



**TOWN OF BOONE
SUSTAINABILITY, ECONOMICS AND ENVIRONMENT COMMITTEE
MEETING AGENDA**

The Sustainability, Economics and Environment Committee will meet on **Thursday, February 8, 2018 at 5:30 p.m.** in the Planning & Inspections Department – Upstairs Conference Room located at 680 W. King Street. The following items will be on the agenda:

- 1. Call to Order**
- 2. Adoption of Agenda**
- 3. Approval of Meeting Minutes**
 - January 11, 2018
- 4. Discussion of Bee City USA**
- 5. Discussion on the Energy Action Plan**
- 6. Other Matters by Commission Members or Staff**
 - Set agenda for next meeting
- 7. Adjournment**

TOWN OF BOONE
SUSTAINABILITY, ECONOMICS AND ENVIRONMENT COMMITTEE
THURSDAY, JANUARY 11, 2018
5:30 P.M.

MEMBERS PRESENT: Mr. Quint David, Vice-Chairperson Harvard Ayers,
John Prickett, Christian Gentry and Lee Ball

STAFF MEMBERS PRESENT: Jane Shook, Director of Planning and Inspections and
Marlene Crosby, Committee Secretary

CALL TO ORDER

Mr. David called to order the meeting of the Boone Sustainability, Economics and Environment committee, held at the Watauga County Library – Meeting Room located at 140 Queen Street at 5:29 p.m.

ADOPTION OF AGENDA

Vice-Chairperson Ayers made a motion, seconded by Member Prickett to adopt the agenda as amended by adding the Election of Officers to the agenda.

Vote:

Aye – All
Nay – None

The motion passed.

APPROVAL OF MINUTES

Member Prickett made a motion, seconded by Vice-Chairperson Ayers to approve the December 14, 2017 meeting minutes as written.

Vote:

Aye – All
Nay – None

The motion passed.

It was noted that Mr. Quint David acted as Chairperson for this meeting.

ELECTION OF OFFICERS

Discussion ensued on Mr. David being eligible to be nominated for Chairperson of the committee since he is no longer a Council Member and not on the committee. It was the consensus of the Sustainability, Economics and Environment committee members to let the following nomination for Chairperson stand until further clarification on the process can be received by the Town Clerk on this matter. Mr. David noted that he has applied for an open position on this committee.

The floor was opened for nominations for the Chairperson and Vice-Chairperson for this committee.

Motion and Vote:

Vice-Chairperson Ayers nominated Mr. David to the position of Chairperson, seconded by Member Ball.

Vote:

Aye - All
Nay - None

The motion passed.

Motion and Vote:

Member Ball nominated Vice-Chairperson Ayers to the position of Vice-Chairperson, seconded by Member Gentry.

Vote:

Aye - All
Nay - None

The motion passed.

The floor was closed and there were no other nominations for the positions of Chairperson or Vice-Chairperson for this committee.

Motion and Vote:

Member Gentry made a motion, seconded by Member Prickett to suspend Roberts Rules for this meeting.

Vote:

Aye – All
Nay – None

The motion passed.

DISCUSSION ON THE ENERGY ACTION PLAN

Vice-Chairperson Ayers answered questions on the 2030 and 2050 100 percent Clean Renewable Energy Goal. He said that the overall goal is to reach renewable energy in all energy sectors by 80 percent in 2030 and by 100 percent in 2050. He handed out a four-page document entitled: Town of Boone Energy Draft Proposal (permanently attached). He noted that he has requested to add the draft proposal on the February 2018 Council agenda.

Mr. David explained that the Council has approved the 2017 Sustainability goals. He said the committee has been directed by Council to make recommendations for a draft plan for the Town of Boone to reach their 100 percent clean renewable energy goal by 2050.

Mr. David asked each person present at this meeting to introduce themselves. The following people were at the meeting: Ms. Aleah Warner from the Watauga Democrat, Ms. Becca Bauer, Kahe Kienbaum and Rory Mellmoll all from Appalachian Voices, Mr. Sam Zimmerman of Sunny Day Homes and green construction builder, Mr. Taylor and Mr. AJ Carpenter both students at Appalachian State University.

Mr. David explained that the SEEC members in 2014 added 100 percent clean renewable energy to their 2009 goals.

Mr. David said based on the numbers from 2014 the Town of Boone is spending about \$1.1 million dollars annually on energy. This includes the \$750,000 spent on electricity. The committee members hope to relocate the dollars spent on electricity to renewable energy options.

Mr. David said there have been improvements in the carbon usage due to better technology.

Discussion ensued on locating land in the County for the number of solar panels necessary to help reach their renewable energy goal. He talked about the options of asking the power companies to help with solar power or the Town owning their own solar field. It was noted that there is a possibility that land is cheaper in the Wilkesboro area for a solar field. It was the consensus of the committee members that they do want the solar field in Watauga County.

