

Town of Grafton Planning Commission Minutes

Tuesday, May 29, 2018, Grafton Town Garage

Planning Commissioners Present: Eric Stevens, Liisa Kissel, Dave Culver, Kim Record, Matt Siano, Chris Wallace, Chuck Wise (Land Use Coordinator). Community Members Present: Sam Battaglino, Ron Pilette, Charlie Hook, Carol Lind, Christine Tattersal, Kent Armstrong, Danny Michaelson, John Turner, Maggie Stewart, Dave Muelrath, Kate Muelrath, Cathy Siano, Tanya Evans, Noralee Hall.

Call to order: 6:30PM

Agenda Review: Valerie wants to add an agenda item for a future meeting. Valerie wants to have an organizational discussion at an upcoming meeting. Motion to approve agenda (Chris, 2nd Matt). PASSED

Minutes:

Motion to approve the May 8, 2018 minutes as corrected (Liisa 2nd Dave) PASSED. Valerie abstention.

Public Comment:

Carol Lind provided a summary on wind energy (attachment #1). Ron Pilette provided input on the process and vote concerning a proposed wind project, its location, its economic impacts. Skip discussed the specific area being discussed for a wind project and the outcome of the multi-town vote. Ron asked where to send small edits on the energy chapter (e.g., typos). Eric said that these revisions will be gladly accepted by the Planning Commission.

Town Plan Update – Energy Chapter

Eric suggested the same approach as the last meeting, go page by page reviewing and approving changes to the Energy Chapter. We will look for unanimous support, but lacking full support then the edits can be brought to a vote.

p.28

The definitions of terms/terminology was discussed. Changes were approved. No motion made.

p.31 (bottom)

Liisa discussed the changed sentence explaining the vote. There is some redundancy in the sentence, but Liisa recommended it to be left as is. Members of the public joined the discussion regarding the sentence discussing the wind energy vote. Motion to drop last three words of sentence (Dave 2nd Valerie) PASSED.

p.32

Motion to approve page 32 as presented (Dave 2nd Valerie) PASSED.

p.33

Dave asked about maps that are referenced in the energy chapter. Liisa made changes to the wording to include removal of brackets for improving readability (no content changes, just grammatical corrections). There is a need to change plateaus to ridgelines. These changes

were made at the previous meeting, but do not appear in the current draft. Discussion followed about high mountains, ridgelines, series of mountain tops, etc. Discussion followed about the drafts of the Town Plan, track changes made. Liisa raised the issue of residential and small-scale commercial turbines and there needs to be clarification on these terms. At issue is whether commercial wind turbines are what the town voters wanted based on what we know about the town's opinions. Dave stated he wants the terms/terminology used in the chapter to align with the definitions on the front page. Significant discussion followed with the Commissioners and the public reviewing the various meanings of residential, commercial, and industrial wind generation. The stated goal is to find better meaning, more precision with these terms to ensure we understand the tower heights, energy production levels. The additional goal is to align Grafton's use of terminology with Windham Regional Commission's terminology. The final goal is to make sure certain categories of wind energy are not located in selected resource areas.

Eric stated that there are turbines out there that would fall into a commercial slot (not utility scale) and there might be a desire for a property owner or group of property owners to have wind turbines that would fit within this commercial category. Eric stated he just wants to allow that possibility without trying to preclude it using the judgment of a project which was using dozens of multi-megawatt turbines as the justification. Liisa stated this is an opinion only but there is no data point to support three turbines being defined as commercial. The only data point is the vote which Carol pointed out earlier. Further discussion followed between the Commissioners and the public regarding the vote. Motion to focus on the sentence that starts with 'residential' on that document (Town Plan). "Wind turbines must conform to regulations for that respective land use and should not adversely affect the surrounding landscape or communities..." Matt amended Dave's sentence to include forest blocks and wildlife corridors (Dave 2nd Valerie). Discussion about this sentence to include use of the word regulations, to augment this sentence by including somewhere else in the plan that wind turbines are not suitable in resource areas, clarity of sentence and if it serves the Town of Grafton. FAILED.

