



## **CITIES FOR CLIMATE PROTECTION COMMITTEE MEETING AGENDA**

Wednesday, October 4, 2017, 8:00 AM

2<sup>nd</sup> Floor **Committee** Conference Room, City Hall

### **Members:**

Dr. Ann Shedd, Chair  
Peter Hansel, Vice Chair  
Gary Lamoureux, Councilor  
Mari Brunner  
Terry Clark  
Chris Brehme  
Larry Dachowski, Alternate  
Dick Cornelius, Alternate

### **Staff:**

Rhett Lamb, Planning Director  
Michele Chalice, Planner

1. Call To Order and Roll Call
2. Approval of August 2, 2017 and September 6, 2017 minutes
3. CCP Committee long-term structure, function, and goals, Rhett Lamb
4. Sarah Brock, Energy Program Manager of Vital Communities,
5. 1995 – 2015 Greenhouse Gas Report - Status
6. ButtonUp workshop: Final details
7. Ashuelot River Dam Project for Comment
8. Adjournment – Next Meeting, Wednesday, November 1, 2017

### RESOURCES:

Vital Communities, Energy: <http://vitalcommunities.org/energy/weatherize/>

Energy Transitions Research Lab: Dr. Thomas Webler, KSC  
[www.energytrans.org](http://www.energytrans.org)

Sierra Club Ready for 100% Renewables campaign:  
<http://www.sierraclub.org/ready-for-100/about-our-program>

Pathways to 100%:  
<http://www.mc-group.com/pathways-to-100/>

**City of Keene  
New Hampshire**

**CITIES FOR CLIMATE PROTECTION COMMITTEE**  
**MEETING MINUTES**

Wednesday, August 2, 2017, 8:00 AM 2nd Floor Committee Conference Room, City Hall

**Members:**

Dr. Ann Shedd, Chair  
Peter Hansel, Vice Chair  
Gary Lamoureux, Councilor  
Megan Straughen  
Terry Clark  
Larry Dachowski, Alternate  
Dick Cornelius, Alternate

**Staff Members:**

Rhett Lamb, Planning Director  
Michele Chalice, Planner

**Guests:**

Jessica Baum, Guest  
Colleen O'Brien, Guest

**Members not present:**

Chris Brehme  
Mari Brunner

**1. Call To Order and Roll Call**

Chair Shedd called the meeting to order at 8:04 am and a roll call was conducted. She thanked Ms. Straughen, who is moving to New Orleans this month, for her work with the committee and the community. She also thanked her for finding a replacement for her position and introduced Ms. Jessica Baum to the committee, a W.S. Badger Company marketing and sustainability employee with a commitment to community climate action initiatives.

**2. Approval of July 5, 2017 minutes**

Ms. Chalice asked members for clarification for July minutes and discussed minor changes with minute-taker. Mr. Dachowski asked Ms. Chalice to check the roster for July 5 to make sure all members were accounted for. Ms. Chalice checked and ensured all members were listed. Vice Chair Hansel motioned to approve the July 5 minutes and was seconded by Mr. Clark and passed by unanimous vote of the committee.

**3. Weatherization Round Table: 9/27, Stone Arch Senior Center, moderator, keynote speaker, format, and participant recruitment**

Chair Shedd announced to committee that the Weatherization Round Table event is scheduled for Wednesday, September 27 at 7:30 am at the Stone Arch Senior Center. She said there are still details to be finalized for event. She said Mr. Brehme talked to Mr. Webler, faculty member at KSC and experienced facilitator, and he agreed to serve as a moderator for the event. Chair Shedd also stated that Mr. Webler would make a great addition to the committee due to his breadth of academic experience with energy policy and they should consider recruiting him. She said she will be in touch with Mr. Webler about

further details and expectations committee has for his role. Chair Shedd said Mr. Webler has to be on campus by 10 am the morning of the event but she does not expect a conflict as meeting will most likely not exceed 1.5 hours if it begins by 8:00 am.

Chair Shedd asked if committee members had come up with inspiration or contacts for a keynote speaker. Ms. Chalice stated that that the keynote speaker should be chosen carefully to spark interest from contractors. She said the main challenge is determining who the contractors would like to hear from.

Chair Shedd informed committee that she had reached out to the organization Building Green in Brattleboro for potential keynote speaker candidates. She said they suggested their CEO, Mr. Nadiv Malin, a professional facilitator with a big picture approach to speaking to energy retrofitting. However, she said he would most likely be a more meta-level facilitator and they already have Mr. Webler for that role. She said the other option is Mr. Peter Yost, Vice President of Building Green, who “can speak to high-level technical perspectives on what is needed to move energy efficiency retrofits forward and better understanding of building science and high performance and how to translate it to building owners, lenders and municipalities looking to support this approach to the building stock.” Chair Shedd stated that both candidates are available for the event; however, there may be fees associated with the speakers which she said may be a limitation for the committee.

Chair Shedd stated she had also reached out to the organization Sea Coast Energized 360, which does a combination of solarization and energy efficiency outreach and set a date next week for a phone conversation with the founders of the organization. She said Ms. Brunner may be able to join that conversation and invited committee members to join in on a conference call if interested. Chair Shedd said she also has a phone meeting with a representative from the Weatherized Upper Valley Initiative. She emphasized that there is not a lot of time to round candidates up and invited feedback from guests, Ms. Baum and Ms. O’Brien. Ms. Baum suggested contacting Benson Wood but does not believe they do retrofitting. Ms. Straughen suggested that committee members solicit feedback from contractors to specifically target their interests, perhaps through the Builders Association to get some ideas.

Vice Chair Hansel inquired about the list committee is using to send out invitations. Chair Shedd she is using the stakeholder and potential participants list. She said she did email the Keene Builders and Remodelers Association but had not received a response yet. Chair Shedd said she also tried Googling “Insulating, Roofing, HVAC and Renewable Energy contractor” categories but the search was not very productive. She used the Yellow Pages and contractor trucks around town and came up with the following: JA Jubb (infrared thermogram inspection), Melanson Company (roofing and solar) and Bergeron (plumbing retrofitting). Mr. Clark said he would look into the Homebuilders and Remodelers Association of Southwestern NH Association to see if they still have a brochure listing all of their members. Ms. Straughen asked if the City keeps a record of approved lenders. Chair Shedd said she had asked Ms. Chalice if there were records of the permits, but that Ms. Chalice did not know if there is an accessible database. Vice Chair Hansel suggested talking to Mr. Josh Meehan from Keene Housing as they have done quite a bit of remodeling and retrofitting. He also suggested that they consider Mr. Meehan as a keynote speaker. Chair Shedd agreed and said Keene Housing is doing impressive work within the limits of their budget.

