Subcommittee on Water, Power and Oceans
John Fleming, Chairman
Hearing Memorandum

April 25, 2016

To: All Subcommittee on Water, Power and Oceans Members

From: Majority Committee Staff
Subcommittee on Water, Power and Oceans (x58331)

Hearing: Oversight Hearing on *"Realizing the Potential of Hydropower as a Clean, Renewable and Domestic Energy Resource."*

On **Wednesday, April 27, 2016, at 2:00 p.m., in room 1324 Longworth House Office Building,** the Subcommittee on Water, Power and Oceans will hold an oversight hearing on *"Realizing the Potential of Hydropower as a Clean, Renewable and Domestic Energy Resource."*

Policy Overview:

- Hydropower is a clean, renewable, emissions-free and relatively low-cost electricity source that keeps the lights on and serves as a backup source for intermittent wind and solar energies.

- Despite its longstanding success, its growth remains relatively stagnant compared to other electricity sources.

- Over half of the hydropower resource is non-federal and there is more potential, yet the federal regulatory process is one of the most onerous processes for entities seeking to continue producing clean, low-cost reasonable energy or that seek to bring new projects online or relicense existing projects.

Invited Witnesses: *(listed in alphabetical order)*

Mr. Steve Boyd
Director of Water Resources and Regulatory Affairs
Turlock Irrigation District
Turlock, California

Ms. Jessica Matlock
Director of Government Relations
Snohomish County Public Utility District No. 1
Everett, Washington

Ms. Mary Pavel
Attorney
Sonosky, Chambers, Sachse, Endreson and Perry, LLP
Washington, D.C.

Ms. Debbie Powell
Senior Director of Power Generation Operations
Pacific Gas and Electric Company
San Francisco, California

Background:

The Role of Hydropower

Hydropower is produced when water is released through dams, which spins turbine blades that are connected to generators to produce energy. In specific regions of the nation, it constitutes a significant source of electricity (i.e. 70% in Washington state). Nationally, hydropower accounts for 7% of domestic electricity generation, divided equally between federal and non-federal output.[1]

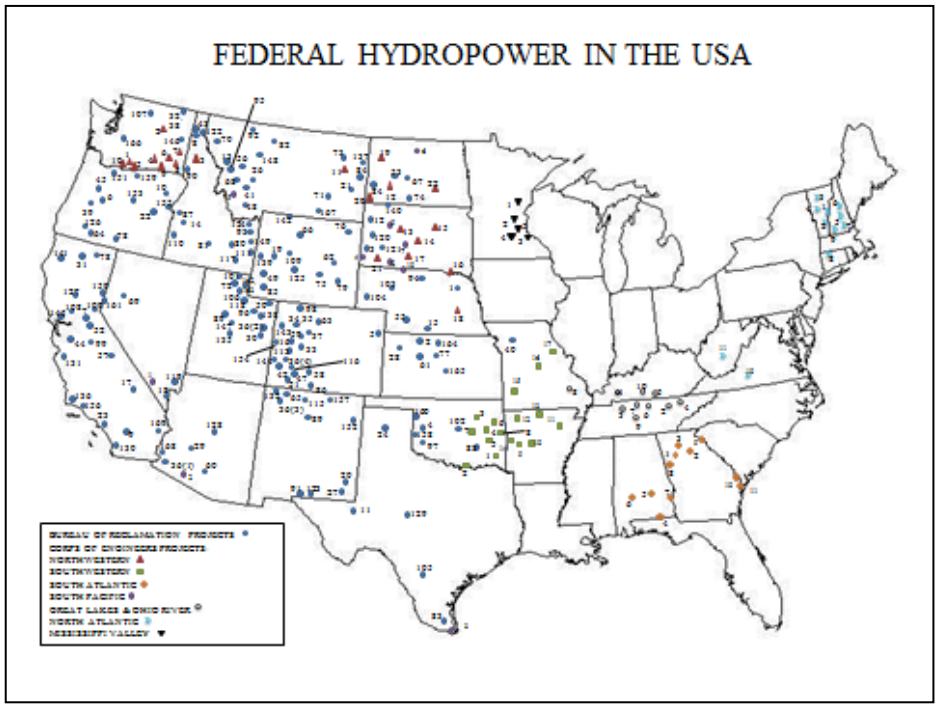
Hydropower is renewable and emissions-free and can be adjusted quickly to match real-time changes in electricity demand. It not only provides power for baseload (full-time) needs and peak times, but also serves as a backup generation source for intermittent wind and solar power.[2] It is generally low-cost compared to other generation sources.[3] However, some believe hydropower projects can have negative impacts on migratory fish, wildlife and their habitats as well as water quality.[4] For a number of reasons, some have described hydropower's growth as "stagnant" when compared to other electricity sources.[5]

