

MARYLAND DEPARTMENT OF NATURAL RESOURCES
 Maryland
 Smart, Green & Growing
 New Hydroelectric Potential In Western Maryland

Presentation to the 2014 Western Maryland Local Government Exchange

May 9, 2014

MARYLAND POWER PLANT RESEARCH PROGRAM

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Existing Hydroelectric Capacity

- Maryland has 5 existing and operating hydroelectric dams (~596 MW capacity)
 - Conowingo - 572MW
 - Deep Creek - 20MW
 - Potomac Dam #4 - 1.9 MW
 - Potomac Dam #5 - 1.2 MW
 - Brighton Dam - 0.4 MW
- (1 MW powers ~1200 average homes)

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New Hydroelectric Facilities

- 1 additional project (Jennings-Randolph) licensed for 14MW but not yet constructed
- 1 conduit exemption (city of Frostburg) licensed for 75 Kw

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Potential New Hydroelectric Capacity

- 32 others dams across the state could potentially be used for ~11MW of additional capacity
 - Includes existing dams in fair or better condition and not breached
 - Potential capacity based on 1999 Inventory of Maryland Dams
- Conduit exemptions not included in this analysis

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Potential Capacity by County (> 100kw, dam in fair or better condition)


(Note, this analysis does not address feasibility or desirability of adding hydroelectric capacity)

- Allegany – 2 (Industrial Dam, NewPage Westvaco Dam)
- Baltimore – 5 (Prettyboy, Loch Raven, Liberty, Daniels, Bloede)
- Frederick – 1 (Lake Linganore)
- Garrett – 1 (Savage River Dam)
- Harford – 2 (Atkisson, Eden Mill)
- Prince Georges – 1 (Rocky Gorge Dam)
- Washington – 2 (R.P. Smith Dam, Hagerstown Municipal)

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Dams with Hydroelectric Potential




Industrial Dam – Allegany County (1.2 MW)

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Dams with Hydroelectric Potential




Savage River Dam – Garrett County (2 MW)

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Dams with Hydroelectric Potential



R.P. Smith Dam – Washington County (2.8 MW)

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Regulatory Considerations

A license from the Federal Energy Regulatory Commission (FERC) is required to construct, operate, and maintain a non-federal hydroelectric project that is or would:

- (a) be located on navigable waters of the United States;
- (b) occupy U.S. lands;
- (c) utilize surplus water or water power from a U.S. government dam; or
- (d) be located on a stream over which Congress has Commerce Clause jurisdiction, where project construction or expansion occurred on or after August 26, 1935, and the project affects the interests of interstate or foreign commerce.

Licenses may be issued for up to 50 years terms and must be renewed at the end of each term. A license gives the licensee the power of "eminent domain" to obtain lands or other rights needed to construct, operate, and maintain the hydroelectric project.

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Federal Energy Regulatory Commission (FERC)

- Under the Federal Power Act (FPA), FERC regulates the nation's non-federal hydropower resources.
- FERC issues three types of development authorizations:
 - Conduit exemptions,
 - 10-megawatt (MW) exemptions
 - Licenses.
- Exemption program is intended for small projects that would result in minor environmental effects:
 - projects that involve little change to water flow and use
 - unlikely to affect threatened and endangered species

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Federal Licensing Process – Federal Energy Regulatory Commission (FERC)

"Hydropower Regulatory Efficiency Act of 2013"

- exempts certain conduit hydropower facilities from the licensing requirements of the Federal Power Act (FPA);
- Defines "small hydroelectric power projects" as having an installed capacity that does not exceed 10,000 kilowatts;
- authorizes FERC to extend the term of preliminary permits once for not more than 2 additional years beyond the 3 years previously allowed
- directs FERC to investigate the feasibility of a 2-year licensing process for hydropower development at non-powered dams and closed-loop pump storage projects.

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Conduit Hydropower

A "qualifying conduit hydropower facility" must meet the following provisions:

- A conduit is any tunnel, canal, pipeline, aqueduct, flume, ditch, or similar manmade water conveyance that is operated for the distribution of water for agricultural, municipal, or industrial consumption, and is not primarily for the generation of electricity.
- The facility generates electric power using only the hydroelectric potential of a non-federally owned conduit.
- The facility has an installed capacity that does not exceed 5 megawatts (MW).
- The facility was not licensed or exempted from the licensing requirements of Part 1 of the FPA on or before August 9, 2013.

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Potential Issues

- Ownership
- Financial Feasibility
- Environmental Issues (usually not applicable to Conduit Exemptions)

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Environmental Issues

Potential environmental impacts of adding hydroelectric capacity to existing dams need to be addressed and may include:

- Changes in water quality
- Changes in water quantity
- Direct adverse effects on fish populations, such as blockage of migration and entrainment

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Additional Resources

- FERC's Small/Low Impact Hydropower Program:
<http://www.ferc.gov/industries/hydropower/gen-info/licensing/small-low-impact.asp>
- FERC Small/Low-Impact Hydropower Projects - Exemption or License (including conduits)
<http://www.ferc.gov/industries/hydropower/gen-info/licensing/small-low-impact/get-started/exemp-licens.asp>
- PPRP's Cumulative Environmental Impact Report on aquatic impacts of generating facilities; includes hydroelectric facility impacts http://pprp.info/ceir16/Report_4_1_2.htm

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