



ENERGY & CLIMATE COMMITTEE MEETING AGENDA

Wednesday, September 4, 2019, 8:00 AM

2nd Floor Conference Room, City Hall

Members:

Dr. Ann Shedd, Chair
Peter Hansel, Vice Chair
Terry Clark, Councilor
Chris Brehme
Jake Pipp

Ken Dooley
Cary Gaunt
Anna Schierioth
Rod Bouchard
Andrew Dey (nominated)

Staff:

Rhett Lamb, ACM/Community Development
Director Mari Brunner, Planner

1. Call to Order and Roll Call
2. Approval of August 7, 2019 Meeting Minutes
3. Committee Rules of Procedure
4. Energy Plan
 - a. Focus Group #1 Report-out
 - b. October Community Workshop
 - c. Success Stories
 - d. Consultant Status
5. Upcoming Outreach Opportunities:
 - a. Drive Electric Event, September 14, 2019
 - b. October Energy Awareness Events
6. Legislative Update: SB 286, "Relative to aggregation of electric customers by municipalities and counties"
7. Correspondence from Fred Ward, dated August 8, 2019
8. New Business
9. Next Meeting Wednesday, October 2, 2019
10. Adjourn

City of Keene
New Hampshire

ENERGY AND CLIMATE COMMITTEE
MEETING MINUTES

Wednesday, August 7, 2019

8:00 AM

Second Floor Conference Rm.

Members Present:

Dr. Ann Shedd, Chair
Peter Hansel, Vice Chair
Councilor Terry Clark
Anna Schierioth (until 9:00 AM)
Rod Bouchard
Kenneth Dooley
Jessica Baum (until 9:00 AM)
Cary Gaunt

Staff Present:

Mari Brunner, Planner
Shaylin Salas, Intern

Members Not Present:

Jake Pipp
Christopher Brehme

1. Call to Order and Roll Call

Chair Shedd called the meeting to order at 8:01 AM. Roll call and brief member introductions ensued. Guests Andrew Dey, from Bensonwood Unity Homes, and Nancy Gillard and Caroline Jones from the Clean Energy Team, also introduced themselves.

Chair Shedd announced that Jessica Baum has tendered her resignation. She thanked her for her contributions to the ECC.

2. Approval of July 3, 2019 meeting minutes

3. Approval of July 18, 2019 meeting minutes

Councilor Clark made a motion to approve the meeting minutes of July 3 and July 18, 2019.

Mr. Bouchard noted a correction to second bullet point at the top of page 9 of the July 18 minutes: "Mr. Bouchard" in "Mr. Bouchard was going to profile Keene State College" should be changed to "Mr. Brehme."

Mr. Hansel seconded the motion, which passed by unanimous vote.

4. Energy Plan

a. Focus Group #1

Chair Shedd stated that this is the substance of the committee's work. She asked Shaylin Salas to talk about it. Ms. Salas stated that the focus group is happening next Wednesday from 8 to 9:30 AM in the second floor committee room of City Hall. She continued that it is a tool they are using to gain input from stakeholders in regards to the energy plan. They hope to gather some direction on key priorities and considerations, and get feedback on general strategies on how to move the energy transition forward. Ms. Brunner stated that this focus group is focused on landlords and realtors in the community, and getting input on what their barriers or challenges are regarding energy efficiency, and how the City could potentially help them.

Chair Shedd asked if plans are developing for the next focus group. Ms. Salas replied that she created a slide show presentation as an introduction to what is happening, and while there are a few slides specific to this group, it could be easily adapted to use for other focus groups. She continued that the next focus group was going to be for homeowners and tenants, but they switched the focus to business owners and the commercial and industrial sector. The most challenging part is getting participants, and she and Ms. Brunner welcome ideas for who to involve. Chair Shedd replied that the list of potential participants is in the shared drive, and asked if Ms. Salas could re-send the link so people can add contact information for any potential members of Keene's commercial industry that they think of. She continued that the person adding the contact information might be the best person to actually make the contact, instead of having it be a cold call from City staff.

Ms. Gaunt stated that probably ECC members' contacts will be people who are already in favor of the energy resolution. She asked what their strategies could be for reaching out to people who might be more difficult to bring around, because it is important to include that early in the process. Discussion ensued. Ms. Gaunt spoke about how it is helpful to have lots of outreach conversations, especially individual outreach/one-on-one. Ms. Salas spoke about how she approached cold calls with the City's contact list. Ms. Gaunt suggested that ECC members add to the list not just potential strong advocates, but also people they want to include who might be less enthusiastic, so they can internally strategize about how to reach out in an effective manner. Chair Shedd asked ECC members to be thinking about which subgroups within the commercial sector they want represented in their discussions, and give feedback to Ms. Salas and Ms. Brunner, which can be done between meetings. Ms. Gaunt stated that it is helpful to have lists of allies and antagonists, for strategizing.

b. "Meeting-in-a-box" Outreach Activity

Chair Shedd explained that this is a way to engage volunteers in the community, by giving them a kit/box filled with items needed to facilitate a meeting (agendas, sticky notes, pens, etc.) to garner input from their circle of work colleagues, neighbors, friends, and others.

Ms. Brunner stated that Ms. Salas put together a packet of meeting materials that could be used for this activity. She continued that the idea is for volunteer facilitators to attend a training (regarding the City's goals and basic meeting facilitation skills), and then host meetings in publically accessible locations. Four or five members of the Clean Energy Team have volunteered to be facilitators. One benefit of this activity is that it engages people who may be more comfortable giving feedback indirectly, through a community member, instead of talking directly to City staff.

Mr. Hansel asked how these volunteer facilitators will get participants to come to the meetings. Ms. Brunner replied that after the volunteer facilitators attend a training and choose a few days and times as well as a meeting location that works for them, City staff will create a meeting schedule and ask members of the public to sign up for a meeting time. She continued that to seek participants, there could be a big outreach push to the community, via print, radio, television, and so on. She and Ms. Salas will reach out to the Monadnock Interfaith Project, too. Mr. Hansel asked if she means that the volunteer facilitators are not responsible for signing up participants. Ms. Brunner replied that is correct; the City will coordinate that. She continued that they could also consider an online sign up option.

Chair Shedd asked how many meetings the City is envisioning. Ms. Brunner replied that it depends on how many volunteers they have, how much availability those volunteers have, and the amount of community interest. Chair Shedd suggested they consider having meetings in places that would have specific subsets, such as the Senior Center, low- and middle-income communities, etc. It might be easier for some participants to go to a meeting at a familiar location with a trusted go-between facilitating. Ms. Brunner replied that that is a great point to consider.

Mr. Bouchard asked if the ECC is trying to be involved in the energy track in the Radically Rural conference. Chair Shedd replied that she is involved through her role on the Monadnock Energy Hub Steering Committee. She continued that some members of Clean Energy Team have been quite central in working on that. She asked Ms. Brunner if the City will promote it on its website.

Ms. Brunner replied that she met yesterday with the IT Department, and the sustainability webpage needs a lot of work. She continued that if anyone has content to add to it, IT staff can usually turn it around in one day. The energy track at Radically Rural is promoted on the sustainability page of the City's website, but many people will not see it there, because not many people go to the City's website on their own. People get drawn to the site from social media or other means. The sustainability page is a good place to put content but they have to be thoughtful about how to direct people to the page. The City has a Facebook page and people at this table could potentially push information out using their outreach channels.

Chair Shedd reported that the Monadnock Energy Hub is planning a regional meeting on November 5, open to the public. She continued that she will share more information about it when she has it.

c. October Outreach and Education Events

Chair Shedd stated that October is designated as “energy awareness month.” She continued that the ECC could use that designation to have an assortment of events, regarding energy efficiency and clean energy. She asked if Clean Energy Team met and if they have thoughts. Ms. Gillard, member of Clean Energy Team, replied that they are bringing Doug Bogen, from Seacoast Anti-Pollution League, here in October to speak about offshore wind, and are working to coordinate that, which might tie in well with a presentation about understanding the grid. That way, when people say “We can’t do wind here in Keene,” they can explain how wind energy resources in different areas of the state can still benefit the local energy grid. They are working on the logistics.

Chair Shedd stated that Henry Herndon from Clean Energy NH also expressed interest in doing a Grid 101 Presentation to help the general public understand it. He and Mr. Bogen should get in touch and see how to sort that out.