Federal Hydropower

Under numerous federal statutes, the U.S. Army Corps of Engineers (Corps) and the Bureau of Reclamation (Reclamation) generate hydropower at federal dams and reservoirs. The two agencies are the top hydropower generators in the nation.[6] Reclamation's 58 hydropower

[1] Congressional Research Service, Relicensing of Nonfederal Hydroelectric Projects, April 25, 2007; Page 1
[2] http://www.vox.com/2015/6/19/8808545/wind-solar-grid-integration
[3] http://www.hydro.org/why-hydro/affordable/
[4] https://www.nwcouncil.org/history/DamsImpacts
[5] Testimony of Mr. J. Mark Robinson before the House Natural Resources Committee, June 27, 2012 on "*Mandatory Conditioning Requirements on Hydropower: How Federal Resource Agencies are Driving Up Electricity Costs and Decreasing the Original Green Energy"*
[6] http://www.usbr.gov/power/edu/majprod.html

facilities alone generate over $900 million annually in power revenues.[7] See Map 1 and associated documents for Corps and Reclamation hydropower facilities.



Map 1: Corps and Reclamation Facilities (as compiled by House Natural Resources Committee staff)

Under Reclamation's policy, hydropower is first used to provide electricity to operate irrigation pumps. Any remaining Reclamation hydropower is then primarily sold by either two federal agencies, the Bonneville Power Administration (Bonneville) or the Western Area Power Administration (Western), to wholesale customers. The wholesale electricity rates are designed to repay the federal capital investment (plus interest) in federal electricity generation and transmission facilities, annual operation and maintenance costs of such facilities and federal staffing.[8] The hydropower sold to these entities does not comprise a local utility's entire generation resource, but the hydropower usually serves as the lowest-cost resource that is then blended in with higher-cost resources. [9]

There has been and continues to be controversy over the operation of some federal dams due to environmental regulation and litigation. For example, litigation surrounding the Federal Columbia River Power System (FCRPS) has been pending for over a decade, causing major uncertainty on power generation and rates. Federal court mandated "spills" led to lost

[7] http://www.usbr.gov/power/who/history.html
[8] Id
[9] Testimony of Mr. Chris Morgan, Board Member, Gunnison County Electric Association, before the House Water and Power Subcommittee, May 4, 2011

hydropower generation and associated replacement power purchases for mainly fossil-based, higher cost energy. A spill occurs when water is bypassed from a hydropower producing turbine to aid fish passage. As an example, as reported by *The Washington Post*, a federal judge ordered a spill to help Chinook salmon in the summer of 2004. From this spill, only 20 listed adult fish were projected to eventually return to spawn. With an estimated cost of $77 million in lost hydropower generation because of the spill, $3.85 million was expended for each adult fish listed as "saved."[10]

