

Application Summary

Applicant Municipality: Town of Barton
(or lead applicant if applying as a consortium)

What is your most recent town plan adoption date? 9/12/2013 N/A

Has your municipality been confirmed by your Regional Planning Commission? Yes No

If not, is your municipality in the process of being confirmed on or before the application deadline? Yes No N/A

If not, is this application for a plan that will be submitted to the regional planning commission for approval? Yes No N/A

Is this a consortium project? Yes No
If Yes, see list of Participating Municipalities.

Authorizing Official: Robert Croteau

Grant Administrator: Edward Helm

Project Type: Natural Resource Planning

Project Type Other:

Participating Municipalities:

Town of Barton
 Town of Glover

Project Description

1(a). Project Title. Name the project as precisely as possible.

Crystal Lake Falls Hydro Power and Barton River Flood Resilience Planning

1(b). What does the project accomplish?

With help from this grant, Barton will advance a decision on hydro power development. Shared engineering and educational efforts with Glover will support their Barton River flood resilience and water resource planning.

2. Why is the project important? Describe the context, purpose, and timeliness of the project, providing any relevant background information such as past or present planning activities, current issues within the community and the status of your municipal plan and bylaws. If you received an MPG last year, discuss any relationship to this application and your capacity to simultaneously complete both grant projects.

Barton's Town Plan states:

"The Planning Commission reiterates its earlier recommendation that power generation potential of Crystal Lake Falls outlet be investigated to determine if and when this resource could be developed for small hydro generation purposes. It is recommended that the historic value of these falls be preserved to the extent possible in any future planning."
p. 26.

Developing affordable and renewable hydro power at Crystal Lake Falls has often been considered. Barton traces its life as a settlement to hydro power at Crystal Lake Falls from the late 1700's. In the 1980's, 1990's and 2006, Barton officials and citizens studied developing hydro power. (Likewise, it was discussed in Glover since olden days when a water-powered mill stood where Roaring Brook exits Lake Parker.)

A citizen initiative to re-examine hydro was raised in March 2013 at Barton Village Meeting and begun in June of 2013 when the Barton Village Trustees adopted a resolution which created a Citizens' Committee to:

- Examine and assemble past considerations and analysis of technical and planning studies for utilizing the waters of Crystal Lake Falls as an electrical power community resource;
- Utilize volunteer expert help such as that offered for this project by Dr. Ben Luce, Physics Professor in Sustainable Studies Program at Lyndon State College, and by Little Green Hydro of Corinth, Vt.;
- Identify the opportunities and constraints that bear influence on developing a hydro electric power system including the methods for financing, increasing electric power security for the Village, projected avoided costs for purchasing future energy, and payback period for such a system.

Thus was created the Barton Hydro Re-Examination Committee (BHREC).

In an era of Climate Change and new focus on generating energy from non-polluting renewable resources, this project is timely. The grant would enable more expert and professional assistance. If awarded, BHREC would be able to resolve better understood, but still open questions that speakers and invited experts before BHREC heretofore have not resolved. Such questions include examining present and possible additional flood problems, both in Barton and upstream in the Barton River corridor, as it runs through Glover.

Second, this grant would afford better ways to decide questions which only the citizens of Barton can answer:

- If a hydro project is economically feasible, who should develop it? The Village? A non-profit entity like the Historic Museum? A non-profit outside the village like the Gilman Trust? A co-op composed of Village citizens?
- What should it be used for? Should special steps be taken to assure that in an emergency, the power generated could be used for essential Barton services like the emergency center at the Barton Academy, senior homes, and the fire station?
- How can the contaminated 'Brick Kingdom,' with its derelict, asbestos filled factory remains, have its history honored and integrated with a modern hydro power generation project?

Such answers require more resources than what citizens have been able to attract or donate up to this point. The popularity of the issue of hydro power has been demonstrated (2x as many citizens coming to the first BHREC [now 25 members] meeting as came to the Village Meeting.) Previously, what seemed to kill citizen interest is that few people were involved in the decision-making or knew what options exist. With more citizens now alert to hydro possibilities, a grant is needed to support their inquiry and involvement in understanding salient information and in making recommendations.

