Climate Action Plan Committee

Meeting #6, May 16, 2017

Committee Members and City Staff Attending: Jeff Arcel, Nancy Woodruff, Kate McMahon, Mike Koopal, Richard Hildner, Ruthanne Coffey, Ryan Richardson, Karin Hilding, Sierra McCartney, Jodi Petlin, Robin Kelson, Craig Workman (public works director)

Members of Public Attending: Steve Thompson (chair of Climate Smart Glacier Country)

1. Call to Order.

2. Approve Minutes – The committee approved the minutes for the May 2 meeting.

3. Craig Workman, Whitefish Public Works Director – Craig was invited to talk to the committee about energy usage at the city's new wastewater treatment plant, which is now being designed.

   The city has selected the sequencing batch reactor (SBR) treatment method for the new plant. Instead of being stored in lagoons for 30 days, waste will go through the system in six hours. The process uses a lot more energy than the lagoon system.

   The city was aiming to have final plans for the new plant completed in February. However, because of a change in the state's standards for effluent and the need to apply for a variance, this may be delayed by about six months. The city is just beginning to look at equipment and design standards for the new plant.

   The current lagoon system uses 800,000-900,000 kWh of electricity per year. This will increase to up to 2.2 million kWh per year with the new plant.

   The biggest energy consumer at the plant will be the blowers, which add oxygen and blow it through the water to accelerate the breakdown of nutrients. Blowers will use about 1 million kWh per year. The most efficient type of blowers are turbo compressors. However, they may not be compatible with an SBR system. The city is still investigating which type of blowers to use.

   The next biggest energy consumer are the aerobic digesters. These will use about 650,000 kWh per year. The city is just beginning to investigate the types of aerobic digesters available.

   Mixers will use about 200,000 kWh per year, and the remaining processes and utilities at the plant will use about 200,000 kWh per year.

   The city is looking at land application, solar power, and hydro power to make the plant more sustainably designed.

   Land application consists of using some of the water for irrigation instead of discharging it into the river. However, due to soil conditions and high groundwater at the treatment plant site, some land applications may not work well. For example, Missoula has a poplar farm as part of its treatment plant, but poplars cannot tolerate having their roots under water for a prolonged period. Small pockets of poplars may work at the Whitefish site, but not a large poplar farm, Craig said.

   Richard asked whether the berms of the current lagoon system could be leveled and soil added to create an area for a tree farm. Craig said that could be done, and the city is also looking at the possibility of composting some of the solid waste at the new plant, which could provide more soil. But the result will still be small areas of trees rather than a large scale tree farm.

The city is also investigating the feasibility of solar power at the site for at least part of the power mix. The site is 40 acres. The current lagoon system is 20 acres, but the new plant will only need about 7 acres. So there is space for a solar array.

The city is also looking at the feasibility of hydro power. The plant will have an average of 1 million gallons per day of wastewater running through it.

Jeff asked whether methane production was considered. Craig said there was not much methane produced in an SBR plant, so it doesn't look like it will pencil out to capture and re-use methane. An SBR plant produces less methane than a lagoon system.

Kate suggested the city could look at enforcing regulations against connecting sump pumps to the sanitary sewer system (reduced inflow would mean less capacity needed for the plant). Craig said that sump pumps illegally connected to the sewer system are a problem in Whitefish. But some neighborhoods don't have a good alternative – the city doesn't have a good stormwater drainage system in some areas. Enforcement could be considered, but the city needs to figure out a solution for homeowners if they want them to disconnect from the sewer system, Craig said.

The possibility of a wetland treatment system was discussed. Craig said there is space for this, but the city would want to see a system that works in a cold climate like ours before investing the money. Ruthanne did her master's work on a wetland treatment system. She said there were a couple in Saskatchewan. The possibility of doing a test plot at the city site was suggested. If it works, it could be expanded. Wetland systems can be efficient and are less expensive than chemical or mechanical systems, but it is not known whether they would meet the new stringent state standards for effluent.

