ENERGY POLICY INNOVATION COUNCIL

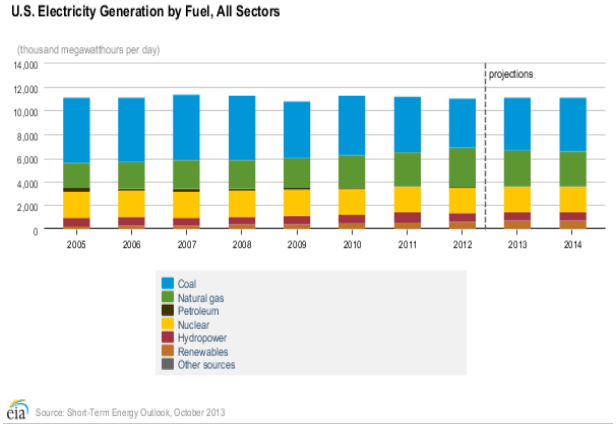
The Federal Hydropower Regulatory Efficiency Act of 2013
Published

The Essentials

- On August 9, 2013, President Obama signed into law the Hydropower Regulatory Efficiency Act of 2013, which as the name indicates, seeks to reduce the regulatory burden associated with licensing certain small hydroelectric projects by:
  - exempting certain conduit hydropower facilities from the licensing requirements of the Federal Power Act (FPA);
  - amending subsection (d) of Section 405 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2705) to define "small hydroelectric power projects" as having an installed capacity that does not exceed 10,000 Kilowatts (prior to the amendment, "small hydroelectric power projects" were defined as having an installed capacity that does not exceed 5,000 Kilowatts);
  - authorizing the Federal Energy Regulatory Commission (FERC) to extend the term of preliminary permits once for not more than 2 additional years beyond the 3 years previously allowed under section 5 of the FPA; and
  - directing FERC to investigate the feasibility of a 2-year licensing process for hydro power development at non-powered dams and closed-loop pump storage projects.

Background information on hydropower

Hydroelectric power is the largest source of clean electricity in the United States. In 2011[1], hydropower generated about 7.7 percent of the net electricity produced in the United States.[2] This electricity is generated from approximately 80,000 megawatts of installed hydroelectric capacity, which can power roughly 80 million homes.[3] The United States also imports between 1 and 1.5 percent of its electricity from Canada.[4] The majority (up to 80%) of the electricity imported from Canada is hydropower.[5] These imports are of particular importance in the Northeast where some communities rely on imported Canadian hydropower for the vast majority of



[1] 2011 was the most recent data available from the EIA at the time of publication. 2012 data should be published soon at here: http://www.eia.gov/totalenergy/data/annual/pecss_diagram.cfm

[2] http://www.eia.gov/electricity/annual/html/epa_01_01.html. Hydroelectricity production varies annually based on rainfall, snowpack, and other factors such as electricity demand. In a "wet" year, hydroelectricity accounts for 8 percent or more of total electricity produced in the U.S. While in a dry year, hydroelectricity generation may drop below 6 percent of net generated megawatthours. The annual fluctuation can be seen here: http://www.eia.gov/electricity/annual/html/epa_03_01_a.html (note 2007 as a dry year and 2011 as a wet year).

[3] http://www.eia.gov/electricity/annual/html/epa_04_03.html

[4] http://www.eia.gov/electricity/annual/html/epa_02_13.html

[5] Net imports are difficult to calculate by fuel source because transmissions of imported electricity come from combined fuel sources. However, hydroelectric imports likely account for less than 1 percent of U.S. annual electricity needs. For more information see: https://canadahydro.ca/hydro-facts/5-reasons-americans-should-care-about-canadian-hydropower and http://www.hydroquebec.com/en/

their electricity needs.[6] Furthermore, the hydropower industry employs nearly 300,000 workers.[7] However, out of the 80,000 dams already built across the United States, less than 3 percent are used to produce power.[8]

According to the National Hydropower Association, by adding electricity generating capabilities to America's existing unpowered dams, the United States could realistically add 10,000 megawatts of new hydro capacity by 2025 without building a single new dam.[9] Additionally, through other hydropower projects, including conduits (see Section IV below for details), pumped storage, ocean, tidal, and new damless technologies, and modernizing existing hydroelectricity generating facilities, another 50,000 megawatts of hydro capacity could be realized. Totaling 60,000 megawatts, these new and improved hydropower sources could supply electricity to approximately 60 million homes, assuming the capacity factor of the dams averaged 25%.