The grant would create a more deeply informed community through educational activities involving Barton and Glover young

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people thus ensuring that future projects would start with a much improved foundation of understanding water resources (including hydro power) and flood issues.

Project Description, cont.**3. How does the project meet the competitive criteria?**

- a. Explain how the project implements ideas and actions set forth within the municipal plan. For a municipal plan or update project, describe any pressing community planning concerns that the proposed plan or update will address.

This project follows and fulfill' s the Town Plan' s explicit call to re-examine hydro power at Crystal Lake Falls.

As stated above (Ans. 2) hydro re-examination is explicitly stated in the Barton Town plan. Development of small hydro is also explicitly (but not as forcefully) stated in consortium co-applicant Glover' s Town Plan:

"[Glover] Planning Commission recognizes the importance of renewable energy resources and recommends their development

and use within the town. These would include...small hydro..." p. 33. That Plan adds, "There is a growing awareness of the long-term costs (economic, environmental and social) of our energy choices..."

As engineering and educational activities move forward collaboratively between two adjoining Towns as a result of a MPG Award and shared focus on the Barton River flood hazard planning, Glover will benefit from Barton' s experience to promote and ease next steps for Glover to examine and develop its hydro-power goals.

Both Town Plans have a similar statement to Glover' s about the importance of renewable energy including hydro. Here is Barton' s language:

"many towns across Vermont are re-visiting the feasibility of small hydro electric production. Pursuant to this, the Planning Commission encourages Barton Village to investigate the feasibility of installing small hydro at Crystal Lake Falls to supplement its current generating capacity."

Glover' s Plan shows hydro interest; Barton shows direction and explains its place as lead applicant.

The BHREC has revealed through its public process and discussions numerous subtopics needing to be addressed such as

1. the nature of the possible development (e.g., small hydro vs. micro hydro);
2. the manager of the development (the Village Electric Company vs. a non profit vs. a co-op of Villagers) ; and
3. BHREC furthermore has helped "air" concerns over the brownfield problems in the "Brick Kingdom" while affirming the

desire by its owner, the Barton History Museum, to protect this history.

More resources are now needed to refine options and conduct decision-making that respects and includes the public. This MPG would advance the work started by Barton Village in forming BHREC and the work of BHREC as it has gathered information and clarified options while forming five subcommittees to more efficiently expand its efforts.

To summarize: the competitive criteria are met in the following ways:

1. The project follows an explicit directive in the Town Plan;
1. It involves an energy need, green resource and sustainable development approach while considering the use of resources;
- The project connects to the Designated Village Center both physically as well as historically;
- The project seeks to maintain the historic settlement pattern of a compact village;
- The project follows Vermont State policy designed to increase sustainable energy and promote small hydro power projects like that being explored at Crystal Lake Falls. That policy is reflected in Vt. Act 165, expediting the development of small and micro hydro electrical projects. (May 2012);
- The planning process involves the public and citizens.

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actually referred to Glover' s [and then Barton' s] 1810 "Runaway Pond" disaster (caused by a [mechanical] hydro [mill] project poorly planned, using it as a warning to the community to fully address potential underlying problems. Thus did engineering meet public decision-making meet history. Welcome to Vermont! And to the "Brick Kingdom," where an old dump and asbestos-laden cement casts its shadow over planning.

Project Description, cont.

b. Describe what kind of citizen participation activities and outreach intended to educate and involve the public in planning will be conducted as part of this project as well as any coordination and cooperation with relevant local and/or regional organizations.

- Citizens' effort created the BHREC.
 - o 3 years ago, citizens began to agitate for a Hydro re-examination, including asking Senator Sanders about the issue at a forum in Barton.
 - o A flyer was circulated to start hydro discussions. (Attachment C-1)
 - o It served as the basis for public notices of the 1st meeting of the BHREC. (Attachment C-2)
 - o Citizen effort uncovered a copy of the 128 page 1985 Barton Hydro Study, and provided a copy for the Barton Trustees.
 - o Citizens produced an electronic copy of the Study, and placed a hard copy on reserve in the Barton Library.
- Citizens raised re-examining hydro at the 2013 Village Meeting (Attachment C-4) and
- Drafted a Resolution which was adopted by the Barton Village Trustees in June 2013. (Attachment C-5)

During this time, Trustees and other Village leadership were contacted by citizens sharing information and finding out how interested and/or supportive Trustees were for a hydro re-examination. These efforts included letters to the editor and a dinner meeting with town opinion-makers to discuss their personal experience and support for a new examination hydro power.

