



# City of Ann Arbor

## Formal Minutes

### Energy Commission

100 N. Fifth Avenue  
Ann Arbor, MI 48104  
[http://a2gov.legistar.com/  
Calendar.aspx](http://a2gov.legistar.com/Calendar.aspx)

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Tuesday, October 12, 2010

5:30 PM 220 N. Main St., Administration Building Board Room

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#### CALL TO ORDER

Comm. Appleyard called the meeting to order at 5:38 pm.

#### ROLL CALL

**Present:** 10 - Wayne Appleyard, David Wright, Jason Bing, John Hieftje, Brigit Macomber, Charles Hookham, Dina Kurz, Josh Long, Stephen Miller, and Ken Wadland

**Absent:** 2 - Fulter Hong, and Michael Delaney

#### APPROVAL OF AGENDA

Approved as presented

#### APPROVAL OF MINUTES

A motion was made that the minutes be Approved as presented. On a voice vote, Comm. Appleyard declared the motion carried.

#### PUBLIC INPUT

Patricia Jenkins brought 10th grade students in her Communications, Media, and Public Policy magnate program at Skyline High School, focused on policy analysis on energy (this semester). The studies culminate in a filmed public service announcement. The program will inform students about local issues such as energy and their diplomas will include a special endorsement that they have gone through this program.

Monica Patel (Ecology Center): Sunday 10/10/2010 was the Global Work Party for 350.org. Ann Arbor 350 worked at 11 sites with at least 65 workers. Fifteen cyclists participated in the Garden Bike Tour. Over 1,120 square feet of garden space was installed for almost 200 raised-bed gardens (aiming for 350). The number "350" represents the parts per million of carbon dioxide in the atmosphere scientists believe can be considered sustainable.

Currently the world atmosphere is at 390 ppm.

Comm. Kurz offered her thanks to 350 participants and recommended residents learn more about the cause at [www.350.org](http://www.350.org) or [www.aa350.org](http://www.aa350.org).

#### **ENERGY REPORT - NEWS FROM THE ENERGY OFFICE AND COMMISSION MEMBERS**

**Andrew Brix:** On Tuesday October 26th, at 5:30 pm, at the Hatcher Graduate Library at U of M, the University's vice president of research will be presenting on his personal experience with his off the grid home in Vermont. The Michigan Department of Natural Resources and Environment is seeking members for a series of citizen advisory councils working on a variety of topics by region. If interested go to [www.michigan.gov](http://www.michigan.gov) and link to Resources and Environment. Right now, in Detroit, the Business of Plugging-In Conference, sponsored by DTE among others, is going on and continuing tomorrow. Website: [www.bpiconference.com](http://www.bpiconference.com). I attended a conference in Boston called the Climate Leadership Academy put on by the Institute for Sustainable Communities out of Vermont. The focus was on climate adaptation – how do we prepare for the uncertainties? As staff we will be doing more work on this topic and at some point pulling in Energy, Environment, and Planning Commissions to broaden our understanding. The State Appliance Rebate program has posted that they are fully subscribed, so there are no dollars in this program left for 2010 – hopefully it is re-funded in future years.

**Comm. Bing:** Energy Works (who runs the MI Renewable Schools Program) is organizing a film competition for K-12 students. Information will be officially released on Monday. It is called the Show Green TV Student Film Challenge, and is aimed at expressing ideas and solutions around climate change. The Challenge will include cash and flip cameras as prizes. More information will be made available at: [www.energyworksmichigan.org](http://www.energyworksmichigan.org).

**Comm. Hieftje:** Back in the fall of '05 we launched the Energy Challenge. One of the goals was getting municipal operations to 30% renewable energy, after first setting a 20% goal. We managed to get to 20% but won't reach 30%, but this is still an impressive achievement given that there are no wind farms outside of town. I think a presentation for City Council will be good around the first week of December. We have a long-standing 100% renewable energy goal as well. This update to Council will be a chance to assess where we are at and where we want to go.

**Comm. Appleyard:** Last month I mentioned an attempt to get solar panels on the White House. As of this spring there indeed will be both domestic hot water and solar PV. This was an effort by 350.org, and last month it didn't look like it was going to happen so this is good news

Germany has been cutting back their feed-in-tariff money, but this year they still doubled the installed PV in the country. Now 2% of their power is solar and 6.5% is wind, with another 1% increase to go online in the year. Nine terawatt hours per year are produced from these renewable now.

