City of Ann Arbor
Formal Minutes
Energy Commission

100 N. Fifth Avenue
Ann Arbor, MI 48104
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Tuesday, May 11, 2010 **5:30 PM** **220 N. Main St., Administration Building Board Room**

CALL TO ORDER

Commissioner Appleyard called the meeting to order at 5:35pm.

ROLL CALL

APPROVAL OF AGENDA

Comm. Kurz: One issue is revision of the City Energy Plan. Comm. Hookham and I have done some work on this.

Comm. Appleyard: We can put this after Subcommittee Discussions

APPROVAL OF MINUTES

Approved unanimously with amendments from Comm. Kurz (sent to Andrew Brix)

Energy Commission Meeting Minutes of April 13, 2010

The minutes from 4/13/10 were unanimously approved as amended by Commissioner Kurz.

PUBLIC INPUT

None

ENERGY REPORT - NEWS FROM THE ENERGY OFFICE AND COMMISSION MEMBERS

Andrew Brix: At the state level, DOE awarded $30M to MI State Retrofit Ramp-up; scaled down from $70M Michigan applied for. State sent revised plan to DOE, we are still not sure exactly how much is coming here. Washtenaw County Commissioner Conan Smith expressed that around $7M is expected.

Michigan Saves pilots (Cherryland Electric Co-op) made 14 loans and 21 to come.

House Bill 5640 (PACE enabling legislation) passed the House. HB 5640 will be in the Local Urban and State Affairs Committee April 22nd. Could pass the Senate in June, otherwise it is likely to get lost in election and budget build-up.

Last month I was in Salt Lake City for Solar America Cities annual meeting. Some PACE properties have sold (transitioned across ownership) in Sonoma County, CA. Solarize Portland worked with a city and neighborhood groups to do bulk purchasing, which cut solar costs 20-30%. Ann Arbor also received a Team Player award for collaborations on the Solar Plan.

Comm. Hookham: Is there an update on the MDNRE grant for climate action planning?

Andrew Brix: No word yet, probably next month or so.

Comm. Appleyard: Bloomberg.com reports on German wind power (now have 21,000 turbines), and because grid there isn't as extensive as it could be they occasionally use more than can utilize and has resulted in reduced energy costs. Also, this slide shows carbon dioxide equivalent emissions and GDP. One-third of the drop in emissions can be attributed to the recession, but wind power is also helping the dip in emissions.

Andrew Brix: Video clip of the month will be available on Energy Office YouTube page (topic is wind and intermittency of renewables and how to work around it- Renewable Energy Solution of the Month, by Peter Sinclair- GreenMan360).
http://www.youtube.com/user/greenman3610#p/a/u/1/WO3V2uXTM6k

COMMUNITY UPDATES ON ENERGY

Geothermal Potential Study - Ethan Miller

Geothermal Potential Study – Ethan Miller ("Tapping into Ground-Source Geothermal Potential")

Primary question of research is "what would large scale applications look like?" Geothermal is basically heat energy from the earth brought up through bore holes. You can extract the heat and use pipes for heat-sinking. A term of note: Coefficient of Performance (COP), a way to measure the efficiency of geothermal pumps. These usually range in 3-4 range (for every unit of electricity the pump uses you are able to use 3 to 4 units of power).

Three areas of focus: Land Use (location-based potential), Emissions (electricity vs. natural gas), and Economics (upfront and annual costs).

We looked at what 10% of heating from geothermal for the city would do by 2015. Case studies and mapping of city and county properties was a big portion of my methodology. Costs also factored DTE's rate for geothermal. Cases include Fort Polk, LA, which used over 4,000 individual GHP installations. Lessons there were benefits of economies of scale and contract financing. A3C Architects in Ann Arbor was one of only urban geothermal cases I evaluated. Ball State University (in construction now) will be a district heating, campus-wide, and will be the first of its kind. Project is not completed yet, so few lessons to take from BSU yet. Also used information from a local builder who has performed 18 home installations.

If you have 20 square feet in your side yard, you have enough space to heat your home. To achieve the 10% threshold for geothermal, that would be about 10% of the areas I examined. Not all of these areas may be considered feasible or available for such uses. A four acre park (like Northside Park) could heat almost 300,000 square feet of building. Maple Village parking lot (if converted to borehole field) would heat about 1 million square feet. Maps in the report break the city out into areas, with dots varying in size, with larger dots representing the best potential for geothermal.