- BHREC held public meetings including
 - o July 15, 2013 (30+ attendance);
 - o August 19, 2013 (15 people attendance);
 - o Sept. 5 (tour of W. Charleston Hydro facility; 16 people attendance); and
 - o Sept. 16 (23 people attendance).
- Notices made through newspapers and fliers posted in Barton and neighboring towns. Barton Electric provides electricity and has customers in seven towns and villages including a few in Glover.
- Citizens from towns outside Barton have joined and participated in BHREC meetings including several from Glover and several State Legislators.
- BHREC co-chair spoke of effort to NVDA meeting

BHREC has formed 5 subcommittees:

1. Engineering and Technical Updates: two electrical engineers as Chair and Vice Chair to update the '84 and '85 cost/benefit analyses;
2. Hydro Park: how to best utilize, preserve, and protect as part of a hydro project the historical but abandoned and asbestos filled cement and brick buildings;
3. Subcommittee on History: compile a history of Barton hydro consideration. Endangered as living record grows older--Mr. Brown is the only living Trustee from 1985; in fact the 128 page Study was obtained from files of a community leader now in a Glover nursing home;
4. Subcommittee on Finances and Permitting: Including a State Representative member and Grants; and
5. Organizational Options for Development: if hydro is economically feasible, who should be the developer? What scale? Should there be a parallel historic exhibit offering education and tourist attraction by exhibiting how mechanical hydro operated to power previous Barton mills and factories?.

Important citizen participation will come in projects involving young people at all levels of education.

- A 3-dimensional model will be commissioned as well as a class for young people and adults in how to make such models.

(Attachment F-1)

- Sustainability Studies Student interns from and supervised by the Science Dept. of Lyndon State College. (Attachment F-2) Now that Glover has agreed to partner with Barton Village on various aspects of this project we would expect to double the projected budget for them.
- BHREC will also partner with Lake Region High School, elementary schools and parallel educational institutions such as the Glover and Barton libraries. (A hydro exhibit in the Barton Library has already recruited members to join BHREC.)

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Citizens have also been involved with fundraising.

- Visual artists' creations will be raffled off as a way of engaging the public and businesses in the Village and raising needed resources for the work of this Committee including matching funds for this Grant. (5 are already donated)
- Another BHREC member with an international reputation for Mark Twain impersonations has agreed to contribute performances in both Barton and Glover.

Project Description, cont.

c. Discuss whether your project furthers any of the following statewide priorities.

Designated Village Center map with the National Historic District map would make sense as a good housekeeping activity part of this project.

Some modest resources will be spent exploring the need/efficacy of purchasing and planning for an easement involving the water rights associated with the "Corner Store" that E.M. Brown's just bought at auction.

Project Description, cont.

- d. How does your project relate to any existing designated Downtown, Village Center, New Town Center or Growth Center? If no designated areas exist in the municipality, indicate "not applicable."

If hydro power is developed, the likely intake site is within the designated village area and the remaining components of the project (penstock and powerhouse) are attached and immediately adjacent to the designated village boundary. Both

by location and historic function, the project is closely related to the Village center. It would operate parallel to "Water Street," so named in deference to the historic function of the Falls, in providing hydro power in this same area.

Integral to the Village history, the site project development may include aspects beyond power generation. Preserving the nationally designated historic site will entail at some point mitigation of a brownfield area, stabilization of asbestos-filled cement between bricks and in floors and walls of derelict factories and kiln, and creation of exhibits to educate visitors and tourists.

Likewise, the initial review of flood resilience for co-applicant, Glover, is related to flood problems recently experienced within their designated Town center. The Barton River runs above and below that center and on into the Town

of Barton where a stream from Crystal Lake links the Falls to Barton River. Collaboration between the towns will maximize the efficacy of an initial overview of flood problems in the river corridor and identify additional hazard mitigation planning as well.