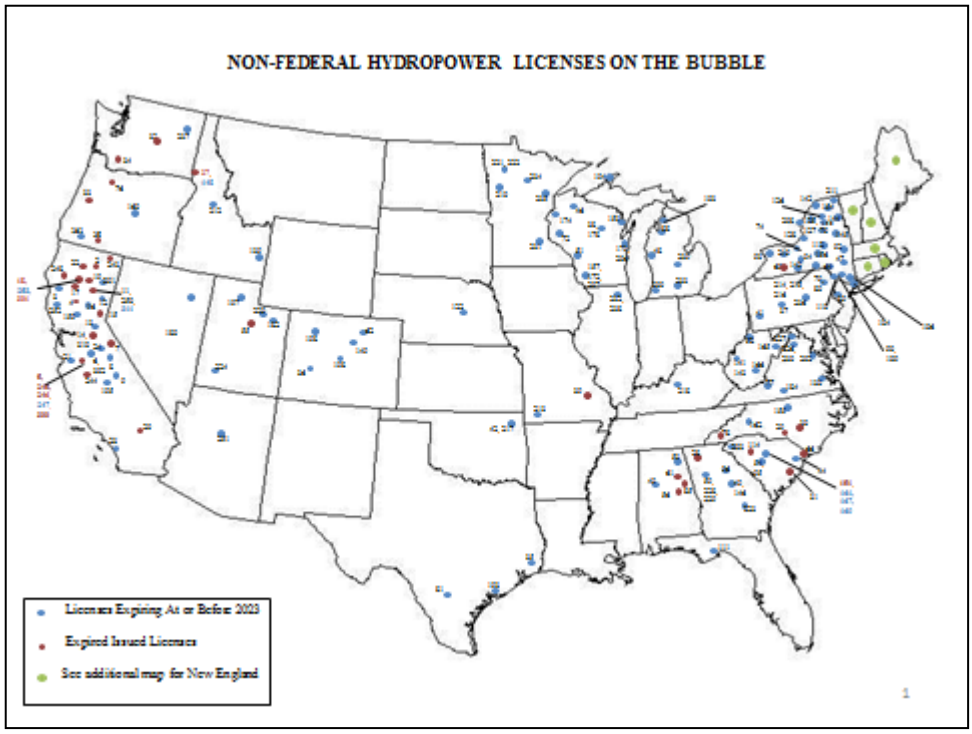
In addition, the Central Valley Project Improvement Act (P.L. 102-575) mandated power users to pay into a fund designed to restore parts of the Central Valley of California. At times, these payments and other costs made wholesale hydropower generated by the Central Valley Project at "above market" rates. For example, at a Water, Power and Oceans Subcommittee budget hearing earlier this year, Mr. Mark Gabriel, Administrator of Western stated: *"For the last 4 of the last 10 years it hass been above market."*[11]

Western also sells power from the Glen Canyon Dam, which provides base-load hydropower generation for the entire region. Located in Arizona, the Dam has lost a third of its energy capacity[12] – or $50 million annually in energy production – due to environmental requirements and administrative "pulse flows". These costs are ultimately borne by ratepayers.

Non-Federal Hydropower

There are approximately 1,030 active, non-federal hydropower licenses issued by the federal government.[13] Under the Federal Power Act (FPA), the Federal Energy Regulatory Commission (FERC) has authority to license these facilities. Over the next five years, 24% of all non-federal hydropower capacity will face relicensing.[14] See Map 2 for expired/expiring licenses.

[10] *"Salmon or Power? In Pacific Northwest, Pressure is Building"*, Blaine Harden, The Washington Post, March 7, 2004
[11] Response from Mr. Mark Gabriel, Administrator, Western Area Power Administration, before the House Water, Power and Oceans Subcommittee, March 22, 2016.
[12] AZcentral.com; Fact Check. The Issue: Glen Canyon Dam Hydropower Production, July 27, 2011
[13] http://www.ferc.gov/industries/hydropower/gen-info/licensing/active-licenses.asp.
[14] www.ferc.gov/industries/hydropower/gen-info/licensing/relicenses2015-2030.xlsx



Map 2. Non-Federal Hydropower Licenses Expired/Expiring Licenses (as compiled by House Natural Resources Committee staff)

Most licenses are valid for 30 to 50 years,[15] however the process to relicense facilities can be complex, expensive, lengthy and uncertain. During licensing (or relicensing if the original license is expiring or has expired), FERC must consider the power aspect of the project, but must give equal consideration to energy conservation, fish and wildlife, recreational opportunities and other federally mandated needs. These considerations are the result of additions to the FPA over the last 30 years.[16] While FERC has the authority to license these facilities, the resource agencies under the jurisdiction of the House Natural Resources Committee have very significant impacts on the licenses and the process to grant them due to FPA and federal environmental statutes like the Endangered Species Act. These resource agencies include National Marine Fisheries Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, the Bureau of Reclamation and the Bureau of Indian Affairs.