Liisa asked about the resource lands and we could say something about wind facilities not being compatible with resource lands as indicated in the Windham Regional Plan. Another statement could be residential or small scale facilities are acceptable if they do not adversely affect the surrounding areas. Eric stated that Windham Regional paints most of the Town as a high resource area and this would be a very restrictive standard. Discussion centered on a compromise solution which could include a focus on WRC defined resource areas in the Town of Grafton.

Dave asked about the energy maps, Chuck displayed them. Discussion followed on the wind resource map and the wind energy generation map (with resource constraints). Discussion returned to the categories of residential, commercial, and utility scaled wind power generation. Discussion returned to how the vote can be applied to these categories of wind energy generation.

Matt discussed comments he stated had not been included in the energy chapter which included transmission lines and stations. (comments summarized at the last meeting and not covered).

Dave stated that certain technologies may exist in the future and to not limit wind turbine technologies based on amount of energy production. Motion to include the following revised sentence. “Residential wind facilities may be acceptable as long as they conform to the regulated land use, and do not adversely affect the surrounding landscape, forest blocks, habitat connectivity, or communities through the diminishment of the natural environment, economics, or human health.” (Liisa 2nd Matt) PASSED.

Dave requested removal of the term “the high plateaus” and substitute with “the mountains”.

Liisa requested the most recent Town Plan be added to the website. Chuck to request that Bill Kearns put the most recent Plan draft on the Town’s website.

Discussion followed about including Eric’s language on preferred site designation. Eric stated that this language can be referenced, but it is not ideal to put in the Plan. The preferred site designation criteria is something that is never complete and should be something that is constantly worked on by the Planning Commission and Selectboard. The list needs to be malleable and if it is in the Town Plan, to change the list requires a formal town plan amendment which is not ideal.

Dave asked about why preferred site designation matters, Eric stated that a preferred site designation gives the solar developer a greater value for their solar energy production – that they get more money from the energy produced.

Dave and Valerie amended the language to include a provision that states Eric’s list should be considered “factors that look favorably upon” rather than specific criteria that has to be used. Eric stated this language gives the flexibility needed to change the criteria over time.

Dave asked again about the terminology for energy production categories – residential, commercial, industrial scale. Liisa to forward copies to Commissioners for how WRC defines these categories.

Chuck to conduct a doodle poll to see if an additional special meeting is possible.

WORKING NOTES BY CHUCK

Chuck has enclosed the section of the Energy Chapter (Attachment #2) that was edited during the May 29, 2018 meeting. Carefully review those pages to make sure all edits conform to meeting outcomes. A copy of those pages is appended/referenced to the minutes. While Plan changes are ongoing, the document will continue to evolve, the pages discussed at the meeting will be archived with these minutes.

Adjournment (Dave 2nd Kim) PASSED.

9:13 PM

Next meeting:

June 12, 2018

My public comment is in response to Eric's statements at the previous PC meeting that the wind vote in 2016 does not represent the town's position on industrial wind because it was project specific.

I would like to review some past history related to this statement.

In 2013 the town passed "Article 4"; Shall the Town of Grafton vote on any issue regarding commercial wind energy production facility(ies) project or the regulation of such by Australian Ballot?

From 2013 until the 2016 wind vote, Article 4 was quoted by several members of both the select board and the planning commission, including Eric, as the reason a new energy plan could not be written until we had the vote to indicate how the town felt about industrial wind. I find it disheartening that now that we have voted on a project, Eric is insistent that the vote does not reflect how the town feels about industrial wind.

I would also like to remind everyone that the ballot in 2016, Shall the registered voters of the Town of Grafton support the development of the Stiles Brook Wind Project, as proposed by Iberdrola Renewables, to be located on the Stiles Brook Forest, owned by Meadowsend Timberlands LTD?, was written by Iberdrola. The project specific wording used had no input from the town of Grafton, because we were informed that Iberdrola would not honor the vote unless their wording was used on the ballot.

