Ann Arbor Energy Commission – Meeting Minutes
October 13, 2009
Washtenaw County Administration Building
220 N. Main St. 5:30-7:30 PM

Attendees: Wayne Appleyard – Temporary Chair, David Wright, Charles Hookham, Ken Wadland, Joshua Long, John Hieftje

Staff: Andrew Brix, Nathan Geisler

I. Approval of Minutes

Minute approval was deferred at start of meeting, as a quorum was not present.

II. Public Input

Aaron Berman: I heard of an opening on the Energy Commission and am interested in talking with Commissioners and want to put my name down as an applicant. Thank you.

III. Energy Report

Andrew Brix: Last Saturday was the MI Sustainable Homes and Businesses Tour. Joined by Comm. Wright and Comm. Hookham at the Farmer's Market. A steady stream of visitors, and helped get out info of other addresses taking part.

New grants out from the State: Energy Efficiency & Conservation Block Grant (EECBG) for non-entitlement communities (not Ann Arbor) and for LED lighting, which is open to all municipalities. Ann Arbor is going after the LED grant, which includes education for people and other municipalities.

The Energy Office has been getting questions about small wind, and since we don't have a process for permitting in place, Commission may wish to help - it may be time to say something about wind and how we will regulate – a topic for future considerations moving forward.

Upcoming Events:
Nov. 12- DTE & Michigan Solid State Lighting Association co-sponsoring symposium at UM Dearborn (LED/solid state lighting), going all morning. Brix unable to attend because he will be in D.C. A group called the Optical Society holding meeting with the Congressional R&D Caucus re: LED Lighting.

Comm. Appleyard: 30 people went through Leslie on Saturday for the MISHB Tour- I would call it a success.

IV. Community Updates on Energy

Geothermal Utility Proposal

Introductions:
Jan Colbertson: A3C Collaborative Architecture out of Ann Arbor.
Jim Moran: Neighborhood Funding Resources, Representative for Hardin
Lilly Kramer: Hardin Geotechnology

Jan Colbertson: A3C installed geothermal system in 2007. Used alley space for the geo-utility. We have been dedicating ourselves to energy efficiency. Stated benefits of "geo". Renewables can be more easily added later since geo is more efficient. We have done several audits for downtown buildings. Hands-On Museum interested, as is JJR, [NAV] Marketplace, and Zingerman's. Space for geo field is an obstacle. We looked at open spaces, and projects – where are there potential for fields in downtown in A2? It is more efficient when you tie-in a utility with multiple fields, it is scalable too. Easy to make a loop with a number of fields.

Lilly Kramer: Gave basics on geothermal. Extract heat in winter, while summer we store heat – use earth like a big battery. 40-70% more efficient than conventional system (according to DOE). Heat exchange underground would be utility portion we are proposing; the pumps are per building. Well fields can have horizontal, u-tube (vertical wells), Bisec (used for A3C) footprints. Bisecs use the least space – works well in urban area and have less drilling costs. Explained how water transfers heat faster than air. Bores are drilled to make the well field. We have paid for studies from U. of Tennessee and the National Laboratory to determine how much earth can absorb and reject, to optimize our designs.

Jim Moran: My company did a lot of research on geothermal before working with Hardin. Hardin is working to *improve* geothermal. Cutting costs 45-50%. We know energy prices are going to go up. Once geothermal installed we won't have to worry about those prices. I believe a proposal made to DDA and Andrew a few weeks ago- this presentation comes after that discussion. I am here because we are doing this with 7 other communities in southeast MI. 80 percent of energy expenditures/utility bill costs goes to coal and oil. Geo-utility would be created by the City, paid for by users in the district, who gets a bill monthly, plus financing installation and hook-up charges for that building. Do not need capital improvement charge, or bonding, which can affect credit rating – what you are doing is signing an energy services provider contract with the financer and Hardin. Instead of having money going out, will be investing in jobs. Residents receive decrease in utility bill – all financed. Tax credits available now, for something they are paying for over a longer period. Will attract industry for green image and savings. Could provide ability to get off the grid. Cash savings – 5 to 8 years return on investment. Some places have even bought out the utility to self-run. Andrew and Dave Konkle said best first step is to come to the Energy Commission seeking a "letter of interest" deliverable to City Council, to allow process to move forward and make an official proposal. Some buildings start with just one building. Can take costs away by having the utility financed. Would like to ask what we do without a quorum?

