

**CITY OF PORTSMOUTH, NEW HAMPSHIRE
BLUE RIBBON RENEWABLE ENERGY COMMITTEE
JULY 18, 2017 MEETING**

DATE: July 18, 2017
TIME: 6:30 – 8:30 PM
PLACE: CONFERENCE ROOM A

AGENDA

- I. **CALL TO ORDER**
- II. Introductions
Present:
 - Ben D’Antonio, Resident, Presenter
 - Stephen Roberson, Resident, Presenter
 - Joe Harrison, Resident
 - Peter Britz, Environmental Planner, Presenter
 - Nancy Colbert Puff, Deputy City Manager
 - Patrick Ellis, School Board
 - Rebecca Perkins, City Councilor
 - Josh Denton, City Councilor
 - Suzana Mihajlica, Volunteer
- III. Josh is hoping we add another member from the Pease Development Authority Board, it would be great to get them on board up front.
- IV. Josh has been a part of the Sustainability Committee, and thought it made sense to create a more focused committee to tackle emissions, given the Mayor’s recent call to uphold the Paris Climate Accord.
- V. **INTRODUCTIONS AND COMMITTEE ORGANIZATION**
 1. Robert’s Rules
 - i. Guidelines for governing body to follow. The most relevant:
 1. At least 5 members must be present
 2. Meeting will follow agenda provided a week prior
 3. Only 1 person to speak at a time
 4. Motions have to be made and seconded and after discussion will be voted on. Simple majority to pass

5. Move to adopt Robert's rules. All in favor.
2. Committee Charge
 - i. This committee is charged to report back to the City Council for adopting a phased Renewable Energy Policy to be implemented by City Staff when applicable. ~~The vision of the phased Renewable Energy Policy is to become a net zero community first, a community that uses 100% renewable energy for electricity second, and a community that uses 100% renewable energy for heat third.~~ The Renewable Energy Policy will rely on a combination of various generation sources such as solar, wind, geothermal, hydro, biomass, biogas, landfill gas, sewage gas, or solid waste to energy.
 - ii. No longer part of charge "to become net zero community..." we will revisit that.
3. Minute Taking
 - i. A week or two after the meeting the minutes will be circulated. The minutes will be posted in advance of the next meeting.
 - ii. The meetings are filmed.

VI. NEW BUSINESS

1. Understanding Energy Markets
 - i. We joined the committee because we want to create renewable energy policy. We want to focus on reducing energy use and increase amount of energy that we get from renewable sources, versus just reducing carbon footprint. Energy markets will play a big role in how we adopt these.
 - ii. **Ben D'Antonio Presentation Part 1:**
 1. Ben was tasked with an expansive overview of energy markets, everything from regional greenhouse gas initiative, environmental partnerships with the EPA, so he has a wide range of slides to lead to discussion.
 2. First, we'll go over the power grid and electricity markets. Then we'll talk about New Hampshire and its status as a retail choice state. Then we'll talk about renewable and clean energy support networks then we'll transition into a emission reduction program in the Northeast, and then finish up with the EPA power partnership.
 3. Statewide energy usage:
 - a. consumption: $\frac{1}{3}$ transportation, $\frac{1}{3}$ residential, $\frac{1}{3}$ commercial/industrial
 - b. expenditure: 38% transportation, 32% residential, 30% commercial/industrial

- c. Municipal would likely fall under “commercial”
- d. Jurisdiction: power plants and transmission lines are part of FERC (federal), whereas the distribution grid (lower voltage) is NH PUC (state)
- e. The grid and electricity markets. ISO New England is a non-profit and independent corporation. They have 3 roles:
 - i. Administer wholesale energy markets: They run auctions on electric energy. Capacity is the ability to provide energy when necessary. Ancillary services.
 - 1. Energy vs. Capacity: The amount you put out over the course of the year is how much energy you can produce, vs capacity is how much you can put out at any given moment.
 - ii. Reliable Operation of Transmission system: Operate the transmission system (operates at 60 hz). ISO operates it by telling the power plants to turn up or down, etc. Transmission grid is used like a road, anyone can get on it. They direct the traffic. No way to economically store energy yet, you have to use what you have. Produce no more or less than demanded. They do it consistent with the outcomes of the wholesale market. They also make sure they’ve planned
 - iii. System planning: future, to make sure they have enough resources and ability to get energy from one place to another as needed.
- f. Wholesale Electricity Markets:
 - i. The price of energy fluctuates pretty wildly. At night prices are pretty low due to demand, vs during the day when computers and ACs might be on.
 - ii. Short term reliability services are the wizard behind the curtain.
 - iii. Forward capacity market (long term), makes sure there are enough power plants to provide energy when necessary years down the line.
 - 1. energy efficiency can participate. It isn’t turning a plant down, but more of a conservation thing.
 - iv. The market in NE is \$8 billion. This year we’re aiming for \$6-7 billion. In NE energy prices are

very correlated to natural gas prices so they are quite high comparatively when gas supplies are constrained in winter seasons.