This vote is the only concrete evidence we have that reflects how the Grafton community feels about industrial wind. There is no other vote, and there is no other evidence. The people spoke out. Our planning commission is appointed to represent the community and our town plan must reflect this monumental vote.

May 29, 2018

Carol Lind
P.O. Box 172
Grafton, VT 05146

6. ENERGY

Introduction

Energy is essential to our quality of life. But we recognize that energy procurement and consumption is a local, state, national and global issue and that Grafton must do what we can to contribute to a solution. This plan will address three areas of concern for the Grafton community.

Heating – Grafton’s long, cold winters require significant energy to heat homes and other buildings in the Town.

Transportation – Because of Grafton’s isolated geographic location, transportation energy costs can be considerable for its residents.

Electrical Devices – Virtually all of today’s technologies rely on electricity to operate and all projections indicate that our electronic consumption needs will continue to increase.

Energy and the Local Economy

The cost of energy in Grafton, including residential, commercial and governmental use for heating, electricity, transportation, was estimated to be \$2.289 million in 2014. The Energy Plan will be used as part of the larger effort to continually improve economic conditions in Grafton, thereby improving the quality of life for its residents. The Energy Plan can accomplish this by reducing energy costs through energy conservation and by localizing energy sources. Because a large majority of energy is imported from outside of the Town and Windham Region, most of the money spent on energy does not directly benefit the local economy. Reducing the use of energy sources from outside the Town, and shifting reliance to locally produced power, can improve household financial security and stabilize the local economy.

Energy and the Environment

While Grafton can do little to shift the broader state or federal policies, we can do our part to decrease energy usage and increase local power production, both of which will have a positive impact on the environment. This chapter will identify Grafton’s local plans for increasing our energy efficiency and promoting local power generation as a way to do our part to help solve the global situation.

Energy sources can be classified as infinite (i.e. solar & wind), finite (i.e. fossil fuels & uranium), or renewable (i.e. ethanol & fire wood). Every energy source has both advantages and disadvantages, but because of the multiple, significant, negative environmental impacts of fossil fuels, the Town will make all reasonable efforts to reduce fossil fuel consumption. Fossil fuel-dependent energy systems are a significant cause of localized and global environmental damage. From the point where the fuels are produced and refined, to the emissions generated during their use, fossil fuels are responsible for human-

Terms and Acronyms Defined

Energy is a technical field that uses many different terms and acronyms that are not easily understood by the average person. Here is a list of terms used in chapter and their meaning.

Energy, Commercial –

[Wind -40M<hub height<70M](#)

[Solar PV -50kW <AC Capacity <500kW](#)

Energy, ~~Industrial~~ Utility-Scale

[Wind-70M<hub height](#)

[Solar PV 500kW<AC Capacity-](#)

Energy, Residential –

[Wind –hub height<40M](#)

[Solar PV AC Capacity<50kW](#)

kW - Kilowatt hour is a unit of energy equivalent to one kilowatt (1 kW) of power sustained for one hour.

kWH - One kilowatt hour is the amount of energy converted if work is done at an average rate of one thousand watts for one hour.

MMBTU, or MBTU - One million British Thermal Units (BTU). The term denotes both the amount of heat energy in fuels and the ability of appliances and air conditioning systems to produce heating or cooling.

Commented [CW2]: Wanted to create Term Definitions based on Dave’s comments. Dave is correct that these acronyms have to be explained up front.

Commented [ECS3]: The Windham Regional Energy Plan uses “Utility-Scale” instead of “industrial” with regard to large wind installations and uses hub height as a classifying feature. Similarly, the WRC uses 500kW and larger as the classification for Utility Scale solar PV.

Homes' account for 36% of the 'Residential Homes' in Grafton, the Btu calculations assume 15% energy usage for a 'seasonal home' compared to a 'primary residence'.