Chair Shedd stated that the committee had talked about having the first community workshop towards the end of October, after some of these presentations. She asked if that fits in with the timeline.

Ms. Brunner replied that whether the ECC wants to get involved with that is up to the ECC, but Ms. Salas is with the City until the end of the month and there is no one lined up to replace her. She continued that if they want to do a workshop in October, it would take ‘all hands on deck’ to get it done. She and Ms. Salas were brainstorming about whether it would make sense for all of the different groups that are planning events in October to partner and do something together. For example, they could consider a World Café format with stations around the room for topics such as energy efficiency, renewable energy, what is the grid, etc., and the ECC could have a presence there to talk about the energy plan. Mr. Hansel stated that in the past, the ECC has co-sponsored events, which does not necessarily mean money is involved – it means lending their name. He continued that he does not know if Clean Energy Team would be interested in that.

Ms. Gillard stated that Clean Energy Team also discussed sharing stories, such as through a “clean energy tour” – community members could go around and talk with people in their neighborhood or the city who have transitioned to 100% clean energy already. Chair Shedd replied that that is an intriguing idea, and an energy association in New England has had this type of event in the past. She asked who they envision would organize the tour. Ms. Gillard replied that the Clean Energy Team would organize it. She continued that they want to focus on one event, and really put their energy into it.

Chair Shedd stated that the idea was to have each energy-related group in the area do one event so the burden did not fall on any one group. She asked if the ECC would have the bandwidth to organize a green buildings tour in two months. Ms. Brunner replied that if they want to stick with their community outreach timeline, the focus should be the workshop. She continued that the green buildings tour sounds like an amazing outreach opportunity they should support, but given the staff time the City has for this, it would be great if people could direct their volunteer energies toward the workshop.

Ms. Gaunt stated that she agrees that a green energy tour would be a good outreach event, but it would be a better activity for Earth Month in April. Chair Shedd replied yes, that is more realistic, and they should keep this active in their discussion list to find collaborators. Mr. Hansel replied that they could ask people in the focus groups if they know of a site that would be appropriate for a tour. Mr. Bouchard replied that the old court house could be included. Ms. Baum stated that they could connect with the Monadnock Food Coop – they do farm tours, which get a lot of interest, and many of them also have solar on site. Mr. Bouchard replied that Amanda Littleton might be a good contact.

Ms. Gillard stated that Clean Energy Team members have talked about collecting these stories and adding them to the Clean Energy Team website. It is a great idea to continue gathering stories from home owners and businesses. Chair Shedd replied that Clean Energy Team already has success stories, from Filtrine and Bensonwood, and the committee would like to cross reference those on the City's sustainability page.

Ms. Brunner stated that they will be adding a "Success Stories" tab to the sustainability webpage. She continued that for example, it will highlight the ones the ECC is working on, link to the Clean Energy Team website, as well as the websites for Cheshire County, Keene State College, the Keene School District, and so on and so forth. Chair Shedd stated that Mr. Dooley has numbers on the economic advantages that energy efficiency and clean energy have had for the school district. Ms. Brunner stated that it would be great if they could get some success stories ready to launch in October to put on the webpage and in social media.

Ms. Brunner stated that she and Ms. Salas would like feedback from the ECC about how they envision the October forum. She asked, do they want it to be a forum in which they provide information to people, or do they want it to be really interactive? Mr. Hansel replied that the format of the West St. Dam forum worked well – an informational presentation was followed by small-group discussions (at color-coded tables), each addressing a different question. Chair Shedd replied that that is similar to the format of the Goose Pond forum. Ms. Brunner asked if they would like the October forum to have a similar format, with a presentation and then breaking out into smaller groups. ECC members replied yes. Chair Shedd suggested that there be an extensive presentation which gives a recap of the City's goals and what the process has been, and makes it clear that they are still early in the process and want the community involved. Mr. Hansel added that it should also include the greenhouse gas goals, which have not been put out to the public extensively.

Ms. Brunner asked whom the group wants the presenter to be. She continued that she could do it, but she welcomes ideas for other speakers. Chair Shedd replied that the presentation should allude to the three entities people pay taxes to and how they are working on the plan, to demonstrate the avoidance of costs. Ms. Gaunt replied yes, addressing the financial aspects is important early on. Clean energy and energy efficiency have become affordable for a lot of people because there are so many innovative financial resources out there. They should provide a strong argument about the financial benefits and ways of paying for it, so it becomes hard to give a reason *not* to do it. Mr. Bouchard agreed. Discussion continued, and people agreed that someone from the school district, the county, Antioch, KSC, or Keene Housing would be a good

presenter. Ms. Gaunt suggested having a panel of speakers, and others agreed. Chair Shedd added that it would be good to include information on the City's ESCO contract and what that has yielded.

Ms. Brunner asked about the logistics of date, time, and location. Discussion ensued, and per Mr. Hansel's suggestion, Chair Shedd agreed that it's worth contacting the Chamber of Commerce to see if this could tie in with their community forums.

Chair Shedd asked if there is merit in asking the Mayor for a proclamation designating October as Energy Awareness Month in Keene. She continued that another group is asking for a day in October to be Energy Efficiency Day. If there will be multiple events they could be linked to the proclamation. Discussion ensued in support of the idea. Ms. Brunner stated that it is helpful to have something written ahead of time for the Mayor's Office to look at. Chair Shedd replied that they could probably adapt the template provided on the Energy Efficiency day website.

Councilor Clark made a motion for the Energy and Climate Committee to ask the Mayor to issue a proclamation for Energy Awareness Month. Mr. Hansel seconded the motion, which passed by unanimous vote.

Ms. Gaunt stated that she had another thought about community outreach – the committee could reach out to civic organizations like Rotary Clubs, which are always looking for speakers. Mr. Hansel agreed, and discussion ensued about the logistics. Mr. Hansel stated that he has a connection with one of the Rotary clubs and will ask about getting on their speaker schedule. Ms. Gaunt stated that she will check with the other Rotary club, which she is connected with. Ms. Schierioth stated that she will check with the Lion's Club.

Chair Shedd stated that the other opportunity for outreach before October is the Electric Vehicle Expo on September 14th, from noon to three, organized by the Monadnock Energy Hub. She continued that it is tied to the installation of an electric vehicle charger as part of the Monadnock Food Coop's expansion. She gave more details and stated that the ECC has been asked to table at the event. Councilor Clark and Ms. Brunner replied that they will be there.

d. Status of Consultant

Ms. Brunner reported that City staff are still working on getting a contract signed. She continued that the City Manager has been away. It should be signed soon. The one question that the City Manager had was whether or not they wanted a final report that is in written form. They had talked about getting a final Power Point presentation from Cadmus. Having a more formal, written report would drive the cost up a bit but they have the budget. The Community Development Director, Rhett Lamb, has been out this week and she has been waiting for him to weigh in on this. She asked for thoughts. Chair Shedd replied that a written report might be more informative, and more likely to be looked at and used. Mr. Hansel added that some Power Point presentations are skeletal and rely on the speaker, while others have more detail, so it depends. Mr. Bouchard spoke in favor of having a detailed written report. Ms. Brunner thanked committee members for their feedback.

At 9:00 AM, Ms. Baum and Ms. Schierioth left. Ms. Baum stated that the committee should feel free to call her back in for anything related to agriculture.

e. US DOE SolSmart Designation Program

Chair Shedd stated that Cadmus is a technical consultant. She continued that the City's participation in the SolSmart Designation program will give them access to Cadmus' services. Ms. Brunner replied that they filled out and submitted the application, and have a letter signed by the City Manager, and are waiting to hear from Cadmus about next steps. She continued that filling out the application was helpful, as it generated positive conversation in her department.

Chair Shedd stated that the program is geared toward helping communities have a range of policies, ordinances, development standards, etc., in place to encourage, rather than to get in the way of, solar development.

5. Eversource Proposed Clean Energy Innovation Program

Ms. Brunner stated that she received an email from Connor Jennings at Eversource regarding a proposed pilot program for low and moderate income communities called the "Clean Energy Innovation Program." She included the email with a press release and attached flyer in the agenda packet on pages 21 through 23. She followed up with Eversource for more information and received a Power Point presentation with more details. She distributed copies of this Power Point presentation to committee members. Ms. Brunner noted that she is trying to set up a meeting with City staff and Eversource to discuss this program further and learn more about how it could be useful for communities in Keene.