Chair Shedd reemphasized that Ms. Straughen raised a strong point about the influence a good keynote speaker would have on successful participant recruitment. She asked committee members for additional thoughts. Vice Chair Hansel suggested that perhaps contractors would be attracted to the “eco-vation” system that CCP is committed to. Chair Shedd added that she spoke with Ms. Abigail Abrash from Antioch University about the “eco-vation” initiative, which is aimed at energy efficiency upgrades for several hundred homes in the 3-county area. She said Building Green in Brattleboro is part of the “eco-vation” hub and asked Ms. Baum if Badger is participating. Ms. Baum replied that Badger has been in communication about involvement but has not taken formal steps as of yet. Chair Shedd said she would try to call Mr. Meehan later today to get feedback from him about his contacts in the community and his interest in being a keynote speaker for the Weatherization Round Table. She said that her meeting with the Seacoast 360 program next week might serve as a presentation for CCP and MPA and other groups interested in putting together a more expensive weatherization program for Keene and the region. Vice Chair Hansel said he will be on vacation until next Tuesday or Wednesday but would take on a task when he returns.

Mr. Clark agreed to contact the Homebuilders Association (HA) as they have an extensive roster of contractors listed on their website. He asked the committee for ideas about verbiage on the event so he could communicate the objectives effectively with the HA. Ms. Chalice offered to email Mr. Clark the following description of the event: *“a meeting of organizations and businesses to strategize resources that can assist residents in making their homes, whether owned or rented, more energy efficient.”* She also pointed out that the title of the event had been changed from “Weatherization Summit” to “Energy Efficiency Summit”. Ms. Chalice said she would email the event description to committee members as well. Vice Chair Hansel asked if they were using the word “Summit” or “Workshop” and Chair Shedd said they had chosen “Round Table” as the correct term because the primary objective of the event is to facilitate discussion among contractors, City Code and Kate Peters from Eversource. Vice Chair Hansel agreed that the word “Round Table” is preferable to “Summit.”

Mr. Clark asked if panel members had been chosen yet and Chair Shedd replied they have only selected the moderator at this point. Ms. Straughen informed committee that she had also secured food for the event from the Monadnock Food Co-op from their September donation budget and that it would be preferable if a committee member could pick up the food because the Co-op does not have the means to deliver it due to insurance reasons. Ms. Straughen said somebody from the Marketing department would be in touch with Ms. Chalice about further details. Chair volunteered to pick up the food.

Chair Shedd inquired about how committee will create invitations after contractor list is generated. Ms. Chalice suggested a website called EventBrite which allows people to sign up for free online. Chair Shedd suggested tri-fold paper invitations or a postcard (if there are not too many invitees) and maybe an email follow-up. She suggested that a City source may give invitations more credibility. Ms. Chalice said she would need the name of the organization to see if they would allow access to their Excel spreadsheet to generate a mailing list. Mr. Clark asked if Ms. Chalice had access to cardstock and Ms. Chalice said she had colored cardstock available and asked committee what date they would like the invitations to be mailed out. Committee agreed to wait until after Labor Day weekend (September 4) to send invitations

out. Ms. Chalice asked if anyone is interested in creating an informational flyer about event that could be placed in strategic locations such as Chamber of Commerce, etc.. Chair Shedd suggested Ms. Brunner take on that task, but emphasized that securing a keynote speaker is the first step before creating a flyer.

Ms. Chalice said she would call Ms. Peters at Eversource for a list of certified contractors because those organizations are specifically interested energy efficiency. She also mentioned looking into funders of energy efficiency projects. Chair Shedd said that the contractors are working with a different population and different set of financing sources and that the Eversource programs are probably the best avenue. She said that conversations about funding might be sparked by contractors with interested clients. Vice Chair Hansel suggested they deal with the contractors first as stakeholders and then information can be disseminated to consumers. Ms. Chalice asked for clarification about panel members. She said she will confirm Ms. Peters from Eversource's participation with an email. Chair Shedd said she would call Mr. Meehan from Keene Housing if he would like to participate in the panel. Ms. Chalice said she would speak to someone from the City Code department to see who is available. She also suggested having a homeowner perspective on the panel. Ms. Straughen suggested reaching out to contacts about a contractor or landlord who could serve as a sort of success story. Chair Shedd said she would contact Matthew Walton, Ms. Abrash's husband, who is a contractor and landlord to see if he is interested in sharing his experiences with the panel. Chair Shedd recommended having a panel of 3-4 individuals.

#### **4. Button Up workshop: 10/7, Stone Arch Senior Center, PR**

Chair Shedd stated that the Button Up workshop has been offered around the state for a number of years and is coordinated by the Plymouth Area Renewable Energy Initiative with funding from Eversource. She said Keene is approved on their list this month and the same space is reserved for Saturday, October 7. Ms. Chalice said they are working on the time for event as they are currently training presenters and will let CCP know more about timing and length of workshop, although they have expressed that workshop should be longer to allow people to mill about. She said they will generate flyer content and provide the people, however, they ask that CCP partner with other organizations to help get the word out. Ms. Chalice said since event will take place close to the Maple Acres neighborhood (an area with high wood stove concentration and lower air quality) that Maple Acres should be targeted for involvement. Ms. Straughen stated that the Co-op could promote the event on social media and said to contact Beth at [marketingmonadnockcoop@gmail.com](mailto:marketingmonadnockcoop@gmail.com) and provide her with details and any relevant images.

Ms. Chalice said they will also provide a \$75 voucher for food as well as a press release to the Keene Sentinel. Chair Shedd suggested the City of Keene homepage as an ideal location for a press release. Ms. Chalice said press release will go out to Conservation Committee as well. She pointed out that targeting Maple Acres would be strategic, perhaps by placing hang tags on doorknobs. Ms. Chalice asked if members would be willing to contact Nashua Screen Printing to ask for a donation of 200 tags. Mr. Clark volunteered to take on that task. Ms. Chalice said she would use the Safe Routes to School mailing list. Chair Shedd recommended that committee members email Ms. Chalice if they make any progress on any assigned tasks before next month's meeting.

Vice Chair Hansel suggested contacting the Keene Sentinel for hang tag donations as they may be more willing to donate. Ms. Straughen also suggested looking into the Monadnock Time Exchange as an alternative option and to ask Ms. Brunner for more information.

### **5. CCP Committee long-term structure, function, and goals**

Chair Shedd shared that she received an email from Councilor Jacobs stating that in light of Liberty Utilities project, there is some interest in having a longer-term plan for Keene's energy future. She said that Councilor Jacobs had already spoken to the Mayor and the City Manager and that they had all agreed that CCP would be a natural home for these interests. Chair Shedd said that Vice Chair Hansel joined her to meet with the City Manager and Councilor Jacobs and that they decided that an early step would be an inventory of Keene's potential renewable energy sources, which she believes, is no easy task for CCP. She said the Mayor also indicated a willingness to increase the number of CCP members and to allow participation of non-Keene residents as long as they have a connection to the city. Vice Chair Hansel said he was hopeful about the role of CCP in Keene's energy future and said they even discussed changing name of the committee to reflect energy sustainability. He believes this is something that the committee should address together over several meetings.