Heat Energy Use in Grafton



Figure #3

Commented [CW8]: Confirmed this is most recent data (20180511)

For residential buildings, it was assumed that average annual heating load per residence is 110 million Btu per year, for both space and water heating (Vermont state average). With 313 primary housing units in the town, this arrives at an estimated 34,430 MBtu annual total heat consumption. This translates to an estimated \$650,000 spent in home heating in Grafton during 2014 (roughly \$570,000 from primary residence owners and \$82,000 from seasonal home owners).

The two primary sources for heating in Grafton are fossil fuels and wood, which make up almost 90% of Grafton's heat energy source. Wood is an abundant, locally grown energy source. Many residents own their own woodlots and processing and selling firewood is part of Grafton's economy.

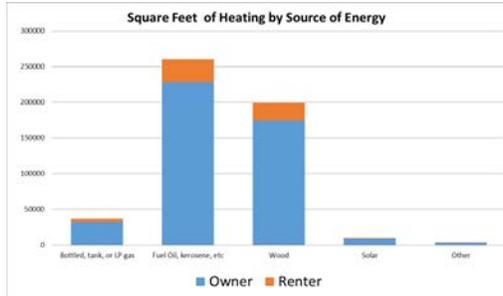


Figure #4

Commented [CW9]: Graph appears to come from the older energy data. No reason to believe the square footage has changed.

Our data source identified only seventeen (17) commercial buildings in Grafton. It is estimated that the average heating load of these establishments is 425 MBtu per year per building, which is well below the state average range of 700 MBtu to 750 MBtu per year per building. Based on these numbers, we estimate that commercial establishments use approximately of 7,225 MBtu's per year in Grafton. There was no data on the annual heating costs for commercial buildings.

Total Energy Costs

In sum, Grafton pays a staggering amount in energy across the three use sectors. The total estimated cost to the town for electricity, heating, and transportation is roughly \$2.3 million per year. There are

significant financial incentives for the town to move toward energy efficiency, on behalf of both the residents and its business owners.

Grafton, VT Energy Summary		
	Total Energy Consumption	Total Energy Expenditures
Electricity	17,040 MBtu	\$716,625
Heating	44,568 MBtu	\$994,584
Transportation	36,818 MBtu	\$650,996
Totals	98,426 MBtu	\$2,362,206

Commented [CW10]: Confirmed this is most recent data (20180511)

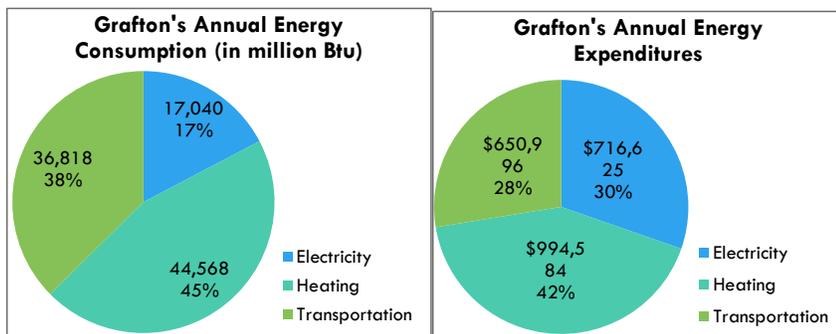


Figure #5 and Figure #6

Commented [CW11]: Confirmed this is most recent data (20180511)

Grafton's Energy Resources, Constraints, & Potential for Power Generation

Energy resources available in Grafton include wood, solar, wind and hydro energy. There is significant data available to make informed decisions about wind and solar energy, but there is less data available in regards to wood and hydro energy. Grafton's most used local energy resource is wood, which is renewable; almost 40% of the heat produced in Grafton is generated from wood. Continued burning of wood, along with the use of high efficiency wood stoves will be encouraged by the Town.

As new power generation sites are considered, care must be taken not to significantly alter both the village and the surrounding scenic landscape, because Grafton's most valuable resource is its dense historic village surrounded by its rugged, scenic landscape, including its undeveloped ridgelines.