Comm. Appleyard: Do have quorum with 6.

Comm. Hookham: I have worked on a lot of district heating systems in my life and am curious of what kind of price fixity you offer? At what stage would we know what "cap-

ex" would be? All the parties involved will have some cost associated for being involved, so at what point is the cost known?

Lilly Kramer: Can do it based on the tonnage of the individual system.

Comm. Hookham: So you can scale it?

Lilly Kramer: Absolutely. That is the great thing about geothermal.

Comm. Hookham: Follow-up: say you have 3 parties – how difficult is it to work legally? Other district heating systems I have been involved with become very litigious.

Lilly Kramer: We are talking about this being a City Utility, so City would own.

Jim Moran: What we are looking for here is a letter of interest working toward a study, which could answer some of the questions you are asking.

Lilly Kramer: We have used this structure with a lot of Universities in the past. Have always wanted to partner with cities – but utility prices were not what they are now. Also less interest in renewables then compared to now.

Comm. Hookham: Also works well when you have an existing district heating and cooling system. Unfortunately we don't have much infrastructure for that.

Jim Moran: In Pontiac there are water lines already in place, coming off what will be a sustainable parking lot. The building will hook up just as would the water system. Only the boilers and coolers that go away.

Andrew Brix: Sounds like Hardin pays for initial investment in the bore fields and underground portion – or does that fall to the City?

Jim Moran: Entire system is paid for. Offering ability to have it privately financed, but can use whatever system you have.

Comm. Long: Asked for clarification on financing.

Jim Moran: We work with a third party.

Lilly Kramer: We work with a couple different companies familiar with government and capital funding.

Jim Moran: Developers of individual buildings are talking now of using geothermal. A study may help further identify.

Comm. Wadland: Does Hardin do all the contracting?

Lilly Kramer: We prefer local work. We would handle management, but local work would mean the city could keep a local list of contractors that are qualified, and we are supporting local economy.

Jim Moran: This would offer training. 110 jobs in Wyandotte. Engineering and drilling jobs, and installation. We are going in on next state grant for job training.

Comm. Long: When not on the Commission I am an urban planner by trade and there are several things about this that are appealing to me, most of which are the incentives for density. It encourages businesses to locate downtown (won't go outside because it is "cheaper"); will decrease greenhouse gases and energy use in general, and potentially give us quantifiable energy reductions. You hear of geothermal's high up front costs, and I think this was the reason we were given for why City Hall did not utlize geothermal. Maybe you or maybe the Mayor can answer that.

Jim Moran: Costs have been coming down rapidly. In Chicago it is cheaper to do geothermal.

Lilly Kramer: Educating engineers has been a big challenge. We have challenged incorrect estimates and succeeded. If costs are coming in high I would like to challenge 'why'?

Comm. Appleyard: Commissioner Long brought up a point about density and that is along lines of a question I have: what kind of density can be supported by this? Well fields will limit density potential. Can we use sidewalk areas or other areas, so don't just have entire areas just designated for well fields.

Lilly Kramer: We can put geo under buildings. Can use alleyways and other easements.

Comm. Appleyard: Can it support 4 stories? 12 stories?

Lilly Kramer: Will depend on your load-factors. Hard to quantify without doing a study.

Comm. Appleyard: Are you limited as far as depth is concerned.

Lilly Kramer: We have a New York project currently has gone over 400 ft. and possibly up to 600 ft.

Jim Moran: In Pontiac we are building above the infrastructure.