Mr. Hansel asked about energy system size requirements for the program. Ms. Brunner replied that she does not know if it has to be one large installation or if there can be several installations that are cumulatively five megawatts; they need to learn more from Eversource. She does know that eligible projects need to benefit low and moderate income communities. The City will have an initial meeting to learn more about the program, so that if there is interest within the community they can be ready to respond to a request for proposals.

Chair Shedd stated that the Governor did sign SB 165, which the ECC had requested the City comment on. This bill promotes low and middle income solar, including on-bill crediting for participants, which makes a big difference. She does not know if Eversource is hoping for this to be part of it. The utility companies are required to implement two or three projects within the next year and noted that it would be great to take advantage of this program.

Councilor Clark stated that this could give them opportunities for the airport. He asked Ms. Brunner to include him in the meeting that is being set up.

Chair Shedd asked Ms. Brunner if there is anything else. Ms. Brunner replied that nothing has happened yet - when she asked Mr. Jennings if they could set up a meeting, he was still trying to track down the correct Eversource people to be part of that meeting.

6. Committee Membership

Chair Shedd gave an update on committee membership. Ms. Baum has resigned, however this is not official yet. Ms. Schierioth and Mr. Bouchard have been confirmed by City Council. Andrew Dey has been nominated and is on schedule to be appointed in September. With these changes, the committee will have filled ten of eleven regular member slots on the committee. She asked if Zach Luse had submitted a request to join the committee yet; Ms. Brunner said she did not believe so but would check with the City Clerk's office. Discussion ensued. Mr. Dey offered to contact him. Ms. Brunner stated that the City Clerk's office has clarified that the process for volunteering to join a committee includes filling out the volunteer form and that submitting one's resume/CV is optional. The City Clerk's Office revised the online form to make it more evident that the resume is optional, which might make it easier for people to apply to be on the committee.

Chair Shedd stated that the committee still needs to fill three positions for alternate members. She asked people to keep thinking about who might be good to ask, keeping in mind that it is nice to have representation from different sectors. Discussion ensued, and committee members proposed seeking a member from Cheshire Medical Center, Southwestern Community Services, Tanglewood Co-op, the industrial sector, C&S, and the faith community. Mr. Hansel stated that he will try and contact someone at Cheshire Medical Center. Ms. Gaunt stated that she has a person to ask as well.

7. Monadnock Energy Hub Membership

Chair Shedd stated that the program coordinator for the Hub was asking the various communities what their membership status was. The committee could become a member of the parent organization, the Monadnock Sustainability Network, which would be an institutional membership and cost money. She thinks they could identify as a participating community without being members, unless anyone wants to delve deeper into that and ask the City for more money. Ms. Brunner stated that the committee currently belongs to ICLEI, which is about \$600 per year, and Clean Energy Team for about \$250. The ECC's annual budget is \$850. When they became members of Clean Energy Team they asked for a budget increase to cover that. Councilor Clark stated that they should ask for a budget increase for next year, to join the Energy Hub.

Chair Shedd stated that they might need to look into this more. Ms. Brunner replied yes, they would have to figure out what the membership would get them. She continued that the whole goal of the Monadnock Energy Hub is to provide support to local energy committees, which the ECC is, so it would surprise her if they required committees to become paying members. Discussion continued.

8. Upcoming Meetings and Events of Interest

a. Solarize Training, August 19, 2019

Chair Shedd stated that this training will be in the Putnam Science Building at Keene State College, from 6:30 to 8:00 PM, and gave details about it. She continued that the press release says they are looking for additional people. It seems that the campaigns will be organizing in the fall and kicking off in mid-winter, if they know anyone who may be interested. She will send everyone the announcement.

b. Electric Vehicle Expo, September 14, 2019

Chair Shedd noted that she had already provided details about this event, which will take place from 12:00-3:00 p.m. at the Monadnock Food Co-op in Keene.

c. Local Energy Solutions Conference, November 15, 2019

Chair Shedd stated that the City's membership gives two free admissions. Mr. Bouchard replied that the County is also a member.

9. New Business

Mr. Bouchard reported that SB 286 has passed. He asked if that would be a topic of interest for this committee on a future agenda. Chair Shedd and Ms. Brunner replied yes. Ms. Brunner continued that last week she was at a Clean Energy Procurement conference in Denver to learn more about how different cities are working towards their 100% renewable energy goals. One take away was that community choice aggregation is essential because it makes purchasing electricity that comes from renewables easy and affordable for residents. Because SB 286 passed, communities in New Hampshire can adopt community choice aggregation as an "opt-out" program or default program. Residents would have the option to opt out and choose a different electricity provider. Chair Shedd replied that the 'opt in' numbers are pretty dismal, compared to opt out numbers. Discussion continued, and Chair Shedd noted that this is a potential opportunity for City and County collaboration and they should keep the conversations going.

The meeting adjourned at 9:20 AM.

Respectfully submitted by,

Britta Reida, Minute-taker

Reviewed and edited by Mari Brunner, Planner

City of Keene
NEW HAMPSHIRE

ENERGY AND CLIMATE COMMITTEE

Rules of Procedure

1. **Meetings:** Meeting times and dates are to be determined by members of the Energy and Climate Committee (hereinafter “Board”). All meetings must be open to, and accessible by, the public. Meeting times and locations will be posted at least twenty-four (24) hours in advance of any such meeting in two (2) appropriate places, one of which may include the City’s website in accordance with RSA 91-A:2. At least three (3) meetings shall be held each calendar year.

2. **Minutes:** Minutes of such meetings shall be kept in accordance with RSA 91-A:2, and shall include the following: the name of the Board; date, time and location of the meeting; the members present; the members absent; the time that the meeting was called to order and by whom; motions or other actions taken including who made the motion and who seconded; who voted and how; who recused and the reason for recusal, and whether the action passed or failed; the names of persons appearing before the Board; the subject matter discussed; the time the meeting adjourned; the name of the minute taker. If there is no minute taker specifically assigned to the Board, the Chair shall designate an appropriate individual for this purpose. Within 5 days of the close of the meeting of the Board, the minute taker shall submit the draft minutes to the Staff Liaison for the Board. The Chair, or Vice-Chair, shall review the draft minutes and may make such corrections as are necessary to ensure that information required to be included in the minutes of such meetings is accurate. Examples of appropriate corrections include spelling of names, grammar, citations, and technical jargon. In no case shall a correction alter what was said or discussed at the meeting, or the result of any action taken. All corrections shall be made with “track changes” or a similar feature turned on so that other Board members are aware of any such corrections. If extensive revisions are being requested by a member, the Board should conduct the review at the end of the regular agenda items. Once approved, meeting minutes shall be immediately filed with the City Clerk.

3. **Quorum:** A quorum shall consist of a majority (a minimum of 50% plus 1) of the total eligible number of members that may be appointed to the Board, either under state law or by City Code, regardless of the number of members actually appointed. No Board business shall be conducted in the absence of a quorum. An available alternate member shall be appointed by the Chair in the absence of a regular member to form a quorum, and shall be appointed by the Chair at any time in the absence of any regular member. An alternate member so appointed shall continue to serve in the place of the absent regular member if a matter under consideration by the Board extends over multiple meetings, and/or until that matter has been completed. A quorum of the Board shall always be physically present at the location specified in the public notice, and no Board business shall be conducted through email or other electronic communication that does not allow the public to hear, read or otherwise discern the meeting discussion. A member may participate by telephone or other electronic communication when the member’s attendance is not reasonably practical, the reason for absence is stated in the minutes, and all participants, including the public, are able to hear, read and discern the meeting discussion. Email communications among the Board or between the Board and Staff Liaison shall be used only for the transmittal of

administrative matters such as scheduling or the transmittal of information to be acted upon at the public meeting. Board business shall not be conducted in any manner other than at a duly noticed public hearing.

4. **Elections:** At the first meeting of the new calendar year the Board shall elect, by simple majority, a Chair and a Vice-Chair.

