehensive Review and Recommendations Pursuant to Section 603 of the Energy Policy Act of 2000* (2001), the new licenses reduced the historical generation at these projects by 1.6% while increasing capacity by 4.1%. These changes resulted from new flow regulation conditions to enhance fisheries, recreation, and other non-developmental uses. These enhancements provide substantial economic benefits for local communities. FERC concluded that these new licenses are better adapted than the original licenses to comprehensive plans of development of the affected waters.

Most new licenses for non-federal hydropower are now based on settlements. In such a settlement, the licensee, regulatory agencies and conservation groups, and other local stakeholders resolve their disputes about the project and commit to cooperate in the implementation of environmental conditions over the term of the new license. FERC will approve such a settlement upon concluding that it meets the legal requirements for a new license. As recently as a decade ago, relicensing decisions were almost always contested and litigated. This sea change occurred because the non-federal hydropower industry (represented by National Hydropower Association), the conservation community (represented by the Hydropower Reform Coalition (www.hydroreform.org)), and other stakeholders agreed to support and implement policy reforms under existing laws to encourage such settlements. To its credit, FERC adopted the Alternative Licensing Process (1997) and the Integrated Licensing Process (2003), which do just that. This policy change is driven by the recognition that a settlement establishes a joint commitment to the future of the project – not only compliance with license conditions, but also adaptation to changed circumstances over the 30-50 year term of the license.

Recent market reforms promise to improve the future of non-federal hydropower. Since 2001, the Low Impact Hydropower Institute (LIHI) (www.lowimpacthydro.org) has offered certification to any project owner who voluntarily applies and demonstrates compliance with performance standards which exceed minimum regulatory requirements for environmental protection. The certification may then be used to secure premium rates in retail markets which permit such consumer choice. LIHI has now certified 2,043 megawatts of non-federal hydropower. This is the only such program in the nation. Its future is bright. LIHI has more pending applications than at any time in its history. Project owners increasingly recognize that this certification program provides retail market rewards for their efforts to reduce their environmental impacts consistent with reliable electricity generation.

As another important example of market reform, the National Hydropower Association, the Hydropower Reform Coalition, and the Union of Concerned Scientists recently proposed legislative language, included in the energy bill (H.R. 6049) passed by the House last month, to provide production tax credits to retrofit existing dams to expand or add generation capacity. While a technical reform in tax law, this demonstrates how the industry and conservation

community may effectively collaborate in legislation, when needed to enhance the public benefits of hydropower.

So what do these developments in non-federal hydropower suggest for the federal hydropower which is under this Subcommittee's direct jurisdiction?

Federal operators should examine possible modifications to their plans of operation and even the design of their hydropower projects. Each project has such a plan, initially adopted during or just after construction to state the rules of operation. A typical plan is many decades old. Federal projects are not subject to a fixed term as with non-federal hydropower, and budget constraints have limited the willingness of federal operators to reopen their plans. Nonetheless, existing laws permit and even require the Army Corps of Engineers, Bureau of Reclamation, and other federal operators to periodically examine possible modifications to the plans of operation for all projects they administer. Such review will improve electricity generation – operationally or by justifying physical retrofit of the generation capacity. It will enhance other public benefits, including water supply, navigation, and environmental protection. A federal operator often has authority to implement such modifications in operations or even physical design, subject to reporting to Congress. Such review includes public participation and may also result in better understanding and even support by local stakeholders for the future operations of a federal project. In 2002, the Army Corps entered into a Memorandum of Understanding with The Nature Conservancy (www.nature.org/initiatives/freshwater/partnership/) to examine plans of operation at several pilot projects. This Subcommittee should encourage federal operators to systematically use existing authorities to optimize their project operations for all public benefits.

Federal operators should consider how to adapt to climate change when they review their plans. Climate change will significantly affect local hydrology -- the timing, volume, and temperature of flows – in all regions of our nation. This will alter electricity generation, water supply, and other purposes of federal projects. It will cause significant stress to anadromous fisheries and other aquatic species. Federal operators should systematically examine alternatives to optimize future performance of their projects in the face of such change. An example which Natural Heritage Institute (www.n-h-i.org) is pursuing in California and elsewhere in the West is diversion into storage of the increased flood flows likely to result from climate change, where the storage will not be behind the federal project but instead in a downstream groundwater aquifer or floodplain.

This hearing topic also asks the question: leaving aside existing projects, what is the prospect for new hydropower development? Over the course of many decades, general surveys have shown undeveloped physical potential for such development. However, those surveys are predictions. They do not give due weight to other variables for a given site, including the likely return on investment, the capacity of the local transmission system, foreseeable impacts on other beneficial uses of the affected waters, legal requirements, or the views of local stakeholders. Actual development of new hydropower will turn on the ability of a sponsor to manage all of these variables and produce net public benefits including but not limited to the new generation capacity.

For example, non-federal developers are exploring the potential for hydrokinetic (or damless) development in our estuaries and oceans. Although no commercial project exists in those waters today, more than a hundred sites are under active investigation. The National Hydropower Association and Hydropower Reform Coalition are again exploring possible policy reforms under existing laws to permit new development consistent with protection of the marine environment. I offer my thanks to the Natural Resources Committee for your substantial attention to ocean energy in the reauthorization bill for the Coastal Zone Management Act. In my view, this hydrokinetic technology will mature rapidly as we find the right pilot sites, learn how to efficiently apply and complete the regulatory process in this largely unknown marine environment, and then adapt both operations and design following construction.

In sum, the future of hydropower depends fundamentally on the continued willingness of the non-federal licensees and federal operators to generate electricity in a manner which protects and enhances other beneficial uses of the affected waters. In political terms, I mean simply that the industry, conservation community, and other stakeholders should work together, and systematically, to create that common future.

Thank you for considering this testimony.