Comm. Appleyard: How many tons do you get per 100 feet of bore?

Lilly Kramer: We are trying to design a heat exchanger that handles 5 tons per bore (for a 300 ft. bore).

Jim Moran: Savings are most evident when combined, just like when you aggregate other commodities. The bigger the system, the less the costs. Actual savings, we expect will be higher than even our study would predict.

Lilly Kramer: We are used to hospitals that have no “down time”. With geothermal if you did draw the entire system, it would be less efficient during that time, would not have a black out.

Jim Moran: There is a comfort factor with geothermal- a higher quality that is hard to document. A museum we are working with will require this.

Comm. Wright: What I understand with these systems as it applies to Ann Arbor is that we would be displacing heating load (which is primarily natural gas) with electric, to do the heat pump work. Your slides showed a 30-70% efficiency gain with geothermal. Electrical supply would be from coal which has about double the CO2 that you would see with natural gas. I am not sure if we have any environmental gain by this. Would be good to see some numbers on that.

Lilly Kramer: What it does it balances the load on the electric side; decreases summer load substantially and increases load only a little in the winter. I understand that electric companies have better profiles when the loads are balanced.

Comm. Wright: Your displacing gas for coal and I think it would be a benefit to look at this for climate change.

Jim Moran: Wyandotte will be eliminating need for “peaker” plant which is dirtier. They believe this will be a major greenhouse gas savings.

Comm. Wright: Economic side- a lot of issues around climate change suggest electric rates will be going up as well. We are seeing gas costs drop now, but as we address climate change we will see electric prices increase.

Jim Moran: Geothermal is a baseline for savings. Consider hybrid-geothermal systems like Toledo, where they are approaching building(s) getting off the grid and able to use more solar.

Comm. Wright: I would like to see more information before making a recommendation. Lastly, where would we draw the line for the capital. Would heat pump be part of the utility or building owner?

Lilly Kramer: Can be both ways. Going back to the hybrid system idea, for a California project, geo was able to reduce the number of solar panels from 1,470 to 680. Especially in urban areas it is tough to get enough solar fields, so geothermal would help.

Jim Moran: Responsibility of customer would be just like any utility. Financing so that you as a homeowner can own system and collect tax credit on it.

Andrew Brix: With a traditional utility, the responsibility stops at the meter, here we are talking about financing equipment for homeowners. I assume homeowner could keep relationship at the meter and go out and finance their own pump equipment.

Lilly Kramer: Absolutely.

Jan Colbertson: Our building has noticed a qualitative difference with geothermal, which we didn't even think of: by eliminating rooftop units, the noise factor in an urban environment is amazing. Creates a different dynamic downtown especially considering mixed use and green roofs downtown. Geothermal also required less of a footprint so we got more footage for the building itself.

Comm. Appleyard: I would like to bring it back to what you are asking – what are we committing ourselves to? Would need to know what we are getting Council into.

Jim Moran: We are not asking for a fee for doing this. We have a letter of intent – commits you to talking and planning for a geo-utility. Financers need to know there is some kind of commitment but is not obligating anything. Pontiac and Highland Park are both in receivership, so they had to run this by their lawyers, who understood it did not commit them anything.

Lilly Kramer: We need to know that there is some level of interest before we devote a lot of time and energy to a study – if not, there are other cities we will work with.

Comm. Appleyard: I assume that down the line there are legal aspects and research time that would go in; I don't have any reservation that we recommend to Council that we pursue this.

Comm. Hookham: Would this be a sole source arrangement with Hardin?

Jim Moran: Yes, is a three way agreement. We work with every city to work with their particular companies.

Lilly Kramer: We are good at writing proposals that will not lock you into sole source arrangements. We would look at a whole system and what would work best for the City.

Jim Moran: We are working with Lawrence Institute of Technology on training a new generation of engineers.

Comm. Wadland: Of the projects you have completed, which would you say is most similar to Ann Arbor?