Emissions assumptions are a max COP of 4.9 and that DTE will (as directed by law) provide 10% of its power from renewable energy by 2015. A no change scenario will result in a 6.5% reduction in emissions (due largely to DTE's RPS mandate) by 2015, while a 4.9 COP scenario results in almost 8% reductions compared to 2010.

On the economic side, DTE geothermal rate is about 1/3 lower than standard electricity rate. COPs of 2.8 to 4.9 would mean annual savings of $5.3M to almost $7M, and the cumulative savings would be about $16M to $20M. Upfront costs equal about $6,900 per ton installed, and the city (to be at 10% geothermal) would need about 13,000 tons, or around $93M in upfront capital costs. The simple payback would be 13 to 18 years.

Land ownership and partnerships would be crucial for something like this (parking lot owners, neighbors around a park, etc.). Electricity can potentially approach zero emissions depending on how your powering your home (maybe solar) or with increased share of renewables, while natural gas emissions will be constant over the long-term. Yearly economic savings rely on the DTE geo rate, and federal tax credits (30% of installation costs; currently no cap). PACE legislation could mean municipal bonds helping to ease upfront costs.

A municipally-based geo-utility would ensure widespread adoption.

Comm. Wright: One of the concerns I had around the issue of a geo-utility was the issue of CO2 emissions (converting from natural gas to electricity/geo), as my estimates with the current fuel mix of DTE show

30% or more of an increase in emissions with such a utility due to the increased reliance on electricity for pumping. How did you do your calculations?

Ethan Miller: DTE provides an emissions factor across their entire system.

Andrew Brix: Wayne and David's calculation used an emissions factor for DTE off of the SNRE project and Ethan and I looked at a more current factor that is actually higher/more conservative.

Ethan Miller: Accounting for natural gas furnaces (80% efficient) compared with higher theoretical efficiencies of these systems was the difference, if I recall.
Comm. Wright: There is a COP for the district-wide system, not just the individual pumps. There will be a large load for the pumping of heat across the entire system – was that factored into your calculation as well?

Ethan Miller: Because there is not much information out there, since this concept has not been fully tested, there are challenges in capturing system-wide costs and reductions in COP, district-wide. Even the 2.3 COP, the lowest efficiency I looked at, there was not a net increase in emissions.

Comm. Wright: Looking at your cost-savings, what was that based on?

Ethan Miller: Based on 2008 numbers - I filtered out how much natural gas vs. electricity is used by sector for the HVAC system. Further, I converted natural gas to electricity, in a more efficient system, and multiplied by energy rates and the DTE geo rate.

Comm. Kurz: For the less technical among us, can you talk about land use: once the bore-holes are drilled and system-installed, the land can be used in a different way. What is the maintenance of the system?

Ethan Miller: Installations have occurred under sports fields and play fields. It gets more challenging if you try to build things on them. From all accounts, you can replace sod to get your yard back to normal. I will have to get back with you on the maintenance question and how many years to expect from these systems.

Comm. Delany: Can you explain how you got to the savings amounts – the slide confused me?

Ethan Miller: The cumulative savings includes incrementally going up to the 10% share as from geothermal, over next 5 years. Annual savings in the chart are yearly savings once the system is installed (Cumulative is from 2010 to 2015). I used the annual number for the simple payback

calculation.

STAFF BUSINESS

Resolution to Support Federal, State and Local Legislation Enabling the Creation of Property Assessed Clean Energy (PACE) Financing Districts

Andrew Brix: Shows legislature that if they pass something, Ann Arbor intends to do something about it.

Comm. Delany: I had one edit: the seventh Whereas (just drop "Renwable" from the sentence. Brix captured change). In the eighth Whereas it mentions PACE Financing District – what is this?

Andrew Brix: The way the district has been done in other cities is to use the city's municipal boundaries to denote where you can opt-in, then properties are formally added as they sign-up.

Comm. Hieftje motioned and Comm. Bing seconded.

Comm. Kurz: Is there a reason the specific legislation number is not mentioned.

Andrew Brix: we don't know the Senate number, and if it doesn't go through this year it could be assigned a different number year.

Comm. Miller: I think PACE is an excellent program. I have heard that this competes with private lenders; this is a gross misunderstanding. It is local and an opt-in program. The tax benefit is the benefit the nation bestows on local entities and avoidance of sending the money to the federal government, especially in a donor state like Michigan. It fits my view of good public policy. I appreciate that I don't see greenhouse gas and climate change language used here much at all. Current events show the foolishness of focusing on climate change, where we had a willingness to compromise on offshore drilling, but not taken in order to get votes on the climate bill. I think this is a great resolution and I hope the state passes enabling legislation.