Wind energy has been a controversial and often talked about subject in Grafton since 2012, when an international wind company proposed a 28 turbine facility to be located on a large ridgeline that spans the Grafton and Windham town line. On November 8, 2016, with a vote of 235 to 158, the town voted against the proposal. This vote is a strong indication that Grafton residents are opposed to industrial utility scale wind projects ~~of that scale~~.

Finally, the rivers and streams that flow through Grafton have potential for hydroelectric energy generation. Because of Grafton's high elevation, the headwaters of several streams that eventually become The Saxtons River. These headwaters are delicate ecosystems and must not be disturbed. Flooding of the village, as well as surrounding areas is also a concern. Any development of hydroelectric power should utilize run-of-river diversion with no significant impoundment of water.

Resource Mapping Process and Policy Tool

The suite of maps included with this Enhanced Energy Element were developed using state-wide GIS data that modeled resource potential for solar and wind energy, identified potential constraints on renewable energy development, and created an energy potential map.

This energy potential map provides energy planners and developers with a “coarse screen” method to roughly identify areas in Grafton that may have energy generation potential. These maps are not siting maps, and further site analysis would need to be done to determine if a proposed generation facility is appropriate and comports with Grafton’s Town Plan policies. Instead, these maps provide Grafton planners with tools to develop sound and informed energy generation policies within this Enhanced Energy Element.

Solar Resource Maps

The attached solar Resource Map indicates that the Town of Grafton has similar modeled solar resource availability as compared to other towns in the region. The Town supports solar facilities that are properly sited, the where the development conforms to the siting policies outlined in this Town Plan.

Total acres in Grafton	24,456
Total acres available for prime solar (with no constraints)	659
Percentage of Grafton land	2.7%

Large scale solar projects require access to three phase transmission lines. Grafton has limited access to three-phase power, with lines only along Route 121 from Cambridgeport to the village and along Fisher Hill Road. Grafton also has a high voltage transmission line cutting across the southern and western corner of the town. This greatly limits viable locations for large scale solar projects.

Refer to the “Energy Goals, Policies, and Action Steps” section below for policy statements regarding solar generation.

Wind Resource Maps

The attached Wind Resource map indicates that ~~the high plateau~~the mountains on the western border of the Town and several isolated ridges within town are the only commercially viable location for “generally suitable wind for large scale commercial generation.” ~~As~~ previously noted, the Town voted against a proposal on the western border site in November, 2016. ~~Residential or small-scale commercial wind turbines may be acceptable, as long as they conform to regulations for that respective land use, and do not adversely affect the surrounding landscape or communities through the diminishment of the natural environment, economics, or human health. Residential wind facilities may be acceptable as long as they conform to the regulated land use, and do not adversely affect the surrounding landscape, forest blocks, habitat connectivity, or communities through the diminishment of the natural environment, economics, or human health.~~

Total acres in Grafton	24,456
Total acres available for residential wind (with no constraints)	1,210
Percentage of Grafton land	4.95%
Total acres available for small commercial wind (with no constraints)	289
Percentage of Grafton land	1.17%

Total acres available for utility wind (with no constraints)	69
Percentage of Grafton land	0.28%

Refer to the “*Energy Goals, Policies, and Action Steps*” section below for policy statements regarding wind generation.

Grafton’s Preferred Locations

Grafton supports locally sourced and power generation facilities in a manner that supports existing and proposed land use designations, does not adversely affect the landscape pattern or character of the Town, and supports positive community development.

Grafton promotes power generation development in locations that are previously disturbed and do not offer significant opportunities for future development. These areas may include former gravel pits, former and existing parking lots, landfills, etc. Consideration should be given to these under-utilized and previously disturbed areas that exist within the areas modeled to have prime resource potential (see Energy Maps), and do not conflict with existing and proposed designated land uses.

Areas of special consideration should be all publicly owned lands and buildings. Solar is a particular asset that can directly supplement the electric power requirements of municipal facilities. Solar cited on public lands provides an educational value for citizens and landowners considering solar power generation.