Chair Shedd said she attended the Monadnock Progressive Alliance Climate Action team meeting's presentation from a representative of the NH Sierra Club member based out of Hanover. She said the presentation was focused on the "Ready for 100% Renewables" campaign, a collective of about 35 cities around the country who have signed on to the goal of 100% renewable energy for electricity by 2035, and 100% renewable energy for transportation and heating by 2050. She said Hanover unanimously voted to adopt the goals and have established a study group to facilitate goal achievement. Chair Shedd provided links for the national organization "Pathways to 100%", which she believes held its second annual discussion at the National Renewable Energy Lives in Colorado of city-level representatives discussing their transition to renewables. She said Hanover attended this year and she forwarded information to Mr. Lamb to see possibilities of Keene attending next year. Chair Shedd emphasized that it is going to take a fair amount of discussion to shift from a large range of tasks in CCP's climate action and adaptation plans to a greater focus on energy.

Ms. Chalice mentioned that she learned at a seminar about a volunteer-based energy committee in Durham came up with an Energy Master Plan which was approved by their City Council and she offered to call them to see if someone from that group could come in to talk to committee about how they accomplished their plan. Chair Shedd inquired if their plan targeted the municipal sector only or if the effort is community-wide. Ms. Chalice said she believes they started at municipal level but their vision extends community-wide. Chair Shedd and Vice Chair Hansel agreed to begin a dialogue with this energy group, however, Chair Shedd called attention to the timing as the next two months' agendas are focused on the two presentations coming up. She suggested adding an item to the November-December agenda to begin that discussion about CCP's role and function, after the Greenhouse gas emissions inventory update. She said they had been thinking to wait for the inventory to present to Council along with thoughts about setting new goals at that time. Mr. Clark said by that time the City will have signed a power purchase agreement for solar and other renewable energy that the City will be utilizing. He said that consultant will be returning with new information the third week in September and said by October 1 they will be presenting a proposal to City Council. Mr. Clark said he is on the Purchasing Committee and they are

aiming to set up a purchase agreement from two firms to buy solar energy generated elsewhere in New Hampshire. Ms. Chalice asked Mr. Clark to please update her when a decision is made on that agreement.

**6. Sierra Club "Ready for 100%" campaign**

Chair Shedd shared that Sierra Club representative Allyson Samuel is coming to the MPA's Climate Action Team meeting in Keene to talk about how "Ready for 100%" campaigns are put together for a community. Ms. O'Brien said MPA have planned two separate planning sessions on the last two Thursdays in August and she is unsure of what to expect. She believes it will be a lot of work, but she extended the invitation to City representatives. Ms. Shedd and Mr. Clark said they would be able to attend.

Chair Shedd asked if members had any other climate –related news to share with committee. Ms. Chalice shared a letter from Mr. Condos that went to City Council. She said she and Mr. Lamb had a visit yesterday from Mr. Ben Colombo, a marketer from New York City who created a relationship with ICLEI and visited Keene yesterday to learn more about the city's sustainability actions. She said Mr. Colombo is a volunteer on a 50-state American Resilience Road Trip tour talking to cities about sustainability. Ms. Chalice said she shared the city's brochure with Mr. Colombo which highlights Keene's energy and solar projects and recent actions regarding the Paris Agreement. Ms. Chalice said there may be an article about his tour.

Vice Chair Hansel asked for an update on the report and Ms. Chalice said he would need to ask Ms. Brunner. Chair Shedd said she is planning to meet with Ms. Brunner on Tuesday of next week so she will ask her in person about the status of the report and then will email Ms. Chalice. Ms. Chalice stated that she is starting to receive information on the NH Sustainable Energy Association and Climate Lobby in Peterborough and said she was forwarding the information the committee's way and encouraged members to respond if interested.

**7. Adjournment – Next Meeting, Wednesday, September 6, 2017**

Chair Shedd adjourned the meeting at 9:04 am.

Respectfully submitted by,

Ayshah Kassamali-Fox, Minute-Taker

City of Keene  
New Hampshire

**CITIES FOR CLIMATE PROTECTION COMMITTEE**  
**MEETING MINUTES**

Wednesday, September 6, 8:00 AM

2nd Floor Conference Room, City Hall

**Members Present:**

Dr. Ann Shedd, Chair  
Peter Hansel, Vice Chair  
Mari Brunner, Member  
Terry Clark, Member  
Chris Brehme, Member  
Dick Cornelius, Alternate  
Tom Webler, Guest  
Jessica Baum, Guest  
Colleen O'Brien, Guest

**Staff Present:**

Michele Chalice, Planner

**Members Not Present:**

Gary Lamoureux, Councilor  
Larry Dachowski, Alternate  
Rhett Lamb, Director of Planning

1. Call To Order and Roll Call

Chair Shedd called meeting to order at 8:07 am and conducted roll call.

2. Approval of August 2, 2017 minutes

Ms. Chalice stated that Mr. Lamb was supposed to attend today but will not. Chair Shedd said August minutes will not go onto the website until after the October meeting and therefore they will approve them at the next meeting.

Chair Shedd stated that one of the links at the bottom of the agenda is to the Local Energy Solutions conference website in Concord. She said registration is \$35 until October 1 and then \$45 after that and scholarships are available. She encouraged members to attend conference.

Chair Shedd shared that there is a series of New Hampshire business energy efficiency seminars happening around the state this fall and early winter. She said the closest



seminar is in Claremont; however, she contacted the organizers and asked if Keene could be included in the spring series and they agreed. She said she would send around the topics of interest to members.

Chair Shedd said she received a postcard from the Keene's Heritage Commission about a series of free workshops they are doing during the year. She said that in March they are doing a "Restore your Old House: Do's and Don'ts Workshop on Restoration and Energy Preservation" and she said it would be a good idea to help the Commission promote that event. Ms. Chalice said she would put that item on next month's agenda.

Chair Shedd stated that the Monadnock Progressive Alliance's (MPA) Climate Action Team had Sierra Club organizer, Alison Samuel, speak about the "Ready for 100" campaign with their group twice. She expressed her excitement about the potential of setting a city or regional goal to be one hundred percent renewable. She said Sierra Club's goal is to be one hundred percent renewable for electricity by 2035, and for electricity, heat and transportation by 2050. Chair Shedd said the campaign had done a lot of promotion and education in the upper valley, and in May, the Hanover town meeting voted unanimously to adopt one hundred percent renewable by 2030, and one hundred percent renewable for electricity, heat and transportation by 2050. She said she has encouraged the MPA Climate Action team to go for similar goals in Keene and that at some point they will ask for an endorsement from CCP as they build towards a resolution to bring to City Council. She encouraged members to look up the campaign and said she will provide a link at next month's agenda. Ms. O'Brien stated that MPA Climate Action team meets Thursdays at 6 pm in the Southwest Community Room at 49 Community Way across the plaza from the Monadnock Co-Op. She said they will focus the first hour and a half of each meeting towards the "Ready for 100" campaign and then dedicate the remainder of the meeting to the regular Climate Action agenda.