5. **Presiding Officer:**

- A. The Chair shall preside over the meeting and call the members to order.
- B. In case of absence of the Chair, if a quorum is determined to be present, the Board shall proceed with the Vice-Chair acting as the presiding officer.
- C. In the event that both the Chair and Vice-Chair are absent, and if a quorum is determined to be present, the Board shall proceed to elect a Board member, by majority vote of those present, as Temporary Chair of the meeting until the presiding officer appears.

6. **Right of Floor:** The Chair shall control the meeting. When recognized by the Chair, a member of the Board or the public, shall respectfully address the members of the Board and shall confine themselves to the question under debate, avoid personal comments, and refrain from impugning the motives of any other individual's argument or vote. The Chair shall act on all proper motions for which there is a second. A motion to call the question shall require two-thirds (2/3) vote and is not debatable.

7. **Order of Business:** The business of all regular meetings shall be transacted in the following order:

- A. Call to order.
- B. Roll call of attendance.
- C. Acceptance of minutes of preceding meeting.
- D. Board business on meeting agenda.
- E. New business
- F. Adjournment.

8. **Meeting Agenda:** The meeting agenda shall be prepared by the Staff Liaison on consultation with the Chair, or in the absence of a Staff Liaison, by the Chair. Items to be placed on the meeting agenda must be received by the Staff Liaison a minimum of five (5) business days prior to the scheduled meeting. No subject matter that is not on the agenda shall be discussed at the meeting, but shall be referenced under New Business and shall be placed on the agenda for discussion at the next regular meeting.

9. **Communications:** Communications to be introduced to the Board must be signed by the person introducing the same, either by hand or scanned and submitted electronically, must give his or her residential address or mailing address, if different, at which he or she can be notified of meetings, and telephone number, if available. Communications not containing all of the above will not be accepted by the Staff Liaison, or by the Chair, and will not be placed on the agenda of the Board. Communications addressed to a Board member of a personal or argumentative nature

shall not be introduced in the meeting. Any email communication directly to a member of the Board relating to a matter before the Board must be provided to Staff Liaison, or to the Chair, for compliance with this paragraph and for inclusion in the record. If the Board decides to submit a written memorandum on a matter before it to the City Council, it shall direct the Staff Liaison to draft the memorandum for review and approval by the Chair prior to submission to the City Council.

10. **Order of Business - Out of Order:** The Chair may permit any item of business to be taken out of the regular order as set by the agenda unless there is an objection by a Board member in which case a majority of the Board may vote to take the item out of order.

11. **Reports:** When required, the Board shall issue a Majority Report as “Informational” or as a Recommendation to the City Council based on the findings of the Board. A simple majority of the quorum shall be sufficient for the report.

12. **Tie Vote:** In case of a tie vote on any motion or recommendation, said motion or recommendation shall be deemed defeated.

13. **Reconsideration:** After the decision of any question, any member who voted with the prevailing side may move for reconsideration for that action at the next regular meeting of the Board. For the purposes of this Rule, the next regular meeting of the Board shall be the next regularly scheduled meeting of the Board which is at least ten (10) days after the meeting of the Board at which the decision to be reconsidered occurred. The Board member shall submit a written notice and the question shall be placed on the agenda in accordance with these Rules of Procedure (“Rules”). A motion to reconsider shall require a majority vote of the Board members present. If the motion to reconsider is approved, then the matter shall be before the Board for further discussion and appropriate action. After a motion for reconsideration has once been acted on, no other motion for reconsideration thereof shall be made. If the original vote is sustained at the next regular meeting as defined herein, the Board shall have no further right of reconsideration on the question.

14. **Conflict of Interest:**

- A. Every member present when a question is placed before the Board shall vote thereon, except when the member has a conflict of interest in the matter as defined by Article VI, Conflict of Interest, and Section 25, Communications, of the Charter of the City of Keene. A conflict may exist when a Board member’s spouse, civil union partner, parent, child, or other member of the Board member’s immediate family has a conflict. A conflict exists when a business or individual has a matter before the Board and the Board member is employed by the business, or is otherwise a party in interest. If the conflict becomes known prior to a Board meeting, the Board member shall file the written particulars of the conflict of interest with the Staff Liaison for inclusion on the Board agenda. If the conflict becomes known to the Board member during a meeting, the Board member should immediately disclose the particulars of the conflict of interest. The question of whether or not a conflict exists will then be decided by a majority vote of Board members present. When such a conflict exists, the member having the conflict shall

be recused and shall be prohibited from participating in the discussion and shall not vote on the matter. No Board member having a conflict of interest may discuss the matter in which they have a conflict with any other Board member in any other place or any other time.

B. Any Board member having reasonable grounds to believe that another Board member has a conflict of interest may raise the issue on their own motion. The question will then be decided as set forth above.

15. **Non-Public Session:** City Boards and Commissions may not enter a non-public session without prior notice to, and the presence of, City Staff at the meeting. In the event of a requirement to enter into non-public session, a majority of members present at a Board meeting may, by roll call, vote to go into non-public session in accordance with RSA 91-A:3. The motion shall state the specific statutory basis relied upon for the non-public session. All persons who are not Board members qualified to participate in the discussion shall leave the meeting, unless specifically requested to remain. No action or decision with respect to the matter shall be taken in non-public session. Minutes of the non-public sessions shall be taken and the minutes shall be publicly disclosed within seventy-two (72) hours unless, by recorded vote of two-thirds (2/3) of the members present, the minutes are sealed in accordance with RSA 91-A:3. The minutes of any non-public meeting shall be designated as such and shall be filed with the City Clerk no more than seventy-two (72) hours after the meeting.

16. **To Amend Rules:** These Rules may be amended or new Rules adopted by a two-thirds (2/3) vote of all members appointed to the Board. The public meeting notice shall state that a proposal to amend the Rules is included on the meeting agenda. Proposed amendments shall be submitted in writing at a regular Board meeting, but shall not be acted upon until the next regular meeting of the Board. An amendment to the Rules shall become effective upon passage.

17. **Creation of Subcommittees:** The Board may create subcommittees as necessary to assist in its operations, which shall be advisory to the Board. Subcommittees shall be created by vote of the Board for a stated purpose, identifying the specific Board members appointed, with the purpose and membership included in the minutes of the Board. Non-Board members shall not be appointed to subcommittees. Subcommittees are public bodies under RSA 91-A, and are subject to all of the requirements applicable to the Board under the foregoing Rules of Procedure, including prior public notice of meeting dates, times and meeting locations which are accessible to the public, and keeping and submitting appropriate minutes within the time periods stated above.

18. **Rules of Order - Roberts Rules of Order** shall govern points of order not covered herein.

Adopted this _____ day of _____, 2019.

_____, Chair

Energy Plan Focus Group – Landlords and Realtors

City Hall, 2nd Floor Committee Room

August 14, 2019

8-9:30 AM

Attendees:

Toby Tousley
Dave Copeland
George Hansel
Doug Barrett

Meeting Notes:

Participant Feedback:

Plan Priorities:

- Keep the “big picture” in mind
 - The energy plan should complement greater community-wide efforts rather than be an isolated initiative
- Fix the “dumpy areas” (neighborhoods that do not receive as much city attention or services as others, such as law enforcement or street cleaning maintenance; the example used was Church Street). As an example, get sneakers hanging off of electrical wires down ASAP rather than letting them hang there for a year or two.
 - These sorts of areas are a lot less maintained compared to areas directly near or in downtown Keene. This has implications for living environments and cost of housing and related social services.
- Invest in the appropriate infrastructure
 - E.g. pocket parks are useful
 - These sorts of investments should not be a one-time deal. Said infrastructure needs to be continuously monitored and maintained
- Align with the “bottom line”
- The goals need to also serve the low-income, not just the homes that can afford new energy installations
- Energy efficiency and conservation is the best immediate option

Outreach Priorities:

- General education of the goals, potential strategies, and what it all really means (the perception is that this is aspirational and lacking a technical/realistic approach)
- Share models and case studies of people/organizations in town (especially those that have converted/upgraded old homes)

Opportunities:

- RNG (renewable natural gas from Liberty Utilities) as an effective intermediary energy source and/or a renewable source to fulfill the transition goals
- The bus route is growing (just got extended)
- Having a central market place area (like the Co-op) is important – people generally want to live near these areas
- Appliance upgrades
- A community purchasing program (important that this be cheaper than default option)
- Switching water billing from quarterly to monthly (need to investigate whether this is possible)
- Free energy audits through Home Energy Score (from the potential City partnership with Southwestern Community Services)

Challenges:

- Upfront costs
- Complicated financing processes related to big investments such as solar installations
- Energy source is low on the hierarchy of needs – is below food, mortgage, child care, etc.
- Lack of educational and technical support available
- Disposal – solar panels are not recyclable, what will we do with them when they die? How will windmills be de-commissioned? Decommissioning is built into contracts/agreements for nuclear power plants – can we do the same for renewable energy systems?
- For landlords with a lot of property and facilities, converting all over their energy systems to renewable is a serious infrastructure/labor/time investment (example: Toby Tousley who has 30 housing locations)

How can we do it?