Specifically, under Section 4(e) of the FPA, federal land and water agencies can require "mandatory conditions" for projects located on federal reservations under their jurisdiction. The term "reservation lands" is defined to include national forests, Indian lands, and any other lands

[15] Northwest Hydroelectric Association, Resources: Law and Regulations: Hydropower Licensing, www.nwhydro.org/resources/laws_regulations/hydropower_licensing.htm; Page 1
[16] https://www.fws.gov/laws/lawsdigest/FEDPOWR.HTML

"acquired and held for public purposes".[17] FERC cannot reject such "mandatory conditions" regardless of cost or impacts.

There are significant non-federal hydropower resources on federal lands. For example, the Bureau of Land Management (BLM) has approximately 550 non-federal hydropower projects associated with its lands.[18] These projects generate over 6,400 megawatts of electricity, or enough power for at least 6.4 million homes. Similar projects on U.S. Forest Service lands account for 16,200 megawatts.[19] Since many of these projects will be up for re-licensing in the next decade, both agencies may play a significant role in mandating new conditions.

Under the FPA's Section 18, the Secretaries of the Interior and Commerce can require "fishways" or specific conditions related to fish passage facilities at hydropower projects.[20] In addition, under Section 10(j) of the FPA, licenses must include conditions based on recommendations by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources affected by the project unless FERC can find that they are inconsistent with the purpose of the project.[21] Before rejecting any of these recommendations, FERC must show that it gave due weight to the recommendations and tried to resolve any inconsistencies.

Due to the above requirements, licensees may informally begin the relicensing process up to a decade before expiration. FERC usually employs what it calls the Integrated Licensing Process (ILP) to help resolve concerns and license a facility. FERC must include resource agency mandatory conditions and a state Clean Water Act 401 water quality certification while attempting to reconcile stakeholder positions. Since licensing is a major federal action, FERC must follow the procedures under the National Environmental Policy Act. The level of controversy and review often depends on the complexity and history of a particular project. FERC is a fee-for-service agency and is thus reimbursed by the licensee for all related expenses.

The Energy Policy Act of 2005 (P.L. 109-58 or EPAct of 2005) amended Sections 4(e) and 18 of the FPA to allow a licensing party to propose an alternative condition or prescription. The appropriate Secretary (of Interior, Agriculture or Commerce) must accept the proposed alternative as long as he/she determines that it provides for adequate protection of the federal

[17] Northwest Hydroelectric Association, Resources: Law and Regulations: Hydropower Licensing, www.nwhydro.org/resources/laws_regulations/hydropower_licensing.htm; Page 2
[18] www.blm.gov/energy/fact_sheets/factHydro.pdf
[19] U.S. Forest Service, Inventory of FERC licensed Hydropower Projects, March 16, 2010
[20] Northwest Hydroelectric Association, Resources: Law and Regulations: Hydropower Licensing, www.nwhydro.org/resources/laws_regulations/hydropower_licensing.htm; Page 2
[21] Northwest Hydroelectric Association, Resources: Law and Regulations: Hydropower Licensing, www. .nwhydro.org/resources/laws_regulations/hydropower_licensing.htm; Page 2

reservation and/or the prescription will be no less than the proposed federal condition. If the Secretary rejects the alternative(s), then he/she must provide FERC with a statement explaining the reasons for rejection *and* the basis for any modified conditions. Furthermore, Section 241 of EPAct of 2005 allows any party to a license proceeding to receive a trial-type hearing in front of an agency administrative law judge if there are disputes on the mandatory conditioning authorities.[22]