Chair Shedd asked Mr. Webler for his thoughts on the "Ready for 100" campaign. Mr. Webler replied that it is an ambitious initiative but that it is also important to consider what the outcomes are. He said he joined the policy group for the Sierra Club national team to work on policy solutions. He applauded the campaign as it gives drive and vision to the goals. Ms. Chalice added that Keene has made a lot of progress on a municipal level but needs more education on a community level and the campaign provides a space for that. Mr. Webler stated they have a table at the Keene State College Student Center tomorrow at 3 pm.

Vice Chair Hansel asked Ms. O'Brien if the Climate Action team is using templates from other cities around the country. Ms. O'Brien responded that Ms. Samuels came prepared with a plan which included several sections as well as a survey that received twelve responses the first week. She said Ms. Samuels then incorporated the feedback into the plan and is now refining it. Chair Shedd stated that the campaign dovetails well with CCP's goals. She said CCP has not set new targets yet as they are awaiting the 2015 endpoint for the 1995-2015 greenhouse gas emissions targets that they had set. She said that other municipalities have reframed their targets as the original ones had not included other subsets of greenhouse gas emissions. She stated that exploring differences in

framing of targets with Antioch would be helpful. Chair Shedd said the Climate Action team goals also dovetail with the directive recommendation from City administration that CCP take ownership of an evolving renewable energy plan for Keene. She said she has encouraged the Climate Action team to continue working on the “Ready for 100” campaign and that the crafting a pathway towards renewables falls into CCP’s domain. Ms. Shedd said she has spoken with Mr. Lamb and informed him that CCP will need professional help moving forward with a plan and she hopes he will attend the meeting next month to begin that discussion.

Ms. Brunner stated that she sees a lot of useful strategies coming from the 2004 Climate Action plan for the City of Keene and is curious why they are pushing for the renewable energy campaign instead of focusing on the original plan. Vice Chair Hansel said that the idea was primarily a public response to address the conflict between the propane plan for Production Avenue and Keene’s endorsement of the Paris Climate Agreement. He said that Counselor Jacob suggested that the committee would be the best body to evaluate what the future of Keene’s energy usage will look like due to that conflict of interest. Ms. Brunner asked why choose an Energy Plan over a Climate Action Plan as the latter would address the same set of issues. Chair Shedd stated that she has been scoping out strategies for energy plans online from other communities and that there is a broad spectrum. She said some are broad like Keene’s Climate Action plan and others are more focused on municipal energy use for buildings and transportation and energy for the community. She said that a renewable energy plan would be a subset of updating the Climate Action plan for Keene and some communities have done it as part of their comprehensive Master Plan. She said that CCP should continue conversations on how to frame it and how to tackle three significant tasks: the Weatherization campaign, developing an Energy plan and updating the Climate Action plan, which she said could take a couple of years. Vice Chair Hansel said he sees it more as a proposal and it is up to the committee to determine what is best. Ms. Chalice said the committee will go with the public will and it is an issue of balance. Ms. Brunner reiterated that she believes that they could fit this plan into the Climate Action plan process instead of creating a separate plan. Ms. Chalice said that the CCP gets to make that decision. Chair Shedd stated that this fits into the context of the City wanting to streamline the committee support structure and she recommended they hold another retreat in the near future which includes some city administration to define goals and support of each committee. She said she has seen different types of committees run in diverse ways and she encouraged members to think about holding another retreat as they have a new City Manager coming in. Vice Chair Hansel said he would like to hear Mr. Lamb’s feedback before making that decision.

3. Finalization for Button-Up Workshop: publicity, refreshments, set-up/clean-up, attendance by CCP members, partners

Chair Shedd announced that the committee has finalized the date and space for the Button Up workshop on Saturday, October 7 at the Stone Arch Senior Village on upper Court Street. She stated that CCP are not the presenters at the workshop and they are primarily responsible for the publicity, refreshments, set up and clean up. She said the workshop is

sponsored by the New Hampshire Saves program administered by the utilities. She said the workshop is geared towards homeowners and will offer tips on how to weatherize homes. She said the MPS Climate Action Team, Monadnock Sustainability Network and Southwest Community Services are now co-sponsors. Ms. Chalice said she has asked co-sponsors to help advertise the event. Ms. Brunner asked if they could advertise to communities outside of Keene and Ms. Chalice said yes. Chair Shedd said that the room capacity is not more than 50 and there is no registration required. Ms. Chalice said she would call to confirm the capacity for room. Chair Shedd said that in the past these events would not attract more than 20 people but that the climate may be different now. Chair Shedd reminded Ms. Chalice that the committee had planned to target advertising to the Maple Acres community and asked if the City could generate a mailing list. Ms. Brunner said she could help place flyers if needed. Mr. Webler mentioned advertising on Facebook as well. Ms. Chalice encouraged everyone to advertise on their own Facebook pages and said she would send out the pdf file again. Ms. Baum said she placed event details in the Badger newsletter. Ms. Brunner asked if CCP has contacts for the different neighborhood associations in Keene. Ms. Chalice said she can post on her own neighborhood Facebook page. Ms. O'Brien asked if the presenters do any of the publicity. Ms. Chalice replied that the coordinators of the workshop do not do the publicity and that is the responsibility of CCP. Ms. Brunner said she could put together a slide for Cheshire TV. Ms. Chalice said she would try placing an advertisement on SAU 29 as they might be willing to put it on their Facebook page and newsletter.