- Guidance on the financial process of investing in energy efficiency and renewables
- Free energy audits
- Highlighting the success stories and models
- Partner with Eversource to make the renewable source the default option
- Woodstove changeout program (like the SWCS one from a little while back)
- Spreading air quality awareness, e.g.:
 - School pick-up areas with flashing meters that show when idling is producing a dangerous amount of air pollutants
 - A large, color-coded “dial” on Central Square to show the air quality that day (similar to dials used to show fire risk on a given day)
- Property tax incentives and exemptions
 - In addition, how these things relate to assessments
- Effective communication... this is a dense topic and needs to be shared in a way that is accessible and impactful otherwise it may overwhelm people which leads to no action/meaningful changes

- Prioritize the “bottom line” to appeal to the big manufactures/commercial groups
- Coordinate the landlords to meet and organize around this topic (this sort of coordination is easier following or leading up to crises)
- Consider realistic intermediaries such as CNG and RNG

Other thoughts:

- Neighborhoods see improvements “one house at a time”
- Expected changes from these goals will additionally include more envelope improvements, heating, and personal efforts
- The motivation is (nearly) always cost savings
- These goals will have different implications for not just large vs. small landlords, but also part time vs. full time landlords
- Tax incentives can be more relevant to the commercial sector vs the residential
- Biomass (wood) heating, although renewable, is harmful to air quality (although it was noted that better burning practices and newer technologies are much cleaner/better for air quality)
- Buying renewable energy from Texas doesn’t help the air quality here – should prioritize local/regional renewable energy where possible. Counterpoint to this: by supporting renewable energy in another location, the renewables market is strengthened which will eventually benefit our area, too.
- One perception of the City of Keene is” “The city knows better than me” – because of this some people do not question city-mandated things and/or are not motivated to be civically engaged

Additional Notes:

- Look into the community and energy efficiency efforts of SEVCA (Southeast Vermont Community Association)

SB 286-FN-LOCAL - AS AMENDED BY THE HOUSE

03/14/2019 0866s
5Jun2019... 1946h

2019 SESSION

19-1078
06/04

SENATE BILL 286-FN-LOCAL

AN ACT relative to aggregation of electric customers by municipalities and counties.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Bradley, Dist 3; Rep. Cali-Pitts, Rock. 30; Rep. Klee, Hills. 30

COMMITTEE: Energy and Natural Resources

ANALYSIS

This bill permits municipalities and counties to develop plans for electric aggregation programs.

Explanation: Matter added to current law appears in **bold italics**.

Matter removed from current law appears [~~in brackets and struckthrough~~]

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

03/14/2019 0866s
5Jun2019... 1946h 19-1078
06/04

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to aggregation of electric customers by municipalities and counties.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 Aggregation of Electric Customers; Definition; Aggregation. Amend RSA 53-E:2, I to read as follows:

I. "Aggregation" means the grouping of retail electric customers to **provide**, broker, or contract for electric power supply and energy services for such customers.

2 Aggregation of Electric Customers. Amend RSA 53-E:3 and RSA 53-E:3-a to read as follows:

53-E:3 Municipal and County Authorities. Any municipality or county may:

I. Aggregate the retail electric customers within its boundaries who **do not opt out of or who** consent to being included in an aggregation program.

II.(a) Enter into agreements **and provide** for:

- (1) The supply of electric power.
- (2) Demand side management.
- (3) Conservation.

- (4) Meter reading.
- (5) Customer service.
- (6) Other related services.

(7) *The operation of energy efficiency and clean energy districts adopted by a municipality pursuant to RSA 53-F and as approved by the municipality's governing body.*

(b) Such agreements may be entered into ***and such services may be provided*** by a single municipality or county, or by a group of such entities ***operating jointly*** pursuant to RSA 53-A.

53-E:3-a Municipal Aggregators Authorized. Municipal aggregators of electricity load under this chapter, and municipalities operating municipal electric utilities under RSA 38, are expressly authorized to aggregate other services commonly and regularly billed to customers. ***Municipalities may operate approved aggregation programs as self-supporting enterprise funds including the use of revenue bonds pursuant to RSA 33-B and RSA 374-D and loans from other municipal enterprise funds as may be approved by the governing body and the legislative body of the municipality. Any such loans from other municipal enterprise funds shall be used for purposes that have a clear nexus to the primary purposes of such other funds, such as generation, storage, or sale of power generated from sites, facilities, or resources that might otherwise be operated or produced by the other enterprise fund.*** Nothing in this chapter shall be deemed to limit the capacity of customers to select any service or combination of services offered by such municipal aggregators or to limit the municipality from combining billing for any or all utility services.

3 New Section; Use of "Community Power" as a Name Reserved. Amend RSA 53-E by inserting after section 3-a the following new section:

53-E:3-b Use of "Community Power" as a Name Reserved. The use of the term "Community Power" following the name of a municipality or county shall be reserved for the exclusive use by such entity as a name for proposed or approved municipal or county aggregations. Aggregations operated jointly by a group of such entities pursuant to RSA 53-A may adopt an appropriate identifying name in conjunction with the term "Community Power" as a name.

4 Aggregation of Electric Customers by Municipalities and Counties; Regulation; Financial Responsibility; Electric Aggregation Plan; Aggregation Program Adopted. RSA 53-E:4 through 53-E:7 are repealed and reenacted to read as follows:

53-E:4 Regulation.

I. An aggregator operating under this chapter shall not be considered a utility engaging in the wholesale purchase and resale of electric power and shall not be considered a municipal utility under RSA 38. Providing electric power or energy services to aggregated customers within a municipality or county shall not be considered a wholesale utility transaction. However, a municipal or county aggregation may elect to participate in the ISO New England wholesale energy market as a load serving entity for the purpose of procuring or selling electrical energy or capacity on behalf of its participating retail electric customers, including itself.

II. The provision of aggregated electric power and energy services under this chapter shall be regulated by this chapter and any other applicable laws governing aggregated electric power and energy services in competitive electric markets.

III. Transmission and distribution services shall remain with the transmission and distribution utilities, who shall be paid for such services according to rate schedules approved by the applicable regulatory authority, which may include optional time varying rates for transmission and distribution services that may be offered by distribution

utilities on a pilot or regular basis. An aggregator shall not be required to own any utility property or equipment to provide electric power and energy services to its customers.

IV. For the purpose of obtaining interval meter data for load settlement, the provision of energy services, and near real-time customer access to such data, municipal and county aggregators may contribute to the cost of electric utility provided meter upgrades, jointly own revenue grade meters with an electric utility, or provide its own revenue grade electric meter, which would be in addition to a utility provided meter, subject to commission finding in the public good and approval of the terms and conditions for such arrangements, including sharing or transfer of meter data from and to the electric distribution utility.

V. Municipal or county aggregations that supply power shall be treated as competitive electricity suppliers for the purpose of access to the electric distribution utility's electronic data interface and for ceasing operations.

VI. Municipal or county aggregations shall be subject to RSA 363:38 as service providers and individual customer data shall be treated as confidential private information and shall not be subject to public disclosure under RSA 91-

A. An approved aggregation may use individual customer data to comply with the provisions of RSA 53-E:7, II and for research and development of potential new energy services to offer to customer participants.

53-E:5 Financial Responsibility. Retail electric customers who choose not to participate in an aggregation program adopted under RSA 53-E:7 shall not be responsible for, and no entity shall require them to pay, any costs associated with such program, through taxes or otherwise except for electric power supply or energy services consumed directly by the municipality or county, or incidental costs, which may include costs necessary to comply with the provisions of this chapter up to the time that the aggregation starts to produce revenue from participating customers.