Mr. David said we need to determine how many kilowatts and megawatts of solar power is needed to reduce the electricity in the Town based off of the current usage. Mr. David said that five to seven megawatts of solar would cost approximately \$1.30 to \$1.50 per watt.

Discussion ensued on options to help achieve the 100 percent Clean Renewable Energy goal.

Member Gentry talked about including using wind power as an option because there already have completed wind studies.

Member Ball noted that NTE is going to start offering clean energy to the Town of Boone through New River in the next five to six years which is well within the 2030 plan. He further explained that NTE is the power company that New River Light and Power is going to start buying their energy from. He noted that there could be a mixture of options for example using some solar and buying some solar from NTE. He said that one of the options could be REC's but they are more expensive. He noted that it will be cheaper to build solar than to maintain the gas plants.

Vice-Chairperson Ayers said it is a little cheaper to build rooftop solar than field solar. He said he believes that solar power can be installed for \$1.00 per watt by 2025 which is the best estimated price that solar will decrease by then.

Vice-Chairperson Ayers said if the draft proposal is approved by Council, they will begin to install in 2018 about 100 kilowatts of solar. He some of it will be installed on rooftops in Boone.

Mr. David said that the installation of solar may cost more upfront but it will cost less over time to increase clean renewable energy in Boone.

Discussion ensued on buying energy. Member Furguele asked if the Council approves buying energy from New River Light and Power is the expectation that there would be a contract between the power company and the Town.

Member Ball said he could discuss the buying of energy for the Town with Mr. Ed Miller from New River Light and Power.

Discussion ensued on the possibility of property owners paying more to have renewable energy. Member Ball said that recently New River Light and Power did a survey but no one at the meeting knew the results of the survey.

Member Furguele talked about finding other ways to reach the renewable energy goal while you are building your own capacity to generate energy locally. Member Gentry agreed with Member Furguele on running a dual tract both focused on energy. It was noted that the Town cannot own a solar system and sell it back to itself. There has to be an agreement with Blue Ridge Electric which would not be a good deal because they want to own the generation back into their system. It was noted that an analysis of the cost of Blue Ridge Electric's solar tariffs and current rates need to be reviewed to see what the savings over time will be.

Vice-Chairperson Ayers said that he has met with Blue Ridge Electric and they will buy the energy from the Town. He said the Town is currently waiting to see what the new solar rates are going to be. It was noted that the Town will have to produce more than it needs to sell the energy to Blue Ridge Electric. It was noted that an analysis will tell how much energy needs to be produced to cover the Town's needs.

Discussion ensued on proposing a renewable energy project in the Town. When the project is installed the public can see it and it may encourage the public to invest in other renewable energy projects in the Town. Vice-Chairperson Ayers talked about starting in a small and visible way with electric cars and electric car chargers.

Member Furguele talked about proposing to the Town a solar-rebate program which is a low scale project like the successful low-flow toilet program. He noted that this topic is on the January 2018 Council agenda. Vice-Chairperson Ayers said he thought the solar-rebate program would be competitive with what his intern and the Town intern was working on last year for many hours. It was the consensus of the committee to keep the solar-rebate program agenda item on the Council agenda.

Member Furguele said that he sees things that the Town could be improving on for example expanding the Town's recycling program.

Member Furguele said that he agrees with the suggestion to propose solar projects that can be seen in the Town.

Mr. David said that part of the approved long-term goals of the SEEC was to investigate the PACE financing program. He said instead of a tax credit the solar amount could be put on the actual tax bills.

Member Gentry talked about the option of the Town buying straight up all of the Town's energy at renewable costs now which would help with the immediate impact, while allowing the discussion on the generation capacity for energy.

Vice-Chairperson Ayers noted that 15 communities have signed the resolution which is the Dr. Mark Jacobson clean renewable energy plan. He noted that if the Council approves the Town of Boone Energy Draft proposal, the Town of Boone will be the first in the state of North Carolina to have a plan of this type.

Mr. David said the SEEC committee members would summarize to Council their recommendations for the Town of Boone's 100 percent Clean Renewable Energy goal.

OTHER MATTERS BY COMMITTEE MEMBERS OR STAFF

Set agenda for next meeting.

Mr. David confirmed that the next SEEC meeting will be on Thursday, February 8, 2018 at 5:30 p.m. in the Planning and Inspections Department – Upstairs Conference Room located at 680 W. King Street.

AJOURNMENT

Member Gentry made a motion, seconded by Vice-Chairperson Ayers to adjourn the meeting at 6:45 p.m.

Vote:

Aye – All

Nay – None

The motion passed.

Mr. Quint David, Acting Chairperson

Marlene Crosby, Committee Secretary

Town of Boone Energy Draft Proposal

1-11-18

The Town of Boone Energy plan is based on the Town producing 100% of all the energy it uses for both providing electricity for all its needs for buildings, etc. plus the energy used by the 140 vehicles it currently operates. All the energy for the 140 vehicles is currently being provided by gasoline and diesel fuels and all this energy from Duke Energy is being provided by fossil fuels (coal and natural gas) and nuclear. We hope to transition to electricity (probably hybrid-electric) for all our vehicles which is produced by 100% clean renewable energy from solar and wind over the 13-year period from January, 2018, to December 31, 2030.