Details of the policy

Hydropower developments encounter a broad regulatory approval process that involves many participants including the Federal Energy Regulatory Commission (FERC), federal and state resource agencies, local governments, tribes, NGOs, and the public. This approval process seeks to promote hydroelectricity development while protecting the environment. The Hydropower Regulatory Efficiency Act of 2013 (the "Act"), which was passed unanimously in Congress, aims to reduce unnecessary burdens on the development of small hydropower projects, including powering non-powered dams, conduits, and other small dam and damless projects.[10]

Section III[11]: Promoting small hydroelectric power projects[12]

The Federal Power Act (FPA) requires the Federal Energy Regulatory Commission (FERC) to issue licenses to construct, operate and maintain dams, water conduits, reservoirs, and transmission lines on "navigable waters" of the United States (16 U.S.C. § 797(e)). However, FERC also has discretion to exempt "small hydroelectric power projects" from licensing requirements on a case-by-case basis or on the basis of classes or categories of projects (16 U.S.C. 2705(d)). When determining whether an exemption is appropriate, FERC is also required to consult federal and state resource agencies to ensure protection of fish and wildlife.

The Act changes the previous definition of "small hydroelectric power plants from 5,000 kilowatts to 10,000 kilowatts (10 megawatts) or less, and gives FERC discretion to exempt small hydroelectric power projects from certain licensing requirements.[13] This exemption covers multiple forms of projects, including powering non-powered dams, building new infrastructure (dam and damless hydro plants, transmission lines, etc.), conduits, or "other project works necessary or convenient for the development . . . of power."

[6] The U.S. imported over 51 million megawatthours of electricity in 2011. This is roughly enough electricity to meet the needs of 51 million homes. http://www.eia.gov/electricity/annual/html/epa_02_13.html
[7] https://www.ferc.gov/legal/fed-sta/bills-113hr267enr.pdf
[8] http://www1.eere.energy.gov/water/pdfs/npd_report.pdf
[9] http://www.hydro.org/wp-content/uploads/2010/12/Converting4.pdf
[10] http://thomas.loc.gov/cgi-bin/bdquery/D?d113:1:./temp/~bdkw5z:@@@R|/home/LegislativeData.php|
[11] Section I contains the title and table of contents. Section II contains Congress' findings.
[12] Public Law 113-23 § (3)
[13] A 10,000 kilowatt system can provide the energy for approximately 10,000 homes. (For further perspective, Arizona's largest power plant, the Navajo Generating Station, has an installed capacity of 2,250,000 kilowatts.)

The goal of this amendment is to attract more investment, both public and private, to develop small hydroelectric power projects across the United States. Typically, these modern small projects have far less impact on the bodies of water they utilize. However, some still argue that the exemption process is nearly as cumbersome as obtaining a license.[14]

Section IV: Promoting conduit hydropower projects[15]

The technology: Conduit hydropower refers to the generation of electricity through outfitting existing tunnels, canals, pipelines, and other man-made structures primarily designed to deliver water with electrical generating equipment. The turbine shown to the right was added in tandem with needed water system upgrades. It simply uses the high pressure flows of the municipal water delivery system to spin a turbine and generate electricity. Proponents of conduit electricity highlight its efficiency and cost-effectiveness. Conduit projects exploit synergies with existing infrastructure and require less capital investment than other hydropower projects. Additionally, proponents often reference the relatively low environmental impacts of conduit projects.

The Act seeks to promote conduit hydropower projects in the same way it seeks to promote small projects. Specifically, the Act provides for two exemptions to the licensing requirements of the FPA for conduits based on size.

First, under the Act the FERC *must* provide an exemption to the FPA's licensing requirements for a proposed conduit projects which meet the following three criteria:

(1) It is constructed, operated, or maintained for the generation of electric power and uses for such generation only the hydroelectric potential of a non-federally owned conduit.
(2) The facility has an installed capacity that does not exceed 5 megawatts.
(3) On or before the date of enactment of the Hydropower Regulatory Efficiency Act of 2013, the facility is not licensed under, or exempted from the license requirements [of the FPA].[16]

To qualify for this exemption, any person, state, or municipality proposing to construct a conduit which meets the above criteria *must* file a notice of intent with the FERC. Within 15 days of receiving the notice of intent, FERC must make an initial determination on whether the project qualifies for the exemption. If FERC makes an initial determination that the conduit qualifies, the notice of intent is published and the public has 45 days to contest that the project does not qualify for an exemption. Finally, if the project is not successfully contested, FERC must exempt the facility from the licensing requirements of the FPA.