Chair Shedd said the presenter for the program is a certified energy auditor from Temple, NH and that a representative from the utilities will also be present to discuss funding available to utilities. Ms. Chalice asked who would pick up snacks. Chair Shedd replied that they have a \$65 budget for snacks which may not be enough if the event is highly successful. She said Ms. Straughen had arranged a \$75 food donation from the Co-OP but that perhaps they should use that donation for another event as they already have funding for the Button-Up workshop. She said the Works will sell 13 bagels for \$30 and if they cut bagels into quarter sizes they would have 52 bagels available, as well as a couple of tubs of cream cheese. She also suggested purchasing cider from the Co-Op. Ms. Chalice asked if somebody could pick up food from the Works that morning. Ms. Brunner asked if they would consider asking the Works to donate bagels instead. Ms. Chalice said maybe they should reserve a donation for another event in which they do not have enough funding. Chair Shedd asked if they would need hot beverages if they have already cider and Ms. Chalice suggested they get coffee and cream instead. Chair Shedd volunteered to pick up the food from the Works and Mr Brehme said he would pick up the cider from the Co-Op. Chair Shedd said she will ask the Works if they will donate extra cups and napkins that morning. Ms. Chalice asked Chair Shedd to please find out ahead of time if the Works will make cups and napkins donation. Ms. Brunner asked committee if they would like her to send a press release to radio stations. Ms. Chalice agreed. Ms. Chalice also encouraged members picking up food to get receipts to be submitted for reimbursement. Chair Shedd said event doors will open at 9:30 am so they should set up by 9:00 am and presentation will take place from 10-11:30 am. Ms. Chalice said they also need a crew to break down after event. Vice Chair Hansel and Ms. Brunner volunteered to help break down. Chair Shedd also suggested that Ms. Chalice decide if

“flyering” Maple Acres is preferable over a mailing list from the City. Ms. Braum said she could help with “flyering” leading up to the event as she is out of town the weekend of the workshop.

Chair Shedd said she checked the “NH Saves” list of certified residential auditing firms which have met the minimum qualifications for the NH program and she said there are currently no such firms in southwest NH. She said there is one in Hancock. Chair Shedd stated that it would be helpful at some point to connect with the local contractors who perform energy work to see what it would entail for them to become certified in the program. Vice Chair Hansel asked if a contractor is not certified if that means that they could not get into the program and Chair Shedd replied that there may be some clause about that and it does not mean that there are not other qualified contractors, but that those are the contractors who have been vetted by the building professional industries membership process. Ms. Brunner asked if they would want to encourage auditors to get the credentials and Chair Shedd replied that they would need to explore that more. Vice Chair Hansel suggested that could be a question for the presenters. Chair Shedd agreed that if they are supporting local business and energy conservation that it would be preferable to have someone from Keene perform the audit instead of an auditor from another city. Ms. Chalice said she is currently contracting with J JUBB and would solicit their insights into the process.

Chair Shedd stated that October is Energy Awareness month as designated by the Bush administration in 1991, and stated that perhaps writing a letter to the editor about this fact would help create awareness and also generate press coverage for the Button-Up event. Vice Chair Hansel agreed to write a letter to the editor and Ms. Chalice asked Chair Shedd to share the details about Energy Awareness month with him so that he could reference it in his letter. Chair Shedd shared that at the last MPA meeting she attended she sat next to the Rindge energy committee member, Ms. Marten and Chesterfield energy committee member, Mr. Condos, and stated to members that it would be great to one day have a conversation with these key members.

Ms. Brunner shared that she is currently working on the greenhouse gas inventory and recalculating the community inventory data. She said she is still working on solid waste numbers but that she is close to finishing up and feels confident in the numbers in all other areas. She said the results show that transportation comprises the majority of emissions (46%) and solid waste is a much smaller piece. Ms. Brunner stated that there was a decrease in commercial and industrial sector transmissions which she found interesting because over a million square feet have been added to those sectors in the past 20 years. She said that “heating degree days” is measurement of colder weather and because 2015 was significantly warmer than 1995 this trend might have contributed to the overall decrease in energy use. Ms. Brunner stated that overall the community emissions do not appear to have gone down significantly like previously hoped. Vice Chair Hansel asked if she was preparing a presentation and Ms. Brunner replied that she is currently developing the presentation. She added that through the process she discovered a number of errors when developing the Methodology section of her presentation and these discrepancies prompted her to re-crunch the numbers. Ms. Chalice

added that an Antioch graduate student with no previous relevant experience had originally arrived at those numbers and that the technical nature of the inventory process required the experience of a professional. She highlighted the need for more specialized experience when creating these data sets. Vice Chair Hansel commented that one of the reasons the energy usage may have gone down is due to “fuel switching” to propane and Ms. Brunner agreed that this played a role, but that it does not represent a big enough factor in decrease in energy usage and that the overall decrease in “heating degree days” were probably a bigger factor accounting for observed energy decrease. Ms. Chalice stated that as a caution to the committee, the inventory process is not going as expeditiously as they had hoped in terms but the data is more thoroughly checked. Ms. Baum added that as a former graduate student who participated in a project in which she had no previous experience, that perhaps the best way to be inclusive of graduate student skills is to ensure that students have access to expert supervision. Ms. Chalice agreed but emphasized that expert experience and time needed for supervision is not easy to acquire in a small community. Ms. Brunner highlighted the importance of consistency in completing the inventory process. Ms. Chalice stated that Mr. Lamb is attending the meeting next month and because the planning department is seeking to hire a new employee, CCP can make a recommendation to Mr. Lamb that the candidate possess specialized experience and expertise in the inventory capacity. Chair Shedd stated that through her reading she discovered that other towns hire energy coordinators that are well-qualified. Ms. Chalice suggested that hiring an individual with experience in the field is imperative as hiring an energy coordinator is unlikely for Keene at this time.

4. Weatherization Campaign

**a. Postponement of 9/27 event**

Chair Shedd stated that since the last meeting she has engaged in helpful conversations with organizers from the Upper Valley Weatherization campaign and the Seacoast Solarization and Weatherization campaign. She said both organizations supported the idea of meeting with contractors early but that she decided that CCP was not far along in the process to have those conversations with contractors yet. She said an organizer from the Upper Valley campaign is available to attend the October meeting to inform the committee on how they built their campaign. Chair Shedd said it would be helpful to learn about existing models in other parts of NH instead of reinventing the process and recommended that CCP postpone the September event. Vice Chair Hansel agreed to the postponement as he feels that CCP is not quite ready. Mr. Brehme pointed out that one of the reasons they had decided on a September date was due to contractor schedules so postponement means that they are pushing a new date out into late spring given contractor availability. Chair Shedd agreed.

**b. Upper Valley &/or Seacoast campaign insight**

Chair Shedd shared that the Seacoast Weatherization campaign is quite impressive. She said they grew out of a local energy hub with representatives from a number of towns in the Seacoast area. She said they decided to do a weatherization and solarization campaign

drawing heavily from Upper Valley Weatherization models and six months later they were already signing up participants. She stated that the organization was not part of a municipality which perhaps was part of their success. Chair Shedd said she will email out the website links for both campaigns again and encouraged members to learn more about them.

5. Adjournment – Next Meeting, Wednesday, October 4, 2017

Chair Shedd adjourned meeting.