53-E:6 Electric Aggregation Plan.

I. The governing body of a municipality or county may form an electric aggregation committee to develop a plan for an aggregation program for its citizens. A municipality or county may join other municipalities or counties in developing such plans.

II. The plan shall provide universal access, reliability, and equitable treatment of all classes of customers subject to any differences arising from varying opportunities, tariffs, and arrangements between different electric distribution utilities in their respective franchise territories, and shall meet, at a minimum, the basic environmental and service standards established by the commission and other applicable agencies and laws concerning aggregated service.

III. The plan shall detail:

- (a) The organizational structure of the program.
- (b) Operation and funding.
- (c) Rate setting and other costs to participants, including whether energy supply services are offered on an opt-in basis or on an opt-out basis as an alternative default service.
- (d) The methods for entering and terminating agreements with other entities.
- (e) The rights and responsibilities of program participants.
- (f) How net metered electricity exported to the distribution grid by program participants, including for group net metering, will be compensated and accounted for.
- (g) How the program will ensure participants who are enrolled in the Electric Assistance Program administered by the commission will receive their discount.
- (h) Termination of the program.

IV. The committee shall approve a final plan which the committee determines is in the best, long-term interest of the municipality or county and the ratepayers.

V. The committee shall solicit public input in the planning process and shall hold public hearings.

53-E:7 Aggregation Program.

I. The governing body of a municipality or county may submit to its legislative body for adoption a final plan for an aggregation program or any revision to include an opt-out default service program, to be approved by a majority of those present and voting.

II. If the plan is adopted or once adopted is revised to include an opt-out alternative default service, the municipality or county shall mail written notification to each retail electric customer within the municipality or county. To enable such mailed notification and notwithstanding RSA 363:38, after an aggregation plan is duly approved the electric distribution utility or utilities serving an adopting municipality or county shall provide to such municipality or county a current list of the names and mailing addresses of all their electric customers taking distribution service within the municipality or county. Notification shall include a description of the aggregation program, the implications to the municipality or county, and the rights and responsibilities that the participants will have under the program, and if provided on an opt-out basis, the fixed rate or charges that will apply. No retail electric customer shall be included in a program in which the customer does not know all of the rates or charges the customer may be subject to at least 30 days in advance of the customer's application and has the option, for a period of not less than 30 days from the date of the mailing, to opt out of being enrolled in such program, unless the customer affirmatively responds to the notification or requests in writing to be included in the program.

III. Within 15 days after notification of the plan has been sent to retail electric customers in the service area, a public information meeting to answer questions on the program shall be held.

IV. Services proposed to be offered by or through the aggregation shall be on an opt-in basis unless the approved aggregation plan explicitly creates an opt-out alternative default energy service program where the rate or price is known at least 30 days in advance of its application and, for a period of not less than 30 days from the date notification is mailed, the customer has the opportunity to opt out of being enrolled in such program, by return postcard, website, or such additional means as may be provided. Customers who are on default service provided by an electric distribution utility shall be automatically enrolled in an aggregation provided alternative default service if they do not elect to opt out. Customers opting out will instead remain on default service. Customers taking energy service from a competitive electricity supplier shall not be automatically enrolled in any aggregation program, but may voluntarily opt in. New customers to the electric distribution utility after the notification mailing required by paragraph II shall be given a choice of enrolling in utility provided default service or aggregation provided default service, where such exists. New customers shall be informed of pricing for each when they apply for service. Such new customers may also enroll with a competitive electricity supplier. New customers who do not make such a choice shall be enrolled in the default service of any geographically appropriate approved aggregation, or, if none exists, the utility provided default service. Municipal aggregations shall take priority or precedence over any county aggregations. Customers automatically enrolled in a municipal or county provided default service shall be free to elect to return to utility provided default service or to transfer to a competitive electricity supplier with adequate notice in advance of the next regular meter reading by the distribution utility, in the same manner as if they were on utility provided default service or as approved by the commission.

V. Once adopted, an aggregation plan and program may be amended and modified from time to time as provided by the governing body of the municipality or county. In all cases the establishment of an opt-out default service program shall be approved as provided in paragraph I.

VI. The commission may adopt rules, under RSA 541-A, to implement this chapter, including but not limited to rules governing the relationship between municipal or county aggregators and distribution utilities, metering, notice of the commencement or termination of aggregation services and products, and the reestablishment of a municipal or county aggregation that has substantially ceased to provide services. Where the commission has adopted rules in conformity with this chapter, complaints to and proceedings before the commission shall not be subject to RSA 541-A:29 or RSA 541-A:29-a.

5 Voluntary Corporations and Associations; Name. Amend RSA 292:3, II(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

6 Business Corporation Act; Corporate Name. Amend RSA 293-A:4.01(b)(4) to read as follows:

(4) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E;***

7 New Hampshire Investment Trusts; Use of Name Regulated. Amend RSA 293-B:17, I(b)(4) to read as follows:

(4) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

8 Professional Corporations; Name. Amend RSA 294-A:7, III(a)(4) to read as follows:

(4) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

9 Uniform Partnership Act; Registered Limited Liability Partnerships; Name. Amend RSA 304-A:45, II(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

10 Uniform Limited Partnership Act; Name. Amend RSA 304-B:2, III(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

11 Limited Liability Companies; Name. Amend RSA 304-C:32, III(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision of this state, ***including names reserved pursuant to RSA 53-E;***

12 Foreign Limited Liability Companies; Name. Amend RSA 304-C:177, I(e)(4) to read as follows:

(4) The name of an agency or instrumentality of the United States or this state or a subdivision of the United States or of this state, ***including names reserved pursuant to RSA 53-E;***

13 Registration of Foreign Partnerships; Name. Amend RSA 305-A:2-e, I(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, ***including names reserved pursuant to RSA 53-E.***

14 Cooperative Marketing and Rural Electrification Associations; Use of Name Regulated. Amend RSA 301:43-a, II(d) to read as follows:

(d) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, **including names reserved pursuant to RSA 53-E.**

15 Trade Names. Amend RSA 349:1, IV(a)(4) to read as follows:

(4) The name of an agency or instrumentality of the United States or this state or a subdivision thereof, **including names reserved pursuant to RSA 53-E.**

16 Definitions in the Renewable Energy Portfolio Standard. Amend RSA 362-F:2, XIV to read as follows:

XIV. "Provider of electricity" means a distribution company providing default service or an electricity supplier as defined in RSA 374-F:2, II, but does not include municipal suppliers **that are municipal utilities pursuant to RSA 38.**

17 Definitions in the Electric Utility Restructuring Act. Amend RSA 374-F:2, I-a to read as follows:

I-a. "Default service" means electricity supply that is available to retail customers who are otherwise without an electricity supplier and are ineligible for transition service **and is provided by electric distribution utilities under RSA 374-F:3, V or as an alternative, by municipal or county aggregators under RSA 53-E.**

18 Competitive Electricity Supplier Requirements. Amend RSA 374-F:7, II to read as follows:

II. Aggregators of electricity load that do not take ownership of power or other services and do not represent any supplier interest are not public utilities pursuant to RSA 362:2, but shall notify the commission of their intent to do business. Municipalities that aggregate electric power or energy services for their citizens pursuant to RSA 53-E are not public utilities pursuant to RSA 362:2 **and are not subject to the provisions of paragraph III and RSA 374-F:4-b.**

19 Effective Date. This act shall take effect 60 days after its passage.

LBAO
19-1078
Revised 2/20/19

SB 286-FN-LOCAL- FISCAL NOTE
AS INTRODUCED

AN ACT relative to aggregation of electric customers by municipalities and counties.

