

CASTLETON RIVER HYDROPOWER

Town of Fair Haven, Vermont



OVERVIEW

The Town of Fair Haven, Vermont received a grant of \$4,500 in 2009 from the CEDF to perform a hydro feasibility study for the reach of the Castleton River between the Depot Street and Adams Street dams. The study was carried out to determine if a small run-of-river hydroelectric power generating station could be installed at one of the dams. Based off of three varying scenarios, the feasibility study found that hydropower on the river would be cost-effective.

FEASIBILITY STUDY

Earthbound Services, LLC carried out the Town of Fair Haven's hydro feasibility study and developed the following three scenarios for generating hydropower:

1. Install a hydro generating station just downstream of the Depot Street Dam (a.k.a Water Street Dam) utilizing the drop available from the fall and with a similar configuration as the system which received a Federal Energy Regulatory Commission (FERC) license in the late 1980s.
2. Install a hydro generating station just downstream of the Adams Street Dam (a.k.a Shirt Factory Dam) utilizing the drop available from the dam.
3. Install a hydro generating station just downstream of the Adams Street Dam (a.k.a Shirt Factory Dam) utilizing the drop available from the Depot Street Dam and the entire reach of the Castleton River between the two dams.

The study entailed estimating the flow regime of the river at each proposed intake location. This was accomplished using a standard hydrologic

methodology correlating the flow of the stream at the proposed intake location to a surrogate gage location. In addition, a topographical survey was performed to determine the actual elevation drop available for hydropower generation for each of the above mentioned scenarios.

FINDINGS

Based off of the methodology utilized by Earthbound Services, LLC, the following conclusions were made for each scenario:

	Kilowatt-Hours Produced per Year	Potential Earning During 1 st Year ¹	Cost ²	Potential Return Over First 30 Years of Operation
Scenario 1	378,000	\$57,887	\$1,664,000	\$3,246,595
Scenario 2	144,000	\$25,459	\$1,576,000	\$1,226,452
Scenario 3	543,000	\$76,571	\$2,996,000	\$4,294,470

¹ This estimate was calculated assuming that benefits from net metering and the sale of Renewable Energy Credits would be included.

² This estimate includes the permitting, design, and installation of the system before any available grants or incentives.