[14] http://www.nwra.org/issues/ferc-exemption-small-conduit-hydropower/
[15] Public Law 113-23 § 4
[16] Public Law 113-23 § 4(a)(3)(C)

Second, under the Act FERC *may* provide an exemption to the FPA's licensing requirements, subject to environmental consultation with federal and state resource agencies, for proposed conduits that meet the following two criteria:

(1) The facility is constructed, operated, or maintained for electric power generation and uses for such generation only the hydroelectric potential of a conduit.
(2) The facility has an installed capacity that does not exceed 40 megawatts.[17]

Because these projects are larger and more likely to have detrimental impacts on the environment or the water systems upon which they operate, the FERC is granted broader discretion to decide whether an exemption is appropriate. Furthermore, for these larger projects the FERC is required to consult with federal and state fish and wildlife agencies.

Section V: FERC authority to extend preliminary permit periods[18]

FERC is also given authority to grant a one-time, 2-year extension to the preliminary permit period if FERC finds that the permittee carried out activities under the permit in "good-faith" and "with reasonable diligence." Preliminary permits are issued for the sole purpose of maintaining priority of application for a license under the FPA. The initial period granted under a preliminary permit is three years. Prior to the adoption of the Act, a permit expired with no chance of extension at the end of three years. Then permit holders would lose priority and have to re-apply for a preliminary permit. This provision seeks to protect investors from the potentially catastrophic punishment a mandatory expiration date can impose.

Section VI: Promoting hydropower development at non-powered dams and closed loop pumped storage projects[19]

What is closed loop pumped storage technology? Closed loop pumped storage projects, like the one shown in the photo the left, offer a unique opportunity to enhance efficiency by storing hydro energy and generating electricity during times of peak electricity demand. Pumped storage projects move water between two reservoirs located at different elevations. When electricity demand is low, such as in the middle of the night or on weekends, the extra electricity capacity is used to pump water from the lower reservoir to the upper reservoir. When demand is high, the stored water in the upper reservoir is released to the lower reservoir through a series of electricity generating turbines. The projects can be incorporated into existing reservoirs or built in coordination with new municipal or agricultural reservoirs.

[17] Public Law 113-23 § 4(b)
[18] Public Law 113-23 § 5
[19] Public Law 113-23 § 6

The Act also directs FERC to "investigate the feasibility" of establishing a streamlined "2-year process" for the issuance of a license for hydropower development at non-powered dams and closed loop pumped storage projects. The Act gives FERC three years to complete their investigation. The Act also instructs FERC to hold public workshops and implement a workshop program in coordination with other relevant federal agencies such as the Fish and Wildlife Service. The first public workshop convened October 2, 2013 at FERC headquarters in Washington D.C.

In general, this provision seeks to reduce the delays and costs associated with licensing hydropower projects at non-powered dams and closed loop pumped storage facilities. As previously noted, less than 3 percent of the 80,000 dams in the United States are used to generate power; this presents a huge opportunity to use existing infrastructure to generate clean and renewable energy.

Finally, the Act tasks the DOE with studying the energy potential of pumped storage facilities and conduits over the next year.[20] Within one year of September 9, 2013, the Secretary of Energy is required to report to House and Senate Energy Committees on their findings.

Drought in the Southwest and hydropower: The current 14-year drought in the Southwest is slowly reducing the quantities of hydroelectric power supplied by the Hoover Dam. The Hoover Dam (see photo on right) has an installed capacity of 2,074 megawatts. However, due to low water levels in Lake Mead, in May 2013, the Dam was only operating at 1,753 megawatts. When water levels are too low, some of the turbines must be shut off to prevent damage. This means less cheap and clean hydroelectricity for Nevada, Arizona, and California. Current forecasts predict the water will continue to drop during the fiscal year starting October 1, 2013.

The Hoover Dam (photo from Wikipedia)

Learn more

- ***Find the text of the Act here: http://www.gpo.gov/fdsys/pkg/BILLS-113hr267enr/pdf/BILLS-113hr267enr.pdf***

[20] Public Law 113-23 § 7

- ***Read more about hydropower and drought here: http://www.energyprospects.com/cgi-bin/package_display.pl?packageID=4150***

- ***Track FERC's workshop progress here: https://www.ferc.gov/industries/hydropower/indus-act/efficiency-act.asp***