~~Another area that is~~ Other areas that are highly desirable are lands located on or adjacent to agricultural and forestry lands. Grafton understands it must work to preserve its agricultural heritage and facilitate commercial agriculture. Farms that utilize renewable energy generation to augment their farm revenue are highly desirable. While energy generation must be clearly subordinate to the agricultural land use, energy income will bolster existing farms and create an impetus to open new farms in our community.

Effective land use planning can promote energy conservation. Targeting new development toward areas located close to the community's major roads and existing settlements will minimize the energy consumed by residents commuting, and will reduce the energy required to deliver essential services to residents and businesses.

Factors that would look favorably upon determining a preferred site designation which would include:

- Proximity to 3 phase power – this means a solar facility does not need to have a line upgrade
- Located near the end of utility distribution lines – this helps support the electric grid
- Aesthetic considerations – making sure viewsheds are not impacted by the appearance of renewable energy facilities.
- Existing roads – important to have existing good access without requiring a developer to upgrade roads.
- Minimal impact of agriculture and agricultural soils – this is the path of least resist for energy companies and we should not endanger our future ability to produce food. Liisa stated this should be no impact, but Eric countered projects can cohabitate with agriculture and cited the article from last months meeting (cattle and solar).
- No obstruction of wildlife and habitat corridors. Valerie stated it might also be good to exclude riparian buffers.

- ~~South facing slopes with low quality agricultural soils. These areas have high solar value, but otherwise low value as working landscapes.~~

Refer to the “Energy Goals, Policies, and Action Steps” section below for policy statements regarding preferred generation sites.

Areas Unsuited for Renewable Energy Siting

As shown in the Known Constraints map, there is a suite of geographic characteristics that are deemed to exclude any energy generation development. They are mapped vernal pools, Class 1 and 2 wetlands, DEC River Corridors and/or FEMA floodways, National Wilderness Areas, and State-significant Natural Communities and Rare, Threatened, and Endangered species.

The Possible Constraints are a set of data layers that don’t necessarily exclude energy development, but give a signal to potential developers and planners that more site analysis may be required. These layers include steep slopes, hydric soils, FEMA Special Flood Hazard Areas, Protected lands, deer wintering areas, Vermont Conservation design highest priority forest blocks, habitat connectivity, and agricultural soils. If generation facilities are proposed in these areas, due diligence is required in the siting of those facilities to ensure there ~~is~~ are no adverse impacts.

~~Aside from these state-identified constraints, Grafton has determined that power generation facilities are not compatible in along high elevation lands, ridgelines, and any areas immediately viewable from our historic villages and hamlets. Installations are not suitable if they have undue adverse impacts to cultural or historical resources including state or federally designated historic districts, and structures, and other local resources identified in the Town Plan. Some of those prohibitive impacts include removal or damage to the resource and visual intrusion directly or indirectly that creates a distracting influence on the historical landscape.~~

Refer to the “Energy Goals, Policies, and Action Steps” section below for policy statements regarding unsuitable generation sites.

Grafton’s Energy Targets and Conservation Goals

The Windham region was given an overall renewable energy generation target, as determined by the Department of Public Service, based on its percentage of the state’s population (which directly affects its share of statewide consumption). The Windham Regional Commission (WRC) then determined energy generation targets for each of their member-towns, based on both the resource availability in town and its population. The resulting town generation targets are an average between those two characteristics.

The presence of substantial wind generating facilities in southwestern Windham County allowed the renewable energy generation targets for the remainder of the region to be significantly less than would be required without wind generation. In the case of Grafton, our generation goals set below match about 20% of our consumption. As an example, 2016 electric energy consumption was approximately 5000 MWh. If solar generation were to offset that on a net-metered basis then approximately 30 acres of land with good solar exposure would be required. This result can be computed from approximately 1.3 MWh of energy yield per year from 1 kW of well sited solar modules using the National Renewable Energy Laboratory program PVWatts and the approximate solar density of 1 MW of solar modules per 8 acres of land as cited by the Windham Regional Commission.

Power Generation Targets