

Climate Action Plan Committee

Meeting #4, April 4, 2017 minutes (approved by committee on May 2)

Committee Members and City Staff Attending: Rachel Sussman, Sierra McCartney, Mike Koopal, Jeff Arcel, Karin Hilding, Nancy Woodruff, Richard Hildner, Ryan Richardson, Ruthann Coffey, Jodi Petlin, Mark Heider, Robin Kelson, Kate McMahon

Members of Public Attending: Steve Thompson (chair of Climate Smart Glacier Country), Ryder DeLaloye (school district liaison)

1. Call to Order – The meeting was called to order at 5:02.
2. Approve Minutes – The committee approved the minutes for the March 21 meeting.
3. Mark Heider – Mark Heider, city electrician, was invited to talk to the committee about energy usage in city buildings and opportunities for savings.

Overall, the buildings that consume the most energy in the city are the wastewater treatment plant, the Emergency Services Center, the water treatment plant, and the ice rink.

Water treatment plant - The water treatment plant is one of the city's larger consumers of electricity (the wastewater treatment plant is the largest). Because the city uses surface water, the filtration process is more complicated than with well water.

Over the years city staff has worked to reduce electricity use at the plant. One issue they tackled is HVAC system for the filtration room. There is a lot of humidity in that room, and an HVAC system is used to reduce the humidity for safety and for staff comfort. When the water treatment plant opened in 2007, a 500,000 BTU unit on the roof ran constantly to dry the air.

Several years ago the city hired a mechanical engineer to advise how to retrofit the plant to save energy. The most effective change in the HVAC system was to install systems with variable frequency drives (VFDs). With VFDs, instead of running full blast whenever they are on, fans speed up or slow down depending on the volume of air that needs to be moved. The volume of air required is determined by humidity, inside temperature and outside temperature.

The first winter the VFDs were installed (about 2013) the city saved \$16,800 in natural gas at the water treatment plant. Usage in one chemical room dropped from about 450,000 BTUs to 130,000 BTUs. Once the new HVAC system was installed, the room was not as humid so did not require as much heating.

They also installed four turbo blowers in the ceiling and ducts to move warm air at the top of the room down to the floor. This has alleviated the need to use the 500,000 BTU unit on the roof almost entirely.

Opportunities to save energy:

- Replace one of the turbo blowers that has broken down. A blower costs about \$790 and saves about \$1,000 each year in energy.
- VFDs could be used in new city buildings for motor for fans and pumps, including the new wastewater treatment plant.

Emergency Services Center – The Emergency Services Center, built in 2010, accounts for one-third of the city's consumption of natural gas. This is due both to design of the building and a lack of facility management by the city.

The ESC building is 32,000 square feet. It has an irregular shape with different wings, and has a lot of solar loss and gain. Often the heating and cooling system are running at the same time in different parts of the building.

Exacerbating the design issues is the lack of a maintenance person to manage the building. In the first three years all of the heating and cooling systems failed as preventive maintenance had not been done. For example, software updates had not been done for the HVAC system. Currently the software is running on computers running the discontinued XP operating system and the HVAC system is close to going into default again.

New city hall - Richard asked whether we will be pleased with the energy efficiency of the new City Hall that is now nearing construction completion. Mark's answer boiled down to a maybe.

The shape and design of the building lend themselves to energy efficiency, and the city has selected very good systems (HVAC, lighting, etc.) for the building. However, so far these systems are not being implemented in a way to maximize efficiency. It's like the city is buying a Cadillac but is not taking advantage of its features, Mark said.

All of the systems in the new City Hall will be automated. Automated building system technology is much better now than it was when the Emergency Services Center was built, Mark noted. While each of the systems selected is good, the city cut the automated system controller (called a dashboard) that would network all these systems together and allow integrated management. This makes for a fractured system that is hard to manage.