FISCAL IMPACT: State County Local None

STATE:	Estimated Increase / (Decrease)			
	FY 2020	FY 2021	FY 2022	FY 2023
Appropriation	\$0	\$0	\$0	\$0
Revenue	\$0	\$0	\$0	\$0
Expenditures	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Funding Source:	<input type="checkbox"/> General <input type="checkbox"/> Education <input type="checkbox"/> Highway <input checked="" type="checkbox"/> Other - PUC Assessment / Renewable Energy Fund			

COUNTY:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Expenditures	Indeterminable	Indeterminable	Indeterminable	Indeterminable

LOCAL:

Revenue	\$0	\$0	\$0	\$0
Expenditures	Indeterminable	Indeterminable	Indeterminable	Indeterminable

METHODOLOGY:

This bill permits municipalities and counties to develop plans for electric aggregation programs. The Public Utilities Commission indicates the services that counties and municipalities could provide include: the supply of electric power, demand side management, conservation, meter reading, customer service, other related services and operation of energy efficiency and clean energy districts. The Commission states the cost of the bill to the State, counties and municipalities is indeterminable because the costs will depend on which services are provided either individually or as part of a group of counties or municipalities.

The New Hampshire Association of Counties indicates the potential cost to the counties would depend on the size of a project and the agreement made with the utilities. In addition, the Association indicates there could be savings from lower energy cost and/or additional revenue from selling power back into the grid.

The New Hampshire Municipal Association indicates any impact on municipal revenues or expenditures would depend on specific provision of any aggregation program developed; therefore it is not possible to estimate the financial impact.

AGENCIES CONTACTED:

Public Utilities Commission, New Hampshire Association of Counties and New Hampshire Municipal Association

Keene City Council
C/o Mr. Rhett Lamb
City of Keene
3 Washington Street
Keene, NH 03431

8 August 2019

Ladies and Gentlemen:

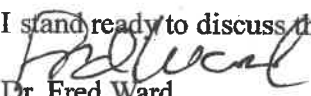
On 18 December 2018, your Council passed a resolution stating that the "City of Keene would develop a strategic plan by December 2020" so that "all electricity consumed in the City will come from renewable energy sources by 2030". Your Energy and Climate Committee, which is responsible for this Plan, voted at their March 2019 meeting, that nuclear energy is not considered part of that energy mix, leaving solar, wind, and hydropower. I have attached a letter to the Wall Street Journal which summarizes your problem, and shows that the Green New deal is impossible. There are a number of questions which require answers before any progress can be made on your plan, including the number of solar panels and wind turbines, and where they must be located. Mt. Monadnock would be a near perfect location for a dozen or more turbines, being elevated and isolated from obstructions to the wind.

All renewable energy production is renewed by the weather; the sun, the wind, and the rain. As a professional meteorologist working for many decades on these meteorological issues, I examined the technical aspects of such a plan, and the results of my study follows. All renewable energy is intermittent, changing from minute-to-minute, and day-to-day with the weather. Some days have lots of wind and sunshine, but there are frequent cloudy days with little or no wind, days on which we expect lights to go on with a flip of the switch. What would you consider an acceptable backup source on cloudy, calm days, and nights? If hydropower is your backup, it needs to be overbuilt to supply 100% of your green power on cloudy, calm days, and nights. But if overbuilt, why would you also want hundreds of turbines and square miles of panels spread all over the landscape? Do you have any idea how many hundreds of turbines or square miles of solar panels are required?

Attached is a meteorological analysis of a typical month of weather, December 2017, its wind and sunshine, and its potential wind and solar energy. It shows that you will need to build a backup large enough to supply up to 100% of your wind and sun power about half the time. It also shows that an overbuilt sun and wind power scheme would cover more days, but only by wasting most of the added energy. Similar analyses could be performed for other mixes of green power. The official data are easily available.

I might suggest that your E&EC answer the following questions before spending more time and money. What sources of electric power are "renewable", how many of each are required to meet the 100% goal, and where might they be physically located?

I stand ready to discuss these issues with you in person at any time.


Dr. Fred Ward
386 Route 123 South
Stoddard, NH 03464
603-446-2312
drfred@myfairpoint.net

TABLES

The airport in Concord, NH is a "first order" weather station and publishes a complete set of weather data, 24 hours each day. It's long-term climate data are also available for comparison. These weather data are for December 2017, but the conclusions will be applicable to almost any other month or year.

The Table lists the Average wind speed for each day, in Column 1, and the cloudiness at 1 PM in Column 2. The other columns are the computed energy available each day from the wind and sunshine, assuming these solar and wind facilities are each built to produce, ON AVERAGE, 1/3 of the required electric energy.

Column 3 is calculated by assuming that on windy days the turbines will generate their maximum electric power, and on days of little or no wind, they will generate no power, with in between days generating half the maximum power. Changing these categories will only slightly change the results. In any event, the results for the month match the industry standard of 1/3 efficiency for the turbines.

Column 4 is calculated by assuming that in bright sunshine at midday, the solar panels will generate a set percentage power sufficient to make up for the night and cloudiness, with zero for cloudy days and half the maximum for half cloudy days. These numbers are percentages of the required power assuming the planned 1/3 contribution for the sun to the total power required by the grid, ON AVERAGE. Column 5 is the total of columns 3 and 4.

But since the grid cannot use, or even accept, more than 100% of the planned generation, column 6 is the excess over that 100%, with column 7 the actual delivery to the grid. The bottom line in the table would be close to the actual power delivered by a power supplier with sufficient turbines to send the grid about 1/3 of its actual power, and solar panels sufficient to send another 1/3.

The first Table shows that a power arrangement built to deliver 1/3 of its power from wind turbines, and 1/3 from solar panels, could only be expected to deliver its planned output about 9-10 days each month, and partial power on an additional dozen days, with no power delivery on the rest.

The numbers in the second Table are the result of a substantial overbuilding of these renewable sources, so that the turbines and the panels each produce 2/3 of the required renewable energy. These numbers can be calculated by merely doubling the number in column 5, and making the required additions and subtractions for columns 6 and 7. The monthly numbers, similarly calculated.

By overbuilding both the wind farms and the solar farms, the required backup is reduced, but the price is an 18% gain in coverage at the cost of 50% rise in wasted energy! It is expensive to try to convert intermittent energy into planned energy. These added overbuilt facilities will sit unused 62% of the time, as will the rest of their required infrastructure, including the wasteland of connecting corridors.

CONCLUSION

The net of this analysis is that the intermittence of renewable energy sources, like the wind and sun, cannot be corralled to provide a steady source of energy without enormous overbuilding, drastic environmental devastation of large areas of New Hampshire, and costs which will boggle the mind. The use of "free" to describe the resulting production is not just a misnomer, it is a flagrant distortion of the English language!

The GREEN NEW DEAL is a winner only for the companies which make the turbines and the panels.

Concord, NH, December 2017

1/3 wind, 1/3 sun, 1/3 other

	Avg Wind mph (1)	Clouds 1 PM (2)	Wind Energy (3)	Solar Energy (4)	Wnd/Sun Energy (5)	Discarded Energy (6)	Usable Energy (7)
Dec 1	3.8	OVC	0	0	0	0	0
Dec 2	0.4	CLR	0	70	70	0	70
Dec 3	0.6	OVC	0	0	0	0	0
Dec 4	1.4	CLR	0	70	70	0	70
Dec 5	5.7	OVC	50	0	50	0	50
Dec 6	6.6	CLR	50	70	120	20	100
Dec 7	5.8	OVC	50	0	50	0	50
Dec 8	4.1	CLR	0	70	70	0	70
Dec 9	2.9	OVC	0	0	0	0	0
Dec 10	5.9	BKN	50	35	85	0	85
Dec 11	5.0	OVC	50	0	50	0	50
Dec 12	4.9	OVC	50	0	50	0	50
Dec 13	12.7	BKN	100	35	135	35	100
Dec 14	9.2	CLR	50	70	120	20	100
Dec 15	0.6	CLR	0	70	70	0	70
Dec 16	4.8	CLR	0	70	70	0	70
Dec 17	4.6	CLR	0	70	70	0	70
Dec 18	1.4	OVC	0	0	0	0	0
Dec 19	4.2	OVC	0	0	0	0	0
Dec 20	11.3	CLR	100	70	170	70	100
Dec 21	8.4	CLR	50	70	120	20	100
Dec 22	3.3	OVC	0	0	0	0	0
Dec 23	3.7	OVC	0	0	0	0	0
Dec 24	6.4	CLR	50	70	120	20	100
Dec 25	9.0	OVC	50	0	50	0	50
Dec 26	8.1	OVC	50	0	50	0	50
Dec 27	6.1	CLR	50	70	120	20	100
Dec 28	15.1	CLR	100	70	170	70	100
Dec 29	5.2	OVC	50	0	50	0	50
Dec 30	2.1	OVC	0	0	0	0	0
Dec 31	14.1	CLR	100	70	170	70	100
Total			1050	1050	2100	345	1785
Average Energy			34%	34%	68%	11%	57%