Comm. Macomber: I wonder if you could give an example of how this might work for the average homeowner.

Andrew Brix: You attend a seminar sponsored by the city, then get an energy audit (if you haven't already). The audit will shed light on what improvements to make. You then can apply to the city for funding through a special assessment to your property, which then ties to your property the repayments. Loan terms would typically be 10-15 years at rates of 6-7%.

Comm. Delany: Does this change your property taxes?

Andrew Brix: It only would affect your taxes if you change the assessed value of your home. There is still debate on what PV adds to your home and also proposals to even exempt such things from your taxes, but participation itself won't raise your property tax.

Comm. Kurz: How is the interest rate dealt with?

Andrew Brix: The rate is whatever we can get on a municipal bond, which is the source of the capital. Example: the interest rate on the bond is 5.5% and we would charge an additional 1% for administration costs, bringing the total rate to 6.5%

Comm. Kurz: Is that a tax-deduction for the homeowner?
Andrew Brix: I know there has been discussion of that at the federal level. I don't believe you can deduct special assessments like you can mortgage payments. Cost to the homeowner would be annual payments plus interest.

Comm. Hieftje: There's debate still but appears that the City can't say we won't tax you on your solar panels, since the city portion of the property tax stream is a small percentage. It seems like if you make these energy improvements it shouldn't increase the taxable value of your house. This is something that is being talked about.

Comm. Appleyard put the resolution to a vote and it passed unanimously.

Resolution to Endorse the Ann Arbor Solar Plan

Andrew Brix: This is the keystone of our Solar America City designation, based on the simple premise: why are people not putting solar on their rooftops in Ann Arbor and what do we do to address the barriers. Eight recommendations are laid out, including major ones like financial incentives, simplifying permitting and educating residents, as well as things like solar access laws like we've talked about here. Clean Energy Coalition is the contractor on this who pulled the work together. Many of you have been involved in prioritizing these recommendations. The resolution states that you like it and want City Council to endorse it as well.

Comm. Appleyard motioned to move the resolution, taken by Comm. Kurz and seconded by Comm. Hieftje.

Comm. Miller: I am going to vote against this resolution for two fundamental reasons. One, I don't believe it is prescriptive and defined. It asks that we commit to "a solar implementation process", I would like to know what the process is before voting for it. What financial mechanisms are we going to design? How are we going to simplify solar permitting?

As a matter of observation, it seems the investment in solar may not be the most efficient way for us to achieve our goals.

Andrew Brix: The Solar Plan implementation process includes a creating standing implementation committee to move this Plan, to perhaps include members of the Energy Commission. PACE is actually the number one sub-recommendation in the financial area.

Comm. Delaney: Is there a timeline that we need to move this forward? Could Clean Energy Coalition do a summary presentation of the Plan?

Andrew Brix: I can do a run through at the next meeting.

Comm. Hieftje: I wouldn't have a problem voting for this tonight. Just remember it is a recommendation for support and the Energy Commission can take time in sorting things out. If we want to get more information I am fine with that too.

Comm. Hookham: We have formed these subcommittees to address renewables and solar may fit some places and might not in others and we can work through implementations. There isn't anything in the Plan that I read that is objectionable.

Comm. Miller: Does the Plan make recommendations to Commissioner Miller's comment on relative lack of potential, which as I understand things, isn't true given the success Germany has had?

Andrew Brix: Germany actually gets less sun, so the issue is about policy choices not the amount of sunlight we get.

Comm. Appleyard: It is all relative. I think we get 78 percent of what Austin and Sacramento get (two of the largest solar programs in the country). On an annual basis I believe we get about as much sun as Florida.

Comm. Hieftje: Individuals are moving forward in Ann Arbor. I've received invitations to homes (a 5 kW system in town). My family has a 2 kW system for a modern house on Lake Superior and it supplies all the electricity the home needs for 9 months out of the year. There is real potential here and I think the Department of Energy recognized this in designating us a Solar City.

Comm. Delaney: I'll move to postpone just so we have more information on what we are voting on. (Seconded by Comm. Hieftje and passed unanimously)

Comm. Appleyard: This is a program we received federal funding from the government for, it is not requiring us to spend any money, but to promote something most of us think is a generally good idea. The report

recommends doing efficiency first.

Comm. Hieftje: The City has been heating three of its swimming pools for years with solar, as well as fire stations. Do we know how many solar heaters there are in Ann Arbor?