Respectfully submitted by,

Ayshah Kassamali-Fox, Minute-Taker

**RESOURCES:**

- NREL Energy Planning document: Here is a useful document from the National Renewable Energy Lab, outlining a process for cities developing strategic energy plans: [https://www.nrel.gov/tech\\_deployment/pdfs/community\\_greening.pdf](https://www.nrel.gov/tech_deployment/pdfs/community_greening.pdf)
- Local Energy Solutions annual conference Sat 10/28: [https://www.nhsea.org/local-energysolutions\\_conference](https://www.nhsea.org/local-energysolutions_conference)  
NHSEA website: <http://www.nhenergy.org/energy-planning.html>
- Current CCP Mission Statement: “Created to aid in the reduction of greenhouse gas emissions and increase the community’s adaptive capacity to the expected impacts of a changing climate in order to protect the viability of the community and to protect public health, safety, and welfare.”
- Adding an Energy Chapter to your Town’s Master Plan: <https://www.nh.gov/oep/planning/resources/conferences/spring-2016/documents/master-planenergy-chapter-forcey.pdf>



**WEATHERIZE**  
Upper Valley



Working Together for

**VITAL COMMUNITIES**

VitalCommunities.org

**Weatherize campaigns team up local volunteers and home performance contractors to make it easier for residents to invest in home energy improvement projects.**

**Volunteer Team:** Spread the word, host events, follow up with participants

**Contractor Team:** Limited-time discounts for a specific community, participate in outreach

**Local Electric Utility:** Rebates for eligible residents (based on heating fuels used per sq. foot)

**Goals:**

- 1. Increase the number of NHsaves Home Performance with Energy Star (HPwES) projects completed each year in participating towns/cities.** Each NH electric utility offers the HPwES program. The program is available to any NH homeowner who uses above a certain amount of heating fuel per square foot to heat their home. Eligible residents receive a \$100 comprehensive home energy audit and their utility will cover 50% of project cost up to \$4,000.



**NHSAVES**

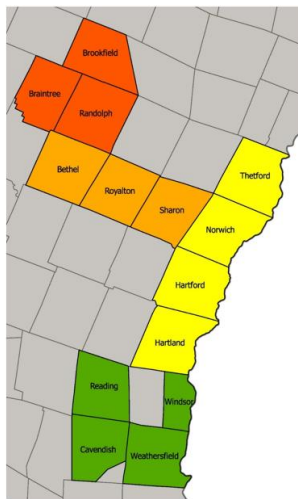
- 2. Assist residents who do NOT qualify for the HPwES program in completing home energy projects.** Some people who don't qualify for HPwES will still have cost-effective opportunities to reduce energy use and improve home comfort. Communities can negotiate with participating contractors to offer \$100 audits and fixed pricing for projects completed outside the HPwES program.



## Motivators – How Weatherize encourages action

1. Find out if your home qualifies for up to \$4,000 toward energy efficiency improvements – many people don't know about this program – it's worth finding out if you qualify
2. Receive a \$100 energy audit with a trusted contractor whether or not you qualify for the state program
3. Deadline to sign up and request a \$100 audit
4. Deadline to commit to a project (to be entered to win prizes)
5. Encouragement from the volunteer team (participants appreciate being contacted by local volunteers who are just checking in to see how everything is going)

## Impact – Vermont Case Study



**January – June 2017**

**14 Vermont towns**  
(total population 40,000)

**7 Contractors**

**376 sign-ups**

**212** were connected with a partner contractor

**100** are moving ahead with a home energy project

## Other Key Program Components:

- Request for proposals sent to local contractors when seeking partners
- “Good Faith” agreement with local contractors – nothing is legally binding
- Regular check-in calls between contractors and volunteers
- Shared contact list between contractors and volunteers, including status updates
- One large “kick-off” event in January
- Prizes donated by local companies (cash or gifts) – residents who commit to a project are eligible to win

Weatherize was developed by Vital Communities as an open source program for communities across Northern New England. Interested communities should contact [Energy@VitalCommunities.org](mailto:Energy@VitalCommunities.org) for more information and resources.





KEENE, NEW HAMPSHIRE

# NHSAVES 2017 Button Up

## **FREE** Home Energy Workshop

### **NHSAVES** Button Up Workshop

is a 1.5 hour presentation about how to improve the energy efficiency of your home. It covers basic building science principles as well as examples of whole house weatherization measures that will button up your home for the heating and cooling seasons. It also covers details about the energy efficiency programs offered by NH utilities to provide energy audits and weatherization, rebates on electric and gas appliances as well as new construction. NH residents wishing to use energy more efficiently, conserve energy and save money on their electricity and heating bills, will find the information very useful. This workshop is sponsored by NHSAVES and funded by Eversource, Liberty Utilities, NH Electric Cooperative and Unitil. Each workshop is free and presented by a knowledgeable *BPI Certified Building Analyst*. A utility representative will be available following each presentation to answer further questions about their programs. **For more information visit [NHSaves.com/Events](http://NHSaves.com/Events)**

**FREE**  
**LED Bulb**  
to the first  
**10**  
Households



### **WHERE:**

**Stone Arch Village Senior Housing  
Community Room  
835 Court Street  
Keene, New Hampshire**



### **WHEN:**

**Saturday, October 7, 2017  
Doors open at 9:30 A.M.  
Presentation from 10:00 A.M.–11:30 A.M.**  
Light refreshments will be served

### **PRESENTER:**

**Ted Stiles, BPI Certified Energy Auditor**

### **ATTENDEES SEEKING MORE INFO:**

**Ann Shedd**  
*Cities for Climate Protection Committee Chair*  
ladyleafy@gmail.com

**Michele Chalice**  
*City of Keene Planner*  
mchalice@ci.keene.nh.us

### **SPONSORED BY:**

**NHSaves [www.nhsaves.com](http://www.nhsaves.com)**

### **LOCAL PARTNERS:**

City of Keene's Cities for Climate Protection Committee  
Monadnock Progressive Alliance's Climate Action Team  
Southwest Community Services  
Monadnock Sustainability Network

### **FOR MORE INFORMATION:**

Visit **[www.nhsaves.com/events](http://www.nhsaves.com/events)** for dates and locations of all Button Ups.

Workshops are organized by **Plymouth Area Renewable Energy Initiative, (PAREI)**  
Questions or inquiries call 603-536-5030

The workshops are free thanks to funding provided by **NHSAVES**



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# WEST STREET HYDRO

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August 7, 2017

Cities for Climate Protection

Chairperson

3 Washington Street

Keene, NH03431

RE: Ashuelot River Dam Project, FERC No. P-14471

To Chairperson:

The Federal Energy Regulatory Commission will review the following small hydro project for a Licensing through the Traditional Licensing Process (TLP) for the nonprofit, West Street Hydro, Inc.

The project is located at the Ashuelot River Park, behind 281 West Street, Keene, NH. The coordinates are

Easting: 249192

Northing: 48346.8

The present primary use for this dam is to maintain the level of the Ashuelot River behind the impoundment which is estimated at approximately 34 square surface acres and 120 acre feet of storage at the spillway crest elevation of 472 ft. MSL. The Ashuelot River runs through Ashuelot Park, a public park that is the site of many community events and public use. Jogging trails and exercise routes run the length of the trail. The Ashuelot River is canoed above the dam and further below the dam.

