

TOWN OF WOODSTOCK

CLIMATE SMART TASK FORCE

Erin Moran, Coordinator
Kenneth Panza, Secretary

Application for 5 Points

May 26, 2020

PE4 Action: Renewable Energy Feasibility Studies

3 Points

4 Points

5 Points

Addendum - Micro-Hydro Feasibility Study

DEC asked the town to clarify and resubmit evidence that the micro-hydro study was for government facilities.

Two Dams

There's been long time speculation about the feasibility of using two existing dams on the Sawkill in Woodstock for generating low-head hydroelectric power.

In 2015, Bard College received a grant from New York State to utilize the Saw Kill [Dutchess County] as a test case to develop environmental, educational, and community resources that could be utilized statewide.¹ Findings from this test case should help inform dam owners as they consider the implications of re-purposing or removing their dams.

The goals of the New York State Energy Research Development Authority (NYSERDA) proposal include:

- Determine the feasibility of micro hydropower installation on the campus of Bard College within the existing regulatory framework, while developing an enhanced understanding and consideration of the local ecology and watershed;
- Install a micro hydropower project using existing micro hydropower technologies with enhanced monitoring of water quality and quantity to control water flow, turbine configuration, and electrical circuit functions;
- Study the watershed impacts of installing micro hydropower on existing small dams;
- Create a roadmap for a replicable process statewide;
- Model a process of communication between the project's decision-makers and various community and environmental stakeholders, enhancing the clean energy conversation.

Woodstock accepted Bard's invitation to participate in the project as a community representative that could apply the results of the NYSERDA sponsored study.

¹ Bard College Press Release, "Bard College Wins \$1 Million New York State Clean Energy Competition, Governor Cuomo Announces," May 17, 2016, Available at <https://www.bard.edu/news/releases/pr/fstory.php?id=2806>

Feasibility Studies

In commercial environments, feasibility studies follow an established series of phases, adroitly named phase 0, phase 1, etc. Beginning with a quick cost/benefit calculation, followed by more detailed studies, an RFP and purchase decision, construction and implementation, and a final accounting. Woodstock completed a proper phase 0 feasibility study, and then abandoned any further consideration of micro-hydro.

Micro-Hydro Consideration

The two dams under consideration would provide electricity under the conditions of Central Hudson's Remote Net Metering tariff. The tariff allows the town to install electric meters at each dam site and the electricity generated by the dam to be credited to Woodstock's other Central Hudson accounts. This approach was also considered in the feasibility studies for a town owned solar arrays.

At the best, the amount of power generated, and thus the savings, would be modest and could not justify the expense of installing micro-hydro. Some factors identified by the Bard study that the town would need to consider are:

Dam safety: a complete engineering study of the dam's condition. The dams being considered are quite old and obviously in need of some repair.

Environmental studies: the use of a dam for power generation has the potential for the changing the upstream environment and existing habitats. The area behind one of Woodstock's dams has evolved as blue heron rookery, and changes to the dam could disturb this habitat. The impacts downstream would also need to be considered.

FERC Approval: 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, and licenses for authorization to construct and operate small/low-impact projects while assuring adequate protection of environmental resources. This program is intended for small projects that would result in minor environmental effects (e.g., projects that involve little change to water flow and use and are unlikely to affect threatened and endangered species).

Conclusions

The cost and complexity of the required engineering and environmental studies, the requirement to apply for a Federal permit, and the modest potential for power generation led to a conclusion that micro-hydro was not feasible for Woodstock. The town's letter of November 4, 2018 to Bard College and NYSERDA summarized our concerns.

Subsequently, Woodstock received an invitation on November 11, 2018 from Joel Herm of Current Hydro, the consultants working with Bard on the Annandale dam hydro project, to meet and discuss the possibilities of micro hydro for Woodstock. At that time, Woodstock decided not to proceed with an evaluation.

Attachments:

Email and letter from Joel Herm, Current Hydro, offering assistance to evaluate Woodstock hydro potential, November 11, 2018.



Kenneth S. Panza, Liaison Town of Woodstock
45 Comeau Drive
Woodstock, NY 12498

Re: Comments about Small Scale Hydro

Dear Mr. Panza,

Thank you so much for your thoughtful comments sent to Ms. Husted regarding the Annandale Micro Hydroelectric project. Starting many conversations among stakeholders interested in combating climate change with sensible, financially sound microhydro projects is the ultimate positive outcome of the NYSERDA/Bard microhydro project.

Your comments (and math) regarding **power capacity** are spot on. As you point out, the idea of spending \$1M for a gross annual return of \$4.6K makes no financial sense. But another mission of the project is to perform careful accounting on the Annandale project to discover what the “non-grant” cost of a similar sized project would be. We are stripping out the majority of the **habitat studies**’ cost as well as other permitting and due diligence expenses that would be unnecessary for a typical small site. In addition, we at Current Hydro are spending a lot of time (outside of grant funding) to design systems that have an all-in capital cost per installed kilowatt nameplate capacity of under \$5K.

It does seem odd that a **FERC permit** for the Annandale project is necessary. We first sent a letter of intent to FERC asking if the project would be under federal jurisdiction. FERC responded that the facility would indeed be subject to federal licensing for two reasons. First, the Saw Kill flows into the Hudson River and is thus deemed a part of the navigable waters of the United States. Second, the facility would fall under interstate commerce statutes as we want to connect to the Central Hudson grid to gain interconnect experience. FERC might have a different view of the Woodstock sites.

My colleague, Jan Borchert, and I would love to come over to meet with you and other municipality officials to get “eyes on” at the two sites and explore possibilities for an ecologically sound and financially sustainable microhydro energy solution.

With respect,

Joel Herm

Subject: Woodstock (maybe/maybe not) hydro
From: Joel Herm <joel@currenthydro.com>
Date: 11/11/2018, 7:29 PM
To: Ken Panza <kpanza@hvc.rr.com>

Dear Ken

I am delighted you reached out to NYSERDA and Bard about the microhydro project and that you copied me on your letter. I'm also glad that you are skeptical and a numbers person. My colleague at Current Hydro, Jan Borchert, and I would love it if you and other town officials would like to meet with us to discuss community-scale hydro and whether powering the town's two non-powered dams makes financial sense.

Showing my age, I've attached a formal response to your formal letter to Laurie!

Cheers,

Joel Herm
+1 917.244.3607



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— Attachments: —

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