g. Energy Market Competition

- i. Bids are put forth on how much they'll charge for energy and ISO will either chose you or ask you to turn off.
- ii. If you stack up all the bids (hydro, wind, nuclear on the lower end, fossil units in the middle and natural gas as it stacks up)
- iii. In the summertime, there is ample ability to deliver natural gas for electricity. There is not enough space in the pipeline during wintertime for all electric generators. Only what's left over is available to them and maybe half of the fleet can run on gas, after that they switch over to dual fuel like diesel. In the wintertime we burn a lot of oil.
- iv. We don't have a lot of coal in the region, it's too expensive and out of merit. They don't run very much. They're in economic distress and expected to retire. They provide capacity.

h. Resource Revenue Sources

- i. Traditional resources are dependent on capacity market revenues.
 - ii. Wind and Solar make almost no money on capacity. They give estimate of how likely they are to be online for capacity. They get to keep the difference for the energy they provide since they are able to provide it so cheaply.
 - iii. Renewable resources rely heavily on support from various federal and state programs because they have to make more money to break even than traditional resources
 - iv. Wind and solar are the big two renewable energy sources that are trending in New England, no others at large scale at this time really. Issue is the ability to get the wind to the people who need it. Really expensive to build out a transmission system that connects those.
- i. The Grid—High Voltage Transmission Grid
- i. 9,000 miles of transmission lines
 - ii. 13 transmission interconnections with systems in NY (wind and hydro) and Eastern Canada (mostly hydro). Regionally, NYC is like a black

hole that sucks in all the power from the eastern part of the grid.

- j. Long Range Outlook for Demand
 - i. ISO forecasts demand for power. It is highly correlated to temp and dew point. Based on population, economy, they can forecast out into the future.
 - ii. If the demand is going down, they don't need to buy as many power plants, etc.
- k. Wholesale Consumer Impacts
 - i. 3 parts to your bill: the generation, transmission and distribution
- l. New Hampshire and Retail Choice
 - i. We are a restructured state, it's still regulated extensively.

iii. Stephen Roberson Presentation:

- 1. Electricity Restructuring
 - a. Corporations and manufacturing companies in the state have razor thin margins on energy usage. The state of Mass has taken an initiative to increase their solar production. The cost for consumers are astronomically high. Mass businesses can't stay competitive. Stephen is a believe in moving away from standard/fossil fuel generation, but it has to be done in a responsible and practical way. Often these measures are cost prohibitive.
 - b. Ben covered how energy gets to our door, Stephen looks at it from the end user cost perspective.
 - c. Eversource makes no money on supply costs in Portsmouth. They make their money on the distribution.
 - d. In NH we have opted to restructure. Natural gas is effectively deregulated everywhere. If you are near a pipeline and you have a provider willing to deliver it, you have choice.
 - e. California is a quasi-restructured state:
 - f. Northeastern portion down to Maryland, Texas and Illinois are the major markets in the country that are competitive.
- 2. Nationwide generation by source:
 - a. Natural gas is 33% (increasing), coal is 30%(shrinking), 15% renewables (increasing)
- 3. Factors to consider when buying energy:

- a. Number one factor is natural gas pricing. Look at where it is now and where it is in a historical sense. Demand is driven by weather.
 - b. Injection period of natural gas is during the summer. It's being produced and stored for the following season in the winter. This is how fair market value is decided (how much gas there is, how much demand there is, the weather, etc).
 - c. Question from Patrick: Is there underground storage in New England? No, just the pipeline, we're kind of an island in that way. Every bit of natural gas we consume has to be imported.
 - d. From a City of Portsmouth viewpoint, how is this initiative going to affect our budget, it's important to consider tolerance for risk. We have to understand the cost associated with it, in some instances it will be high.
 - e. Cost of introducing new renewable sources is high
4. Market Presence
- a. Price moves just like in any other market.
 - b. Rebecca asks: how do we usually buy our power? PW buys it through a broker. We have no way to verify the cost of the service.
 - c. Joe asked if is there no competitive market place for municipalities? They would put it out to bid and go directly out to a source. NH has 4-5 reputable companies, vs places like Pennsylvania where there are 10-15 reputable places. A municipality would put out an RFP and make a choice based on the merits. Portsmouth could either go straight through Eversource for market price, or they can go to multiple providers to request bids, but it's a lot of work and there is no way to verify that the price you are getting is comparable.
5. Transparency
- a. City of Portsmouth has a load profile, so the price would be skewed to usage.

iv. Ben D'antonio Presentation Part 2:

- 1. Support mechanisms
 - a. Tax incentives, system benefits charge, etc
 - b. Renewable portfolio standard
 - c. Net metering
 - d. Long term contracting
- 2. Energy efficiency: national leaders in New England. Provide the same service but spend less energy
- 3. Most profit is made from distribution