### **COMMUNITY UPDATES ON ENERGY**

Wastewater Treatment Plant Rebuild - Mike D. Amicangelo

**Capacity of the system is 29.5 MGD with 18.5 MGD average today. Service extends to Ann Arbor Twp, Scio Twp, Pittsfield Twp, in addition to the City.**

**There are site limitations with Huron and Fleming Creeks on west and east sides. Norfolk Southern railroad to the north also creates expansion problems. There are two projects underway:**

- 1) Residuals Handling Improvements Project (Solids treatment; started in February of 2009; 65% complete; cost \$43.5M)**
- 2) Facilities Renovations Project (Liquids portion; ready for advertising early next year; cost estimate is \$80M)**

**Biosolids are collected at the Plant. We then and apply to land (May – November). From December to April biosolids are “dewatered” then landfilled. The incinerator at the Plant has been offline since 1997. The current plate press was built in 1977 and was taken offline this year. Three new centrifuges will be used to produce cake for land applications or landfilling. A new gravity belt thickening piece of equipment will double solids content that can be handled. This will cut hauling costs and vehicle pollution. A new 2-bay truck loading facility will increase storage by 3 times. Benefits include increased processing flexibility, increased storage, reduced odors, noise, and improved reliability.**

**The facilities renovation project deals with the fact that the old west plant was built in 1936. Plant went offline in 2006. Improvements include a new electrical distribution system, two new stand-by generators, a new administration building, and new east plant blower facility with two new process trains (5 MGD each). The location will have improved stormwater retention. The costs to**

bring the old building up to code exceeded the costs for a new one. New blowers will be 15-30% more efficient. Sometimes we need 1.6 Megawatts just for air control. LEDs will light the site and reduce light pollution. There will be high efficiency motors everywhere, variable frequency drives on the equipment, and new efficient aeration blowers for the HVAC.

**Comm. Hookham:** Is the process aerobic?

**M.D.A.:** Process is three-phase, anaerobic .

**Comm. Miller:** What analysis was done to conclude that space was a limiting factor for including something like a digester at the site?

**M.D.A.:** The original study was a cost-benefit analysis. Digestion is a great idea. The capital cost for it here was \$20 million. So capital combined with real estate limitations and staff hours for new full time employees were all limitations. Methane gas that you produce with digestion is very dirty and needs to be scrubbed as well. Running the numbers we came to a negative \$.75M a year expense with bio-digestion.

**Comm. Appleyard:** I am a little surprised it would cost money to operate per year since Flint is moving forward on a bio-digester energy project.

**M.D.A.:** The studies of this technology that I saw showed that most seemed to be paid for through grant dollars. I couldn't get all my questions answered just yet from the analysis reports on bio-digesters.

**Comm. Appleyard:** Could you talk about the costs involved with getting rid of the waste now?

**M.D.A.:** It is cheaper to landfill than to land apply, but that could change in 5 or 10 years. Without land application the other route was incineration.

**Comm. Miller:** What kind of grant funding is out there that could've been used?

**Andrew Brix:** I haven't seen anything in the last couple of years that would cover something like this.

**Comm. Miller:** Is the City still getting rid of footing drains? As I recall the idea was to reduce flow to the WWTP. Has that goal been met? Is there a dollar value for the savings?

**M.D.A.:** Peak flow has been shaved. All told though, that issue does not relate to the improvements necessary at the Plant, given its age. I don't have a dollar value I can relay right now.

**Comm. Miller:** If landfilling is cheaper than land application, why aren't we doing more?

**M.D.A.:** We have to have more than one alternative, because inflow never stops. Some municipalities are closing off access to municipal waste sites. The costs of landfilling will go up; it is just a question of when. When we land-apply we have a three-way agreement between the City, the landowner, and state. If you end the agreement the farmers can go elsewhere easily for materials and it can be hard to get new agreements in place.

**Comm. Miller:** Are there no other farmers who would be interested in the solids?

**M.D.A.:** We are using most of what is available land-wise (we go as far out as Milan and Grass Lake).

**Comm. Miller:** What analysis was done to confirm the real estate limitations?

**M.D.A.:** Across the river is a different owner and the land is on a steep grade. North is the rail and then a County park. This would also entail a rail crossing to access the site.