Overall recommendations:

- The number one thing the city can do to save money and energy is pay for facilities management of buildings. This could be a staff position or it could be contracted to a facilities management company.
- The best thing the city has done recently for energy savings is type of HVAC systems, called VAVHR, it is putting in buildings now. VAVHR systems are efficient, economically feasible to install and maintain, and have a long life.
- This committee could have a positive impact on the new WWTP by providing input on energy efficiency. For example, Jeff suggested using energy management systems that manage circuits.

Mark is a wealth of knowledge, and after he spoke with us for an hour it was decided to ask him to come again to another meeting.

4. City Facility Discussion – Karin

Review map of facilities - Karin showed the committee a map of city-owned buildings. City-owned buildings include buildings the city owns but has leased to other organizations to manage, such as the golf course, the ice rink, and The Wave. Most of these facilities have long leases, except for the ice rink, which has a five-year lease.

Because these buildings are under lease the city can't require changes to be made until the leases come up for renewal, but the city could make suggestions and work with the organizations to identify opportunities to improve efficiency and save money for the organizations.

Future leases could include a section on energy efficiency.

Review building data – Rachel showed the committee charts of energy use for city buildings in 2014 and 2016. The ice rink and the Emergency Services Center stand out as the biggest consumers.

The ice rink installed a low-e ceiling a couple years ago to improve energy efficiency. In 2014 the rink was managed by the city, but by 2016 it was leased and therefore it is not included in the city's greenhouse gas emissions inventory for 2016. Only facilities operated by the city are included. However, because it is a significant consumer of energy, the committee would like to look at possible improvements.

Retrofits/retrocommissioning – The committee discussed the possibility of recommending retrofits and retrocommissioning of city buildings.

Energy audits – Richard suggested doing energy audits of city buildings, including leased buildings, and showing the payback timeframe for potential improvements. Kate said the payback should include not only energy savings, but also the benefits of avoiding problems (for example, if the recent water main break could have been detected before it became catastrophic). Ryder suggested that maybe the city could even help find funding sources for the initial cost of the improvements, such as grants, incentives, or existing energy efficiency programs offered by utilities.

Renewable energy – Karin asked if any city buildings, such as the library, would be good candidates for adding solar panels. Jeff said that retrofitting existing buildings is difficult, and he would rather see the city build a community solar array.

Behavioral changes, employee policy – The difference between incentives and official policy were discussed. The appropriate approach may vary for different issues. Some discussed being careful not to be too heavy-handed with policy recommendations.

Performance requirements for new buildings – Energy performance requirements for new city buildings is a possible strategy the committee may want to examine. This could be LEED certification or another set of standards. An accountability mechanism is important to make sure the stated goals are met during all phases of design and construction.

Policies for new buildings and lighting – Skipped due to lack of time.

Streetlighting – Should the city change to LED bulbs? Karin suggested that Mark Heider is very knowledgeable about the city's streetlighting and suggested a separate meeting with him. Richard and Jeff will attend.

5. Next Steps:

- Richard, Jeff, Rachel, and possibly Karin will meet with Mark Heider about streetlighting
- Richard thinks we are not ready for two other items that were on the agenda here, delegate further building research and how to transition to writing.
- The city is wrapping up the design phase for the new WWTP, so the next priority is to meet with public works director Craig Workman. He will be invited to talk to the committee at the May 2 meeting.

- Jeff asked for a current version of the climate action plan table of contents. Rachel will send that to the committee.

6. Preview City Fleet – Skipped.

7. Public Comment – None.

Committee comment: Ryder reported that he had checked with the school superintendent, and that she is on board with the outline adopted by the committee. The school district will look at benchmarks and accountability measures for emissions. Ryder will present information about the climate action plan to the school board. He particularly wants a strong section on transportation so the district can work on those issues with its third-party provider.

8. Adjournment – The meeting was adjourned at 7:07 p.m.

The next meeting of the committee is May 2 from 5-7 p.m. at the city hall conference room.

Related documents:

- Charts of energy consumption of city buildings 2014 and 2016 (Created by Rachel)
- Audio recording of meeting