Despite changes these statutory changes, some find the current process difficult. For example, Mr. Einar Maisch of the Placer County Water Agency (PCWA) in northern California, testified that PCWA's ratepayers spent $37 million and would lose about 5% of average annual hydropower generation as a result of its pending relicensing effort on the Middle Fork American River Project (FERC No. 2079). The utility expects to spend an additional $20 million on capital improvements and an additional $2.4 million per year in operation and maintenance costs and another $1 million annually in direct cash payments to resource agencies. "Under the current regulatory framework," he maintains, "this is what success looks like."[23]

In addition, a former FERC Director of Energy Projects reviewed and testified that all sixteen hydropower licenses issued in 2011 by FERC to find that the average time from filing the application to licensing was still 3.6 years with the longest being 8 years. He testified that continued "dispersed decision-making remains the primary cause of not only delay but also additional costs associated with the preparation of the application and the cost of mandatory conditions."[24] Both H.R. 8[25] and S. 2012[26] have included separate hydropower relicensing provisions in this Congress.

A number of reforms have been proposed to this process:

- Exclusive Jurisdiction – one lead agency that has been designated by Congress as the only agency that has siting authority;

[22] Testimony of Mr. J. Mark Robinson, Director, Office of Energy Projects, FERC before the U.S. Senate Committee on Energy and Natural Resources, May 8, 2006; Pages 3-4
[23] Testimony of Mr. Einar Maisch, Placer County Water Agency, before the House Natural Resources Committee on "Mandatory Conditioning Requirements on Hydropower: How Federal Resource Agencies are Driving Up Electricity Costs and Decreasing the Original Green Energy", June 27, 2012; Page 3
[24] Testimony of Mr. J. Mark Robinson, JMR Energy Infra, before the House Natural Resources Committee on "Mandatory Conditioning Requirements on Hydropower: How Federal Resource Agencies are Driving Up Electricity Costs and Decreasing the Original Green Energy", June 27, 2012; Page 7
[25] https://www.congress.gov/bill/114th-congress/house-bill/8/text#toc-H8F246136023248CBB973A48A181F4B12
[26] https://www.congress.gov/bill/114th-congress/senate-bill/2012/text?q=%7B%22search%22%3A%5B%22%5C%22s2012%5C%22%22%5D%7D&resultIndex=1#toc-id184B489E6EE94ABF8B11945830FF04FA

- Pre-filing – A system for quickly identifying issues and determining if there are any fatal flaws early in the process;

- One Federal Record – All agencies must work together to create one administrative record and all agencies are bound to that one record for judicial review;

- Disciplined Schedule – All agencies have to act within the time frame set by the lead agency with repercussions on authorities if an agency delays their decision;

- Expeditious Judicial Review - Failure of an agency to follow the schedule set by the lead agency or to provide conditions narrowly focused to their authorities results in immediate referral to the federal court system;

- Require resource agencies to broaden the scope of their analysis when developing mandatory conditions, beyond just the narrow mission of their respective agency and adhere to the broader requirement of balancing between developmental and non-developmental values that is currently required of FERC.

- Establish that agencies filing mandatory conditions with FERC are engaging in a "federal action" and require independent environmental review under NEPA; including a comprehensive analysis of the direct, indirect, and cumulative impacts of their action under the same public review process required for every other federal action.

- Require resource agencies to clearly define the objective of each mandatory condition with an accompanying rationale and disclosure of impacts in an open and transparent manner, thereby, adhering to the same standard of disclosure and explanation required of the licensee and other parties submitting Alternative Conditions.

- Require agencies to promptly consult and respond to Alternative Conditions prior to FERC's Draft NEPA document, rather than allowing the agencies to ignore the requests for months and only address them during the filing of modified terms and conditions, after the Draft NEPA document has been issued; and

- For all federal and state reviews of a proposed hydro facility, evaluation and conditioning of new projects should be consistently limited to impacts created by the hydro project. Although FERC's ILP regulations require a "nexus" between a requested project and project-related effects, other agencies with related review and consultation responsibilities often rely on a different standard.