Richard said the delay in designing the new plant gives the city a chance to explore some bold, out-of-the-box options. Craig agreed, and said the consultants the city has been working with have been open to investigating various technologies.

4. Solar array details – Jeff Arcel

Jeff did some preliminary analysis to see if solar power is feasible for the new treatment plant.

He researched a 1.7 megawatt system that would produce 2.2kWh per year, all the power that the new plant needs. Such a system would take up about 5 acres and would cost about $3 million to build. It could be up and running in four months, and would produce power at less than $2 per watt.

The system would be paid off in 12-15 years and would last another 15 years. During those 15 years of "free" power, the city would save $3 million in electricity costs for the treatment plant ($200,000 per year).

There are many possible business models and public funding sources that would alleviate the need for the city to pay the full cost up front. With the city hydro plant, for example, Flathead Electric Coop pre-purchased five years of the power that the plant would produce, providing the money to build the plant. If the city can get a contract to sell the power from the solar array (to FEC, BPA, etc.), then it could also look for a private business to front the cost of building the array.

Jeff has read about three cities in northern climates that are using solar to power wastewater treatment plants. Jeff noted that Whitefish has more sun than Germany, the world's largest solar market, and more than Minnesota, where one of the solar-powered treatment plants is located.

There is no megawatt-scale solar installation in Montana yet, Jeff said.

Ryan said there is no way the city can significantly reduce its carbon footprint without producing renewable energy. Richard said this could be a centerpiece recommendation of the climate action plan. Steve asked if there are any downsides to the idea. Craig said no, a solar array takes land, but there is sufficient land at the site.

Karin will discuss the possibility with someone at Flathead Electric to see if they are interested in participating in such a project.

The solar array could be upscaled in the future to produce more power. The possibility of using a battery, such as those produced by the local company ViZn Energy Systems, to smooth out the load was discussed. Jeff was not sure whether currently available batteries would work for this.

5. Summary of SolSmart Meeting – Karin Hilding

   The city has recently joined the US Department of Energy's SolSmart program. Andrew Valanais from Montana Renewable Energy Association (MREA) came to Whitefish and met with Karin, Richard, Rachel, Dave Taylor, and Jeff Arcel to explain the program.

   The purpose of the program is to help cities become solar-friendly – for example, removing barriers in city codes to solar development and promoting the installation of solar systems.

   The program consists of earning points toward a certain level (bronze, silver, etc.) of being a SolSmart city. The city can earn points for things already done, such as setting goals or installing solar panels at the Emergency Services Center. The program also provides access to technical experts who will help the city assess and plan for other actions.

   The process is expected to be completed by the end of summer or early fall. Four other cities in Montana are participating.

6. Upcoming Public Meeting

   There will be an open house for the Climate Action Plan on June 14 at the new city hall. The purpose of the plan will be explained, public input will be taken, and there will be displays on various issues.

7. Preview Next Topic - Transportation

   The committee will get a preview of transportation issues at the next meeting. The transportation working group of Climate Smart Glacier Country will be invited to the meeting.

8. Public Comment

   Craig asked how recycling fits into the climate action plan. The plan will have a section on recycling. Craig said the city has been looking at curbside recycling, and he, Karin, and Rachel will be working on RFPs for curbside recycling. Committee members asked whether that will include glass – to be determined whether that is economically feasible. Ryan asked about curbside composting.

9. Adjournment – The meeting was adjourned at 7 p.m.

This was Ruthanne Coffey's last meeting as she has a new job and will be moving from Whitefish. Jodi Petlin will now be an official committee member.

The next meeting of the committee is May 31 from 5-7 p.m. at the new city hall.

Related documents:

- Whitefish Community Solar Project Cost Estimate by Jeff Arcel
- System specifications for solar system at treatment plant, provided by Jeff Arcel