Existing conditions of the dam are below:

The dam is approximately 160 feet in total length and 16 feet in total height. The dam features a 134 foot sharp crested weir type overflow spillway along with a gate structure at the southerly abutment which is also made out of stone masonry. This outlet structure consists of a fore bay which feeds three sluiceways, each of which was once controlled by a vertical stem slide gate approximately 6.5 ft. H x 5 ft. W. The middle gate has been blocked with a steel plate and the remaining two gates also appear to be inoperable. The impoundment is also maintained by a dike structure, which extends approximately 1,750 feet upstream of the northerly abutment on the west side of the channel. The dam originally had flashboards which raised the head of the pond approximately 2 feet.

The following is a description of the project:

The Ashuelot River Dam Hydroelectric Project is potentially a 96 kilowatt project that could generate 360,000 kilowatt hours (KWH) annually. It is being proposed for study, and possibly development by West Street Hydro, Inc. at a dam owned by the City of Keene, NH. A gross head of 8.5 feet with a tail water effect of 4 feet was used in the applicant's estimation. The project would be located at the Ashuelot River Dam, also known as the Ashuelot Park Dam. The proposed powerhouse would be approximately 22 feet square. The reinforced concrete foundation and flume would be below grade. The brick superstructure would stand about 18 feet above grade at the peak of



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# WEST STREET HYDRO

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the roof. The generating equipment would consist of two vertical shafts Francis turbines with approximate capacity of 43 kilowatts each. These turbines would be set in an open flume with vertical shafts extending to belt drives or gearboxes on the upper floor of the powerhouse (at grade level).

Please find the enclosed Study Plan. We welcome your agency's review and comments regarding the project. Once your agency has had the opportunity to review the project, we request a letter from your agency that has your comments and specific language requested from FERC.

Comments can be sent to:

West Street Hydro, Inc.  
PO Box 323  
Keene, NH 03431

Upon your review of the project, please email or mail a copy of the letter to me. Also, please include any preliminary mandatory conditions. We hope to receive your project specific comments and letter within 30 days.

Sincerely,



Kenneth Stewart  
Project Director  
West Street Hydro  
[kstewart@mcmxi.com](mailto:kstewart@mcmxi.com)



# ASHUELOT RIVER HYDROELECTRIC PROJECT STUDY PLAN



West Street Hydro, Inc.  
Project No. P-14471  
Prepared by Kim Goddu, KEL Sustainability Group, LLC

## TABLE OF CONTENTS

Introduction .....	3
Project History.....	3
Project Boundaries .....	4
Proposed Study Plans and Justification to Stakeholder Study Requests .....	4
Proposed Study Plans .....	4
Studies Completed .....	5
Study Request, Methodology, and Cost .....	5
Study Plan 1: Water Quality Assessment .....	5
Study Plan 2: Section 7 Endangered Species Analysis.....	6
Study Plan 3: Rare Plant Survey .....	6
Study Plan 4: Historical Resources .....	7
Studies Completed .....	7

## INTRODUCTION

West Street Hydro, Inc. (WSH) as an applicant for the Ashuelot Dam Hydroelectric Project (No. P-14471) is working with the Federal Energy Regulatory Commission (FERC), other public agencies and interested stakeholders in the Traditional Licensing Process (TLP). Our project offers an alternative to the City of Keene to reintroduce hydropower to the Ashuelot Dam and provide a renewable energy education demonstration.

It is important to understand the goals and objectives of each study and the sustainability of the project. Below are the summary points of the project.

1. This project is run of the river. The project will raise the water level one foot behind the dam; however, the project will not run during times of low flow.
2. Two small turbines will be housed in a powerhouse next to the Ashuelot Dam. This area houses the old hydropower infrastructure.
3. The project would generate approximately 370,000-kilowatt hours per year. The project would generate power at 480 volts, 3 phase. The connection would be stepped up to 34.5 kV to interconnect to the Eversource distribution lines, which run along West Street. The transmission line would run underground 1,000 feet or less to make this interconnection.
4. The project is subject to New Hampshire Department of Environmental Services Wetlands and shoreland regulations and bound by rules that protect water and other resources.
5. The project is a public/private partnership between WSH and the City of Keene. A Memorandum of Agreement will be drafted between the City of Keene and WSH for the operation, maintenance, and power distribution. WSH has a good working relationship with local, state and federal agencies and has engaged heavily with resident stakeholders. We believe our framework will allow all parties concerned to come to an agreement on the scope of the project.

## PROJECT HISTORY

The proposed Project is located at Ashuelot River Park on the Ashuelot River in the City of Keene, New Hampshire in Cheshire County. The City of Keene is currently under a Letter of Deficiency (LOD) from the New Hampshire Dam Bureau for the Ashuelot Park Dam. Discussions of the deficiency consummated in the City initiating a series of public meetings to deliberate the cost of dam repair and maintenance versus removal. WSH was formed as a non-profit entity; the WSH Board of Directors approached the City of Keene to offer a third option that included restoring hydropower to the dam.

Since 2012, WSH has pursued licensing for the project known as the Ashuelot Dam Hydro Project. As determined by the Federal Power Act, the Federal Energy Regulatory Commission (FERC) administers hydroelectric licensing. On April 24, 2013, FERC issued WSH a 3-year Preliminary Permit for the proposed Project. Since that time, WSH participated in a wildlife study and hydraulic and natural resource study in conjunction with the City of Keene, help a Joint Agency Meeting and received permission to use a Traditional Licensing Process (TLP) in May 2015.

Throughout the process, WSH has maintained a value of transparency and inclusion. WSH routinely engages local individuals and organizations around the dam which have reduced the level of controversy surrounding the project. The environmental stewards at WSH see the benefits of an environmentally friendly, renewable energy supply and an alternative to fossil fuels.

An application for operation will be submitted to FERC in April 2018.

## PROJECT BOUNDARIES

The project is small with limited boundaries. There is existing historical power infrastructure. Therefore, the project is limited only to the new development.

1. Ashuelot Park Dam: specifically the existing patio and sluice gates.
2. Proposed powerhouse: the open area directly west of the existing vaults.
3. Powerline: The area the buried power line would connect to the existing Eversource transmission line.
4. Tailrace: 50 feet of excavation to accommodate new powerhouse and retaining wall.
5. Construction staging area: The area directly next to the historical infrastructure, currently used as a footpath and seating area for park users.
6. Top of the Dam: The addition of one-foot flashboards across the spillway and an eel ladder.

It is our goal to use the existing infrastructure to preserve the historical nature in and around the dam area. The City of Keene and other group are for creating a powerhouse using materials similar to those of the surrounding architecture to maintain the façade of the area. Additionally, WSH recognizes the importance of collaborating with agencies, organizations and local stakeholders on wildlife impacts, flow impacts, and recreational purposes.