4. Renewable Energy Certificate (REC) side payment to financially support renewable energy sources
5. What's renewable?
 - a. wind, solar, hydro, landfill gas, biomass, anaerobic digestion, geothermal, solar, wave, ocean thermal, tidal
 - b. depends on where you are and what you want to procure and how you want to incentivize these programs
6. Renewable energy in New England is growing.
7. Long term contracts incentivize to buy for longer
8. Where are the emissions? In the transportation sector, some are electric power and buildings (big 3)
 - a. We have 350 generators that we regulate and 11 million vehicles in new England which aren't as regulated (and a bigger contributor to emissions)
9. Other states that have aggressive mandates that are economy wide. NH is the only state in the region not to have that. It hasn't been determined which sector is responsible for those targets.
10. RGGI (Regional Greenhouse Gas Initiative): cap and trade program. price on emitting carbon and a cap. You are allowed to emit CO2 only if you have allowances and permits. Those allowances are auctioned off by states, which is used in various ways, most of it goes to energy efficiency. Also cap and invest since you invest the proceeds to further drive emissions down
11. EPA environmental partnership: "EPA Green Power Partner"

2. Other Communities Net Zero and 100% Policies

- i. Josh Denton wants to talk about what other communities are doing around the country. Some set emission goals, others (trend) set reduction goals they want to meet.
 1. 7 cities which have set goals, all have different baselines. He wants to focus on Cambridge, MA. He sent around "Getting to Net Zero" which is a great goal to keep in mind.
 2. If we wanted to get to Net Zero we'd have to figure out what that means for Portsmouth (can't duplicate Cambridge).
 3. Cambridge residents came up with a task force that produced framework that deals with new buildings and existing buildings and existing energy efficiency.
 4. Other techniques which are committed to 100% clean energy. There are 36 communities that have committed, some have already obtained. These cities represent 5.9 million Americans. When they achieve their goal it will reduce emissions by 19.1 million carbon metric units by year. This is greater than many states.

5. Case study which Sierra club put together which set different methods to get to 100%. Josh is going to talk about 3 of them
 - a. Burlington VT: They already achieved their goal and they did this by purchasing a river hydro watt facility. Biomass comes from wood chips, wind, solar, hydro power.
 - b. Easthampton NY: close to our town in size, on the water. They set their goal to 100% by 2020 in electricity, and heating by 2030. They're focusing on offshore wind. They have a vision statement which isn't as detailed as the Cambridge framework. The latter is better because it sets out clear objectives to achieve.
 - c. Hanover NH: First town in NH to set this goal. Electricity by 2030, and heating by 2050

3. Our Energy Usage

- i. Question from Nancy: what is difference between "city", "municipality", and "community"? City/municipality is city government. Community is everyone in the city.

ii. **Greenhouse Inventory Presentation by Peter Britz:**

1. Municipal inventory: 15,000 tons of Co2 in 2006 and 17,000 in 2012. The biggest contributor is buildings. Portsmouth is a destination location so we have a big transportation sector. We don't have a lot of say in how people get to Portsmouth (especially tourists)
2. For the community inventory, transportation is the biggest contributor to emissions (72% in 2012) 1.6 million tons CO2
3. Comparison: Municipality is 1% and Community is 99% in 2012. The city should be role model and leader in this, but important to keep that in mind.
4. Our new master plan has a goal to move toward net zero and work with the NEMSN to develop net zero policy for the city.

4. Renewable Energy Policy Discussion

- i. In future meetings we will have more time for discussion, this first meeting was good to set a baseline.
- ii. Question from Patrick is to clarify the mission statement, is it to come up with policy for city or for the community? The goal is to set it for the entire community, not just the city government.
 1. Rebecca would like to leave that question open for now because she doesn't know how much control we have over the community as a city committee. She recommends we learn more but at the time it's still unclear.
 2. Policy can include high level things like changes to zoning ordinances, like requiring new buildings to become LEED buildings, etc. We don't need to set the goal in the first

meeting. There is no way to set dates or percentages before you know the overall picture.

3. As far as future agenda items go, there are only so many meetings (ideally we'll get this policy to them by the first meeting in december and voted on by the second meeting) so our goal is to get this to them by November.
4. October meeting will be about getting buildings to be more energy efficient.
5. Finally November would be reviewing the final policy. Which would be taken from the minutes and sent around to everyone.
6. Transportation is left out of policy because it's tougher to control.
7. Josh has been asked to see if people can meet early in the morning.

VII. FUTURE AGENDA ITEMS

1. August 15, Large Renewable Energy Generation Sources:
 - i. Schiller Station Biomass;
 - ii. Regional Anaerobic Digester Waste to Energy;
 - iii. Piscataqua River Hydropower; and
 - iv. Off-shore Wind

VIII. ADJOURNMENT

NOTICE TO THE PUBLIC WHO ARE HEARING IMPAIRED: Please contact Dianna Fogarty at 603-610-7270 one week prior to the meeting for assistance.