Lilly Kramer: Have not completed a city system, more for universities. Murray State would be one. Lawrence Tech. (entire campus). District wide it hasn't been done.

Comm. Wadland: How long has Murray State been finished and up and running?

Lilly Kramer: Murray State was 1997 or '96.

Jim Moran: DOE had a grant program, where they were looking for ideas for creating geo-utility districts, and could tell in the language of the grant that this was forward thinking; so it is in the avant-garde.

Comm. Long: Is the statement of intent like a "first right of refusal"? I guess it is hard to recommend something that we haven't seen.
AB: I was going to suggest, procedurally, we take this meeting as a presentation or first reading, get some more documentation from the team and look at it as a sub-committee or task force and bring a recommendation back to the Commission in November.

Comm. Long: As the Energy Commission it is not our responsibility to look at the contractual obligations, but can make recommendations behind the ideas.

Andrew Brix: Any thing will go to City's Attorney office for signing. Ultimately it's up to the Commission as to how they want to proceed.

Comm. Appleyard: I think it would be prudent to table this until the next meeting. What I would like to do is have Commissioners come forth with questions in the next couple weeks so we can get answers back and back out to Commissioners before next meeting. Thank you for the presentation, certainly we would like to see more numbers on things like density to understand how this would work.

Huron River Plan and Argo Dam Discussion

Comm. Appleyard: I know there has been some discussion at the Council level.

Comm. Hieftje: We should know in a few months. It may be that there was never anything wrong with the cement portion of the dam, it had to do with the earthen portion. Drains may be performing just fine. Testing is being done and when we have those results back we will be better able to determine next steps.

Comm. Hookham: Is City engineering handling that contract and investigating the toe-drains?

Comm. Hieftje: Yes. Specialized meter being used.

Energy Futures Film Project Update – No update.

State Legislative Update – No update

V. Energy Conservation and Environmental Sustainability Issues and Activities

Commercial and Residential Audits

Andrew Brix recalled DDA presentation from last month. Believes there are 47 applications received.

Building Codes/Guidelines/Recommendations: Proposed High Performance Building Standard for Int'l Building Code

Comm. Appleyard: Berkeley and Austin both have requirements requiring an energy audit before a home sale can be completed to see where it stands related to code. I think our version of this went to the attorney's office (?)

Andrew Brix: I don't know that we have had any discussions with the attorney's office. Project was Jason Bing's grant to develop what the format of the audit scorecard would look like, which was one of the deliverables for the grant that Recycle Ann Arbor has from the Michigan Public Services Commission. Once that is completed and we know what the impacts will be and what the tool might look like that we would bring a recommendation forward, but at this point it is wide open.

Comm. Hookham: High performance building standards was a document published by a trade organization to get building code to move towards more energy efficiency in construction performance. This is something we can look at from the City's point of view with zoning and planning.

Comm. Appleyard: It is true that we cannot go beyond state requirements, but can entice people by allowing larger building sizes. Going back to the geothermal idea, you could look at packaging energy improvements at the time that you sign up for the geothermal installation.

VI. Renewable Energy Issues and Activities

Solar America Cities Update

Andrew Brix: Next technical assistance project with DOE is to train staff and installers in the community and will serve as a nice double-check of some of our installations. Also found out did not get second round of Solar Cities funds. Hoping still to carry-out project without DOE money. There will be an update on the Solar Plan next month.

5,000 Solar Roofs Project Update

Andrew Brix: Now that we have a database for tracking development permits, can do a search for solar. Does not turn up every system, but another way of keeping tabs.

Comm. Appleyard: Should communicate to building department that if there is a solar component that it is written so we can keep tabs.

Also plugged "One Grid at a Time" website: www.1bog.org – community-based program to try and bundle 100 systems together to get a 20-30 reduction in installation costs.