## PROPOSED STUDY PLANS AND JUSTIFICATION TO STAKEHOLDER STUDY REQUESTS

West Street Hydro, Inc. (applicant) submits the proposed study plan for the Ashuelot Dam Hydro Project (P-14471) to the Federal Energy Regulatory Commission. The study plan reviews the proposed studies from agencies and local stakeholders and organizations. The plan is divided into three sections: proposed studies, studies completed and studies in progress. Appendix A includes all of the methodologies and necessary information for the hydraulic and natural resource study currently underway.

## PROPOSED STUDY PLANS

The studies in this section respond to the study request from the preliminary permit issued by a resource agency or FERC. The proposed study plans are structured to collect and provide the data for the original study request but provide certain modifications based on the project size.

Studies Proposed:

- a. Water Quality Study
- b. Section 7 Endangered Species Analysis

- c. Rare Plant Survey
- d. Historical Resource Evaluation

## STUDIES COMPLETED

Since the project inception, four studies are complete based on the initial concerns from the community, agencies and the Board of Directors.

## STUDY REQUEST, METHODOLOGY, AND COST

### STUDY PLAN 1: WATER QUALITY ASSESSMENT

#### GOALS AND OBJECTIVES

The purpose of this study is to determine if the Ashuelot Park Dam under current conditions (without flashboards) is causing or contributing to water quality standard violations. This baseline data can then be compared with post-construction monitoring to determine the impact of the proposed project on water quality. The objective of the study will be to collect water temperature, dissolved oxygen (DO), pH, nutrients and chlorophyll-a data under low flow, high temperature conditions downstream of the impoundment, within the impoundment and in the upstream riverine section and to compare those measurements with state water quality thresholds and criteria for Class B surface waters.

#### RELEVANT RESOURCE MANAGEMENT GOALS

WSH's goal is for the Ashuelot River Hydroelectric Project is to meet all state water quality standards in the Project impoundment. The USFWS and NHDES have similar goals in that they want to reduce or eliminate any project related water quality, or quantity, impacts to aquatic resources associated with the Project impoundment. The Ashuelot River Hydroelectric Project affects are limited to the impoundment through the Project turbine. WSH will manage releases to meet state water quality standards of 4.0 mg/l dissolved oxygen in the turbine release. These goals are relevant in protecting the public resources associated with the Project.

#### BACKGROUND AND EXISTING INFORMATION

A fairly extensive amount of water quality data exists for the Project. These data have been collected primarily by WSH. Much of the data are summarized in the Preliminary Application Document.

#### PROPOSED METHODOLOGY

WSH will consolidate baseline water quality information for the Project turbine releases to the impoundment and present that data in a report of information. WSH will also provide the necessary data to validate the current method of estimating tailrace dissolved oxygen concentrations at the Project.

#### LEVEL OF EFFORT AND COST



The level of effort is medium. Additional training is required for the report analysis. NHDES staff is training KEL Sustainability Group, LLC on the methodology and reporting requirements. The cost of the analysis is low at \$5,000.

## STUDY PLAN 2: SECTION 7 ENDANGERED SPECIES ANALYSIS

### GOALS AND OBJECTIVES

The purpose of this study is to complete Section 7 Endangered Species Analysis permitting, including assistance with preparing a Biological Assessment (BA), review of the issued Biological Opinion (BO), and other state or federal consultation related to the federally endangered Dwarf Wedgemussel (*Alasmidonta heterodon*).

### RELEVANT RESOURCE MANAGEMENT GOAL

WSH's goal is for the Ashuelot River Hydroelectric Project is to meet all Dwarf wedgemussel standards in the Project impoundment.

### BACKGROUND AND EXISTING INFORMATION

There are some historical and recent studies of the Dwarf wedgemussel in and around the impoundment of the Ashuelot River Dam. One was recently completed by the City of Keene Conservation Commission.

### PROPOSED METHODOLOGY

The methodology will follow the study requires in the Section 7 requirements.

### LEVEL OF EFFORT AND COST

The level of effort is medium. The total cost of the Section 7 Analysis will be \$3,000. It is unclear if long term monitoring will be required which could increase the cost significantly.

## STUDY PLAN 3: RARE PLANT SURVEY

### GOALS AND OBJECTIVES

The purpose of this study is to conduct a field survey for the Canada shore quillwort (*Isoetes riparia* var. *canadensis*) within a portion of the West Street Dam impoundment. Based on previous project documentation, historical plant records for this species are present in or adjacent to the project area. Natural Heritage Bureau has requested survey of the project area to better determine true presence or absence of this plant species.

### RELEVANT RESOURCE MANAGEMENT GOALS

WSH's goal is for the Ashuelot River Hydroelectric Project is to identify and document Canada shore quillwort plants in the Project impoundment.

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#### BACKGROUND AND EXISTING INFORMATION

Quillworts are inconspicuous, spore-bearing plants in the Isoetaceae family. They are obligate wetland species, occurring in aquatic or semi-aquatic environments such as the slow-moving Ashuelot River. Quillwort leaves are hollow and quill-like, arising from a central corm. Canada shore quillwort (*Isoetes riparia*) can be found in rivers, creeks, and tidal mud flats in southern Quebec and southeastern Ontario, south to eastern New York. The plant has 5 to 35 long, erect bright green to yellow-green leaves, which are 6 to 35 centimeters long. Canada shore quillwort is listed as endangered by the State of NH. Historical plant records for this species are present in or adjacent to the project area. NHNH reports one record for the study area, consisting of one observation in 1971 near Court Street with no apparent observations since.

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#### PROPOSED METHODOLOGY

Plant identification will be based on information supplied by Natural Heritage Bureau using GPS mapping and typical diagnostic field and reference guides.

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#### LEVEL OF EFFORT AND COST

The cost of this study is low. The rare plant survey will cost \$5,400.

### STUDY PLAN 4: HISTORICAL RESOURCES

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#### GOALS AND OBJECTIVES

The goal of this study is to assess the site for any historical significance of native populations.

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#### BACKGROUND AND EXISTING INFORMATION

The building site is directly adjacent to the Ashuelot River Dam. The property is located within the Ashuelot River Park complex. The site is maintained by the City of Keene as a pedestrian area with viewing, biking, and play space.

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#### PROPOSED METHODOLOGY

West Street Hydro will hire Monadnock Architects to perform the historical analysis.

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#### LEVEL OF EFFORT AND COST

The level of effort for this study is minimal with a cost of approximately \$700.

### STUDIES COMPLETED

Dwarf wedgemussel

Fish Analysis and Assemblage

Energy Generation Analysis

## Hydraulic Modeling and Natural Resource Assessment