**Comm. Miller:** You said there are 2 standby generators planned that will be diesel-fueled. Is there a chance to go with natural gas?

**M.D.A.:** We lose efficiency with natural gas.

**Comm. Hieftje:** This work is paid for through sewer bills. Our costs are below many other rates in Michigan. MDNRE did a study finding we had some of the best water in the state. You can imagine surrounding residents would not be keen on an expanded plant closer to their homes. We also have to keep the Plant online during all of this work which is impressive.

**M.D.A.:** The state or federal government would've moved in to compel these improvements if we did not initiate them.

**Comm. Hieftje:** For years people were hooked up to the system through drains that were adding unnecessary flow to the Plant.

**Comm. Miller:** My understanding was that these hook-ups were meant to increase flow to keep materials moving to the Plant. It wasn't until maybe the 1980s that code changed. My question remains what were the savings to the Plant?

**M.D.A.:** I did not participate in that cost analysis.

**Comm. Hieftje:** At the time builders were not violating code, but pollution was getting into the Huron River during back-ups and the removal of the hook-ups was deemed appropriate.

**Comm. Hookham: Weren't certain neighborhoods having problems with sanitary backups into their houses? (Comm. Hieftje confirmed)**

Regional Emissions Impacts of PHEVs - Jarod Kelly

**Transportation in the US accounts for 28% of primary energy consumption and 33% of CO2 emissions. Plug-in Hybrid Electric Vehicles (PHEVs) reduce CO2 by coupling technologies. This study utilized travel pattern information – 60,000 vehicles, 130,000 trips, looking at when vehicles are in use to infer consumption and use. We looked at Texas with various scenarios for renewable energy penetration on the grid. We also evaluated California, New England, and New York, and looked at various times for plugging in the vehicles, with different battery sizes, location effects, and other factors to see each regional grid's impact on emissions.**

**Texas has less hydro power so the average emission doesn't look as good as New England, say. All grid locations with PHEVs though proved better than the emissions with conventional vehicle fueling. Peak pull is worse outside Texas, where cleaner natural gas isn't available currently. Other pollutants: NOx improve with PHEVs, Sulfur Dioxide will actually be slightly worse.**

**Another Masters team studied PHEV impacts with updating our grid in Michigan. The state has the second oldest coal plant fleet in the country. With the most optimistic vehicle penetration rates there is an 20% reduction in CO2 emissions, small increase lead, NOx decreases, particulate matter increases slightly, VOCs go down 15%, while sulfur dioxide increases only 5% (all of this assumes the current state renewable portfolio standard of 10% renewable). PHEVs are not a panacea, they have regional implications with varying gains. SO2 increases aren't a "deal breaker."**

**Comm. Hieftje: Was this purely modeled or based on actual data? (Jarod Kelly confirmed data is actual vehicles). Given sulfurs contribution to acid rain, a 5% increase isn't insignificant. The more we can get that point out the more this can hopefully be mitigated, as I have seen the impacts in Canada, the east coast, and Appalachia.**

**Comm. Hookham: If the new CARE transport rules come in there will be a good countering effect. This rule would be for all northeast states all the way out to Iowa.**

**Comm. Wright: Looking at your per vehicle data I didn't see much of a difference between a plug-in electric or just a hybrid vehicle? I**

wonder about the cost-effectiveness because we are hearing of significant investments in the grid and for plug-in infrastructure. Jarod Kelly: Investment will be substantial. Hybrid benefits are strongest when they are in the all-electric mode. We looked at the data as it is, and didn't factor whether trips would be modified to capture the maximum benefits of properly utilizing hybrid vehicles. We are trying to refine results for these kinds of optimal usage patterns.

Comm. Wright: Earlier you showed a cost for wind power at \$500M for 33MW – that seems about a factor of 10 too much. Also, as of 2009, all new passenger vehicles sold will have a fleet average for emissions of 70 mg/mile for NOx. You showed 1,000 mg/mile – that might be a fleet number for vehicles in use today that includes vehicles manufactured over 20 years ago. That new NOx benefit will be there whether your new vehicle is conventional or electric, and especially factoring new regulations for power plants, you won't be able to make that claim for an improved benefit for switching to PHEVs.

Comm. Miller: I wonder if you looked at the tradeoff/net environmental impact of going to PHEVs, since you have benefits and costs depending on the pollutant.