Like Barton, Glover citizens are interested in examining hydroelectric power. While some Glover citizens have become members of BHREC and Barton Electric has some customers in Glover, the applicants would work more closely together on the complex and interdependent issues concerning hydro power.

Work Plan and Budget

Task Number: 10

Task Name: Update Barton Hydro 1985 Study

Description of Task:

Attachment F-2 identifies ten tasks for updating the 128 page, 1985 Hydro Study, from the author of that Study, Bob Desrochers from Fairbanks Mills Contracting. He includes new elements as well like flooding impacts.

Responsibility: Supervision by Co Chairs Hanson and Helm

Paid Personnel: Consultant

If other, specify:

Hours: 180

Hourly Rate: \$60.00

Personnel Cost: \$10,800

Material Description Study report and duplicaiton/distribution to community

Material Cost: \$250

Total Cost: \$11,050

Work Plan and Budget

Task Number: 20

Task Name: Exploring micro-hydro as in Village insurance for key places

Description of Task:

Attachment F-4 identifies nine activities that would be included in developing a micr-hydro Study to benefit senior housing, the school which serves as an emergency center and other nearby consumers of electricity. This approach would be off the grid

Responsibility: Supervision by Co Chairs Hanson and Helm

Paid Personnel: Consultant

If other, specify:

Hours: 25

Hourly Rate: \$60.00

Personnel Cost: \$1,500

Material Description Some video of process and report; duplication;possible model

Material Cost: \$300

Total Cost: \$1,800

Work Plan and Budget

Task Number: 30

Task Name: Assistance from Lyndon State Science Dept. and students

Description of Task:

Under the guidance and supervision of Dr. Ben Luce and other members of the Science Dept. of Lyndon State College, student help with research, estimations, and evaluation would be performed. Also developing curricula for younger students 8 to 18 yrs.

Responsibility: Supervision by Co Chairs Hanson and Helm

Paid Personnel: Other Contractor (specify)

If other, specify: student interns and perhaps professors

Hours: 200

Hourly Rate: \$14.00

Personnel Cost: \$2,800

Material Description scientific measurement devices and report, analysis dupl.

Material Cost: \$450

Total Cost: \$3,250

Work Plan and Budget

Task Number: 40

Task Name: Creating three dimensional model of site with tutorial on modeling

Description of Task:

As described in Attachment F-1 a-c, a three dimensional model would be created to help the public connect with the hydro project. People including students would be taught how to model and invited to add buildings, ideas, etc. to the model.

Responsibility: Supervision by Co Chairs Hanson and Helm

Paid Personnel: Consultant

If other, specify:

Hours: 25

Hourly Rate: \$70.00

Personnel Cost: \$1,750

Material Description modeling materials for students and community

Material Cost: \$250

Total Cost: \$2,000

Work Plan and Budget

Task Number: 50

Task Name: Glover exploration of flood hazards Barton River corridor

Description of Task:

Directing engineer(s) and other professionals to review possible flood problems hazards and resilience to identify necessary next steps for proper planning.

Responsibility: Administrators Hanson and Helm

Paid Personnel: Consultant

If other, specify:

Hours: 35

Hourly Rate: \$80.00

Personnel Cost: \$2,800

Material Description Reporting findings to community

Material Cost: \$65

Total Cost: \$2,865

Work Plan and Budget

Task Number: 60

Task Name: Community Involvement in Barton Decisions on Hydro

Description of Task:

Reaching out to Barton citizens with information provided and gained from the "experts" and assisting community decision making about the best course to pursue on hydro.

Responsibility: Administrators Hanson and Helm

Paid Personnel: Other Staff (specify)

If other, specify: Techers; interns; organizer(s)

Hours: 150

Hourly Rate: \$20.00

Personnel Cost: \$3,000

Material Description Materials for running raffle; surveys including canvas

Material Cost: \$225

Total Cost: \$3,225

Budget Totals

Total Project Cost: **\$24,190**
(Work Plan & Budget Total)

State Funds: **\$21,127**
Grant Amount Requested

Match Funds: **\$3,063**

Describe source(s) of match funds (if required): Municipal staff or volunteer time cannot be offered as a match.