Concord, NH, December 2017

2/3 sun, 2/3 wind

	Avg Wind mph (1)	Clouds 1 PM (2)	Wind Energy (3)	Solar Energy (4)	Green Energy (5)	Excess Energy (6)	Used Green (7)
Dec 1	3.8	OVC	0	0	0	0	0
Dec 2	0.4	CLR	0	140	140	40	100
Dec 3	0.6	OVC	0	0	0	0	0
Dec 4	1.4	CLR	0	140	140	40	100
Dec 5	5.7	OVC	100	0	100	0	100
Dec 6	6.6	CLR	100	140	240	140	100
Dec 7	5.8	OVC	100	0	100	0	100
Dec 8	4.1	CLR	0	140	140	40	100
Dec 9	2.9	OVC	0	0	0	0	0
Dec 10	5.9	BKN	100	70	170	70	100
Dec 11	5.0	OVC	100	0	100	0	100
Dec 12	4.9	OVC	100	0	100	0	100
Dec 13	12.7	BKN	200	70	270	170	100
Dec 14	9.2	CLR	100	140	240	140	100
Dec 15	0.6	CLR	0	140	140	40	100
Dec 16	4.8	CLR	0	140	140	40	100
Dec 17	4.6	CLR	0	140	140	40	100
Dec 18	1.4	OVC	0	0	0	0	0
Dec 19	4.2	OVC	0	0	0	0	0
Dec 20	11.3	CLR	200	140	340	240	100
Dec 21	8.4	CLR	100	140	240	140	100
Dec 22	3.3	OVC	0	0	0	0	0
Dec 23	3.7	OVC	0	0	0	0	0
Dec 24	6.4	CLR	100	140	240	140	100
Dec 25	9.0	OVC	100	0	100	0	100
Dec 26	8.1	OVC	100	0	100	0	100
Dec 27	6.1	CLR	100	140	240	140	100
Dec 28	15.1	CLR	200	140	340	240	100
Dec 29	5.2	OVC	100	0	100	0	100
Dec 30	2.1	OVC	0	0	0	0	0
Dec 31	14.1	CLR	200	140	340	240	100
Total			2100	2100	4200	1920	2300
Average Energy			68%	68%	136%	62%	74%

ISSUES FOR CONSIDERATION BY THE ENERGY AND CLIMATE COMMITTEE

How many turbines and panels?

Electric grids come in all shapes and sizes, as do their producing facilities. As a point of reference, a large electric facility, e. g. Seabrook, delivers about 1000 Megawatts (Mw). It takes about 30 square miles of solar panels, at their usual 20% efficiency, to generate 1000 Mw, or 1000 wind turbines, 1/10 of a mile high, at their usual 33% efficiency, to do the same. A couple of dozen huge turbines on Mt. Monadnock would suffice for Keene to go green, or replacing a few square miles of trees in Pisgah would also do the trick. These numbers however, do not account for the complex connecting corridors decorating the park, which would be required by the constant switching between production facilities to "follow" the weather as it changes.

Electricity on cloudy, calm days, and nights?

The usual reply to the intermittence of solar and wind energy is to store power in batteries or to import power from elsewhere. Both glib responses sound reasonable, until you calculate the amounts of energy to be stored and/or transmitted over long distances. The size of the battery to carry Keene through a few consecutive cloudy, calm would dwarf all the buildings on Main street. Importing power from another grid, requires that our grid perform the same service. Such a standby payback increases the sizes of all parts of our grid, further reducing its overall efficiency.

Inefficiency means overbuilding.

The problem with intermittent sources of power, like wind and sunshine is that they need to be overbuilt to generate excess energy when they are "mittent" to compensate for their "inter" periods. Intermittent sources are by definition, INEFFICIENT. Solar sources do not produce any power at night or in clouds, and average only 20% overall efficiency. In order to generate any given fraction of our total energy, a solar facility must generate 5 times that fraction at noon on sunny days to balance out the zero energy at night and in clouds. Wind turbines, which are only 1/3 efficient, must generate 3 times their fractional contribution on windy days, to balance out their zero energy on calm days.

A solar facility which is required to generate 1 Mw, but overbuilt to generate 5 Mw on sunny noontimes, will generate those 5 Mw on every sunny noontime, as will every solar facility in the area. This means that the grid at noon on sunny days will get 5 times its planned input of energy from the sunshine alone. If we plan on getting 1/3 of the average grid energy from sunshine, that means that on sunny noontimes, the solar panels will completely fulfill the grid's total energy requirement, and more!. Similarly, if we plan to get 1/3 of our energy from wind turbines, they alone will contribute 100% of the grid's capacity on windy days. So just requiring that we generate an average only 67% green, 1/3 from the sun and 1/3 from the wind would send surges, on sunny, windy days, of 267% (100+167) of the grid's capacity to use, OR ACCEPT!

A Slippery Slope?

It has been suggested that the surplus from these overbuilt and intermittent sources be simply discarded. Sounds easy, but this discarded energy would have been produced when the solar panels and wind turbines were operating at the MAXIMUM efficiency. Discarding this energy would dramatically reduce the already low efficiencies of both the solar panels and the wind turbines. Lowering their efficiencies would necessitate ever more overbuilding, leading to lower efficiencies, leading to more overbuilding, and lower efficiencies etc., the very definition of a "slippery slope"?

A cleaner environment?

Since the fundamental rationale for considering intermittent sources is to "clean up the environment",

what about the environmental destruction produced by turbines standing 1/10 of a mile above isolated, and elevated terrain? Or the square miles of solar panels, which doom all plant life with their constant shade? Or the additional large and extended corridors to connect facilities whose intermittence requires constantly switching connections between the turbines and panels, the backup facilities, the imported power, the batteries, etc. Just the solar panels required will devastate tens of square miles. And even Mt. Monadnock can only site a few percent of the required wind turbines.

Your Energy and Climate Committee should answer the above questions, FIRST.

(WSJ letter 2 August 2019)

To the editor:

2 August 2019

The Green New Deal would make PONZI smile.

In science, theories are tested against the NULL hypothesis. The theory is assumed correct, but tested against real facts!

Putting aside the constant barrage of letters and articles in the WSJ, such as Fackler (1 August) and Bryce (22 July), the Green New Deal is not possible, simply because weather changes guarantee intermittent production.

Let's assume that a Green New Deal could be constructed, generating 1/3 of its AVERAGE electric power from wind turbines, 1/3 of its AVERAGE from solar panels, and 1/3 from hydropower, 100% of its AVERAGE power from green sources.

Oops, the wind speed varies from hour-to-hour and day-to-day, so the wind turbines will generate between zero power in light winds, and maximum power in strong winds. Over time, turbines AVERAGE only 1/3 (33%) of their maximum power.

Oops, the sun doesn't shine at night or in clouds, so the solar panels will generate between zero power in clouds and at night, and maximum power at noon in bright sunshine. Over time, the panels will AVERAGE only 1/5 (20%) of their maximum power.

What happens at night, or on a cloudy day, with little wind? The hydropower must compensate for these times, by supplying, not 1/3, but the entire 100%. This means the hydropower facilities, and their connections, must be overbuilt to supply all 100% of the power, whether they are used, or sit idle. But if hydropower can cover all 100%, why bother with hundreds of wind turbines and/or square miles of solar farms, to scar the landscape?

There's an additional, worse problem. On sunny, windy days, wind turbines operate at maximum capacity and send to the grid, not their average 33% of the grid's power requirement, but 100% of the grid's required power. And the solar farms add another 167% power, meeting 267% of the grid's requirement!

Many "solutions" have been proposed to these twin problems of alternating scarcity and surplus. The scarcity problem can be ameliorated by constructing "extra" green power, i.e. more turbines and panels. But this adds to the overwhelming surplus electricity on the sunny, breezy days. And this surplus generation (and all proposed schemes to reduce it) lowers the already low efficiencies of wind turbines (33%) and solar panels (20%). All efficiency reductions require more installed turbines and more solar panels, which further reduces their efficiencies.

Does this define "slippery slope"?

Dr. Fred Ward