About the first year of the project, 2018, will be about making decisions on the best locations for solar arrays and the second half, actually installing those arrays. We hope to do some rooftop solar in the Boone Corporate limits, but only on buildings which will be expected to be in use for at least about 20-30 years.

Since we expect to be constructing major new Town buildings on the Bolick property on the east side of town, we will emphasize building efficiency, solar and possibly wind installation on that property, a lot of big rooftop solar, possibly including some field solar. This solar installation may not be done for several years as the construction schedule dictates. EV purchase for 2018 will be finalized by about July when we traditionally trade vehicles—likely we will consider the purchase (trade-ins) of one or two EVs for this first year.

New River Light & Power (NRL&P) and BREMCO

TOB pays part of its current electric bill to NRL&P. This is for all electrical service in the Town of Boone corporate limits. NRL&P electrical service is surrounded on all sides by BREMCO electrical service. All of TOB power for both utilities comes from Duke Energy through BREMCO. BREMCO provides about 2/3rds and NRL&P 1/3rd.

This will change as of January 1, 2022, when all NRL&P energy will come from NTE, with no further involvement with Duke Energy. Thus the rules and regulations will be those of NTE and not those of Duke Energy.

Energy Efficiency

Improving energy efficiency of buildings in Boone is the least expensive means of electricity improvement, so we need to do a state-of-the-art study done as one of our first steps to provide 100% clean renewable energy.

Three sources to check for efficiency improvements at the 60 Town buildings: 1) Paul Braese—facilities leadership at UNCA; 2) Dr. John Sterman—jsterman@mit.edu, deep retrofit; 3) Dr. Kristen Johnson, chancellor of the SUNY system, deep retrofit.

Providing Clean Renewable Energy

Solar PV will be the main source of providing the 6-7 MW of electricity capacity that the Town currently requires. This will be done by installing rooftop and field solar in and near Boone. We may decide to install some wind power as the 13-year project continues. Since we will continue to be supplied over half of our electricity through BREMCO, this opens some good possibilities for solar or wind in areas within the BREMCO service area, a considerable expansion from the Corporate limits of Boone, itself.

BREMCO is currently paying only about 5 cents/kWh for the energy we will produce. That will likely change by about June when BREMCO completes a study of shifting to a form of net metering for recompense of members' production, which may provide as much as about 8-9 cents/kWh to the Town, which is almost as much as the current rate charged us for electricity from either provider (BREMCO or NRL&P) which is about 9-10 cents/kWh.

NRL&P is currently paying only about 5 cents/kWh to us for the energy we produce. This will likely change on January 1, 2022, when the NRL&P begins receiving its energy from a non-Duke source, known as NTE, which is

apparently friendlier to solar and other renewable sources of energy. We do not yet know what we will get for our production from NTE.

Vehicle Fleet Energy

The Town of Boone has about 140 vehicles, all of which are combustion vehicles, as they run on gasoline or diesel, both of which emit large quantities of CO₂, as they are fossil fuels. About 40 are police cars and most of the rest are small to large trucks and some sedans. The energy used by these vehicles is about the same as the current electric energy from BREMCO and NRL&P. The 40 police vehicles use as much fuel as the remaining 100 Town vehicles. The use of hybrid-electric police cars is especially important given the need at times to quickly refuel quickly.

Transitioning to electric vehicles has three big advantages: 1) the efficiency of combustion vehicles (power to the drive wheels) is about 20%, where as that of electric vehicles is about 60%; 2) electric vehicles use 100% clean renewable energy from electric charging stations; and, 3) electric vehicles do not have pistons, cylinders and valves, the main moving parts of a combustion vehicle. EVs have very few moving parts and thus should last years longer than combustion vehicles.

With both the purchase of EVs and the installation of solar and possibly wind will be expected to begin more slowly at first and to accelerate over the last half of the 13 year project period. The best sources for prediction of both solar/wind and EV prices indicate that by 2025, their prices will have dropped significantly. EV prices, are currently as much as 50% more expensive than combustion vehicles. But by 2025, those electric vehicles are expected to be at parity with their combustion counterparts. With solar, installed prices will be about 60% less by 2025 compared to today's costs. Doing the math, what cost \$100 today in solar panels and installation, will be only \$40. With EV's, similar savings would be expected.

Taking these factors into account, we will be wise to start slowly with both vehicle purchase and solar installation. We could save up to half of the total cost of frontloading those purchases. Thus, we are looking at installing only about 1% of needed solar and vehicle purchase this first year of the 13, and ramping up to as much as 15% of solar needs in 2030 itself. EV purchase would likewise be slow at first and accelerate over the last half or so of the 13-year project.