The sources of matching funds includes a Raffle (See Sept. 30th p. 5 of Newport Daily Express describing this project); contributions coming through the Hydro Re-Examination Committee per the resolution accepting such; and several performances of a world class Mark Twain impersonator who has agreed to perform in Barton and Glover, the two Towns composing a consortium and submitting this application. See Glover Resolution at Attachment B1 and B2. As a consortium, I think the numbers change.

Attachments F-1 through F-4 provide the budget documentation (F-1 cost figures for producing a model helping citizens visualize the project; F-2 being \$12,500 Fairbanks Mills figure to update their 1985 Hydro Study; F-3 Dr. Ben Luce from Lyndon State College (increased due to Glover becoming a co-applicant with Barton); and F-4 figures for planning for micro-hydro. Submitted as an attachment are the two page resolution of Glover agreeing to become a consortium with Barton on this application.

Budget Documentation

Upload or mail supporting documents that show the work plan and budget is based on realistic information. If your project involves hiring a consultant (including regional planning commission staff), provide a letter or other documentation from a consultant with cost estimates for tasks, including hourly rate.

Uploaded Document: **150179-AttachmentC4d1.pdf**

Mailed to DHCD

3c. That (Name) Edward Helm & Brian Hanson Title Co-Administrators; Co-Chairs BHRE

is hereby designated as the Grant Administrator, the person with the overall Administrative responsibility for the Municipal Planning Grant program activities related to the application, and any subsequent Grant Agreement provisions.

Passed this 23 day of September, 2013.

LEGISLATIVE BODY*	
<i>(name)</i>	<i>(signature)</i>
<u>Robert Croteau</u>	<u>(CEO)</u>
<u>Robert J. Croteau</u>	<u></u>
<u>Paul Sicard</u>	<u></u>
<u>Terry Nye</u>	<u></u>
<u></u>	<u></u>
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INSTRUCTIONS FOR RESOLUTION FORM

- A. The Legislative Body of the Municipality must adopt this resolution or one that will have the same effect. This Form may be filled in or the adopted Resolution may be typed on municipal letterhead, filling in the name of the municipality, the Legislative Body (e.g., Board of Selectmen), and the name and title of the Municipal/ Authorizing Official(s)(M/AO(s); and the grant Administrator.
- B. Following formal adoption, the Resolution must be signed by a majority of the legislative body. The Chair of the Planning Commission must also sign upon endorsement by vote of the Planning Commission.
- C. This form must be either uploaded to the online application or grant, or mailed to:

Municipal Planning Grant Program
 Department of Housing and Community Development
 One National Life Drive, Sixth Floor
 Montpelier, VT 05620-0501

- D. If mailed, an electronic copy of the submitted Resolution document will be uploaded by DHCD staff and available online.

CONSORTIUM APPLICATIONS:

- E. For consortium applications, each municipality must complete a separate Resolution form. All municipalities must designate the same Municipal/Authorizing Official(s) and grant Administrator.

Other Attachments

Document Name: A4 Town Meeting Res
Attached Document: 150180-A4TownMeetingRes.pdf
Mailed to DHCD

Document Name: B1 Glover MPG Res
Attached Document: 150180-AttachmentB1GloverMPGRes.pdf
Mailed to DHCD

Document Name: B2 Glover MPG Res
Attached Document: 150180-AttachmentB2GloverMPGRes.pdf
Mailed to DHCD

Document Name: Attachment C2
Attached Document: 150180-AttachmentC2.pdf
Mailed to DHCD

Document Name: Attachment F1a
Attached Document: 150180-AttachmentF1a.pdf
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Document Name: Attachmemnt F1b
Attached Document: 150180-AttachmentF1b.pdf
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Document Name: Attachment F1c
Attached Document: 150180-AttachmentF1c.pdf
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Document Name: Attachment F2
Attached Document: 150180-AttachmentF2.doc
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Document Name: Attachment F3
Attached Document: 150180-AttachmentF3.doc
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Document Name: Attachment F3
Attached Document: 150180-AttachmentF4.pdf
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DEHCD Staff Attachments

If application documents were mailed or emailed to DEHCD, they were subsequently uploaded here.

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