Andrew Brix: I know of dozens and know there are more. DOE is trying to work with the Solar Cities to come up with an inventory. The Solar Plan is up on the website and the public as well can get comments to the Energy Office.

Comm. Wright: CEC has received public input throughout the Plan process.

Andrew Brix: We started with focus groups way back at the early stages.

SUBCOMMITTEE DISCUSSIONS

Energy Production (and Infrastructure Development)

Comm. Appleyard: This group has not met. These subcommittees are a new idea coming out of our Energy Commission retreat and include members of the public not on the Commission.

Community Education and Outreach

Comm. Kurz: Attendees were two Commissioners (Appleyard and Kurz) and four community members. The composition of the meeting is somewhat in flux. Next meeting is May 24th at 5:45 pm in the City Hall 4th Floor Conference Room. We focused on the vision of Commission members first laid out at the retreat. We discussed that the Ann Arbor Energy Commission will provide an "expanded, systematic program of community education and outreach to other entities." This is from the retreat notes. We talked about that vision from a variety of perspectives. What is the mechanism for the review of messages from the Commission? Things that came up in our discussion included: ideas of the month for the website, various energy challenges for the community (like "clothes-lines are cool"), honoring folks who bicycle commute year-round (May is Commuter Challenge month – go to www.getdowntown.org).

The retreat brought four goals out:
1) establish channels for outreach and listening – as much as we are giving messaging we want the community to contribute to ideas of Ann Arbor being a sustainable town. Kim Wolske's SNRE work pointed out that people want more direction for changing their energy consumption patterns.

2) the importance of challenging the researchers in this community regarding collecting data. How do we establish baseline data and metrics like the Environmental Commission? What would our metrics be and how would they be meaningful?
3) Basic education about reducing energy use. Kim's Energy Booklet is a good framework, not that we would fully replicate it, but how do we improve Energy Office materials and messages to consumers (and back to us) during the various activities coming up, like the Green Fair in June, Art Fair, and Huron River day. PACE might not fit into this committee, but can we support the efforts of different project groups to get their message out? One member expressed that this Commission can be a bully pulpit for consistent messaging too.
4) Help people understand what groups are working on energy issues and at what level of involvement, from individuals, families, neighborhood, city, regional, national, etc. Our initial focus may be on web and its role in communication. How do we work within the constraints of municipal government to improve the Energy Commission website?

We hope by end of next meeting to have some calendar year-end goals. We agreed to meet at least monthly.

Finance and Facilitation

Comm. Appleyard: We discussed the current situation with the PACE program. Mostly need to do what we can to prod Lansing and think of other avenues for movement. Major point of discussion was Audit at Time of Sale (or Marketing) concept. Had concerns and questions about how much of an audit to make it. In a good year there are 1,000 homes in Ann Arbor that change ownership. Are there enough bodies to do the work? The idea of using the home-inspectors for streamlining came up as did coming up with a standardized packet of information to have available. Another issue was whether you would want a more extensive audit done and how you could go about doing that. The packet of information would hopefully go hand and hand with PACE.

Energy Plan Update

Comm. Kurz: How do we move forward from the retreat in terms of Commission goals on an annual and long-term basis. This potentially is the Ann Arbor Energy Plan. The old Plan still has a lot of relevance as I understand it. Comm. Hookham and I agreed to boil the Plan down to a more digestible document. Comm. Long was concerned about the drafting of this document by a small group, but I still think it is the way to go. Using goals from the chairs of the subcommittees and the Energy Office may be a way to relay goals.

Comm. Appleyard: We kind of have three documents at this time. There is

the Solar Plan, the Energy Plan, and the Energy Challenge – perhaps we need to see how these fit into the three committees and create a living document.

Comm. Hookham: The bigger the document, the less you tend to use it. We need a one page summary with short and long-term implementation.

Comm. Bing: I agree with that approach. Maybe the emphasis is more contributing out piece to a broader sustainability plan coming out of the tri-commission effort, assuming that moves forward.

Comm. Appleyard: I too would rather have programs than plans.

Comm. Kurz: I will try and put together something with what Chuck sent me today and get it out next week for review. That way there is something to react to and a time for reacting.

PUBLIC INPUT

None

ITEMS FOR NEXT AGENDA

Andrew Brix: Solar Plan presentation

Comm. Kurz: I would like some discussion about process for reviewing outreach messages.

ADJOURN

The meeting was adjourned at 7:20 pm.

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