Solar Access Zoning

Comm. Appleyard: Article *Density and Sustainability*, looking at dealing energy onsite via solar, and dealing with water, it limits height somewhat to 4-8 stories, which correlates with what people often find to be good-feeling height, not something out of

human-scale. I have passed this along to planning stuff at the City, because if you look in the long-run as making sustainable city that we look at what limits to density might be necessary. A radical idea in that it is looking at producing energy on-site, not unlike the geo-utility idea discussed earlier. Viewable online in the Cascadia newsletter.

Energy Challenge Update
Andrew Brix: Responses came back for the RFP for Renewable Energy Certificates through a contract for differences- proposals did not do what we wanted them to do, so we have gone back and given them chance to respond to a best and final offer due a week from Friday. Also we have gone out to bid for electric supply under the Electric Choice program and looking at responses now. There is the opportunity to bundle REC purchases with alternative electric suppliers to meet Energy Challenge goal of reaching 30% renewable electricity for city facilities by 2010. A REC purchase would close current gap.

Comm. Wright: The REC bundling would just be a system power purchase with a REC on top of that, correct?

Andrew Brix: Yes. We don't know where RECs are sourced.

Comm. Wright: Have you thought about asking them to bundle a renewable energy purchase with the RECs as part of the energy purchase?

Andrew Brix: It is definitely something we could consider doing in the future. Right now there is a tight timeline with getting into the Choice program. Is not time to go bid at moment.

Comm. Wright: Does it look like Edison cap will be reached here soon?

Andrew Brix: Perhaps November or December, but have not heard anything in the last few weeks. There are no slam dunk savings; they are border-line 5 percent savings. In the past have had our savings eaten into by decisions from the State- we want to make sure there is a good cushion if we are going to take that risk.

VII. AAEC Subcommittee Updates

Energy Commission Retreat Planning
Comm. Long: I still think it is a good idea, obviously a lot of advanced notice needed. We should also consider that we are in a flux with our membership, and may be appropriate when all new members are in place.

Comm. Hookham: What is the status of filling membership?

Comm. Hieftje: I would like to find more diversity for the commission. I would also like to find a resident of the City. Those criteria haven't been met.

Comm. Appleyard: Is there any interest from Council, since we do have one extra seat for a member of City Council?

Comm. Hieftje: Not that I know of.

Energy Plan
Comm. Hookham: I am waiting for that retreat.

Comm. Appleyard: Maybe Energy Plan should look more long-term; start with ultimate goal of getting city off fossil fuels and work backwards on a way to get there, maybe as an extension of the Mayor's Energy Challenge. Most are saying 80% reductions by 2050, or 2030. That will take very aggressive thinking.

Comm. Hookham: Suggested getting this incorporated as second part of Mayor's challenge, for the Ann Arbor community.

Outreach Plan – No update

Funding for Energy Conservation and Renewable Energy
Andrew Brix: I mentioned LED grant we will be applying for. Block Grant has been approved from DOE, and are looking to go to City Council in second week of November.

Also, the DOE put out a request for information suggestion substantial awards for whole neighborhood energy work. We suggested their numbers were too high. We are waiting to see what they do with some of the feedback they've received.

Comm. Appleyard: I might suggest they include funding for solar end of Solar Cities – they are not working on the funding.

Comm. Long: State has grant out for non-entitlement communities (from the Block Grant)- deadline is October 22. Mentioned Energy Works program that does energy audits for schools. Can sub grant a match for audits. They are asking $2000-$7000 match for $20,000-30,000 worth of audits.

Comm. Appleyard: Hope Ann Arbor applies. Those grants also include money for renewables.

Maybe next month we should start a monthly "Favorite Website" that has to do with energy that could go on the Energy website. This month I would propose the YouTube video: "Home", an 1 hr 20 min film. Aerial view of world throughout time.

VIII. Other Business/Public Input

Damon Dotson: My company is called Solar Works LLC, in Whitmore Lake, would just like to applaud the job you are doing in Ann Arbor.

IX. Adjourned
The meeting was adjourned at 7:20 pm.