Jarod Kelly: That was not in this study. In the past SO2 won out over reducing CO2, but I don't have a good answer for your question.

Comm. Hookham: Dealing with the batteries of PHEVs has to be factored in sometime into an analysis of environmental impacts. The other big thing not mentioned is energy security.

Jarod Kelly: We have those numbers from a study by the state of Michigan and that is a key point.

Comm. Long: Have you thought about what can be done on the government side?

Jarod Kelly: People will be able to plug-in at home and may be able to at work. Another place is parking facilities in place now in town, which would be a significant infrastructure investment to equip them with PHEV charging. I don't know that the city would see any financial benefit per se. Don't know what laws in the state or locally could likewise compel greater utilization.

As you charge on peak demand, more vehicles would bring online cleaner plants. While you don't want to increase peak charging, the grid does get clearer per kWh as a result. DTE has looked at rates which won't make it economically desirable to charge at certain

times.

**Comm. Bing:** Are PHEVs expected to penetrate beyond the residential market?

**Jarod Kelly:** Our study looked only at residential vehicles.

**Comm. Wadland:** Is a hybrid vehicle in electric mode equally as efficient as a PHEV?

**Jarod Kelly:** Our models use numbers that are industry produced. Hybrids are heavier, so require more work to move, thus there is a trade-off. Understanding your usage is imperative.

### **SUBCOMMITTEE DISCUSSIONS**

#### Energy Production

**Comm. Wadland:** We met on October 5th. Annette Baron with Baron Glassworks in Ypsilanti attended and shared the idea of doing a studio at the landfill where we capture gas for energy. This is being done in Burnsville, North Carolina. It seems like it could work here. Does this body want to consider looking into this further?

**Comm. Wright:** It seems like a creative idea, though I understand we have an agreement to lease the generation there that I assume runs for a certain time.

**Andrew Brix:** Our agreement is with Landfill Energy Systems who operates the generator and then sells power to DTE. Our agreement has several different termination clauses. There is no set end-date on that as of now.

**Comm. Wright:** I would be curious to see if there are grants that might be available, and support the subcommittee continuing to pursue this.

**Comm. Appleyard:** Since they eliminated one of the two generators are they flaring some of the gas at the landfill?

**Andrew Brix:** Immediately after that one generator was removed there was some flaring, but I believe it has not happened recently. Production at the landfill has declined in the last few years. From staff's perspective I am interested in this concept as it might fit into long-term planning for the landfill and how it can be used in a future scenario.

**Comm. Appleyard:** With the gas in decline it may be that eventually bio-digestion out there may make sense, if not at the WWTP.

**Comm. Miller:** I don't see this as a productive use of professional staff time. Volunteer time is a different story.



**Comm. Wadland: Our next meeting is 6pm on November 2 at 4th floor conference room in City Hall.**

Community Education and Outreach

**Comm. Kurz: We met last night. We reviewed the goals of our work: establish channels for outreach and listening within the City of Ann Arbor; to provide basic education to the residents of Ann Arbor to encourage energy conservation, efficiency, and renewable; and to enable community groups engaged in the work of encouraging energy conservation, efficiency, and renewables.**

**We are working on generalizing the Energy Challenge booklet to be downloadable from the website. Also we are working on upgrading the website itself. We invite community groups out there to contact us or Andrew. We are interested in creating a presence on the website and organizing around the framework of permaculture: food, energy, water, buildings, transportation, and waste. We are starting to compile a list of organizations to enable their work. Next meeting will be Monday, November 15th at 5:30 pm, and I have put all our meeting notes on the Ctools site.**

Finance and Facilitation

**Comm. Appleyard: We are starting to look at putting something together for a solar access zoning ordinance. We are in the data gathering stage. We are also revisiting the time of sale energy audit concept.**

**Andrew Brix: The state Senate, two weeks or so ago, passed a commercial PACE enabling bill. It has to be reconciled with the House version and wouldn't go into effect until March 2011. This may be an additional topic this subcommittee can again assist with.**

**PUBLIC INPUT**

**There was no public input.**

**ITEMS FOR NEXT AGENDA**

**Comm. Wright: Energy Office update on what our current status is with meeting the goals of the Energy Challenge and what is being done currently to expand our renewable energy use.**

**Comm. Miller: DTE negotiations on the LED streetlights.**

**ADJOURN**

**The meeting adjourned at 7:33 pm.**

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