

**Ann Arbor City Council Regular Session: June 17, 2013
Email Redactions List Pursuant to Council Resolution R-09-386**

	A	B	C	D	E	F	G
	<u>Received</u>						
1	<u>Sent Time</u>	<u>Time</u>	<u>TO</u>	<u>From</u>	<u>CC</u>	<u>Redactions</u>	<u>Reason for Redaction</u>
2	10:18 PM		Sabra Briere	Julie Berson-Grand		Email address	Privacy
3	10:01 PM		All City Council Members, Mayor, Tamara Burns, Sumedh Bahl, Bonnie Bona, Ray Detter, Connie Brown, Tamara Burns, Kayla Coleman, Rita Combest, Paul Ganz, Cynthia Ives, Mike Martin, Darren McKinnon, Connie Pulcipher, Elizabeth Riggs, David Santacrose, Sandi Smith, Debra Williams	Sabra Briere			
4	9:22 PM		Sabra Briere	Michael Benson		Email address	Privacy
5	9:21 PM		Craig Hupy	Sabra Briere		Email address	Privacy
6	8:58 PM		All Council Members, Mayor, Anissa Bowden, Tom Crawford, Paul Fulton, David Harris, Stephen Postema, Steve Powers, Joanna Satterlee, Christine Schopieray, Nancy Walker, Lisa Wondrash	Jacqueline Beaudry		Email address	Privacy
7	8:57 PM		Jacqueline Beaudry	Sumi Kailasapathy		Email address	Privacy
8	7:52 PM		Sally Peterson	Todd McWilliams		Phone Number	Privacy

Alexa, Jennifer

From: Julie Berson-Grand [REDACTED]
Sent: Monday, June 17, 2013 10:18 PM
To: Detter, Ray
Cc: Burns, Tamara; Bahl, Sumedh; Berson Grand, Julie (PAC); Bona, Bonnie; Briere, Sabra; Brown, Connie; Burns, Tamara; Coleman, Kayla; Combest, Rita; Detter, Ray; Ganz, Paul; Ives, Cynthia; Martin, Mike; McKinnon, Darren; Pulcipher, Connie; Riggs, Elizabeth; Santacroce, David (PAC); Smith, Sandi; Williams, Debra
Subject: Re: DTE site and Ped bridge graphics

For or as a result of last week's presentation? I'm confused.

Julie

On Mon, Jun 17, 2013 at 6:14 PM, Raymond Detter [REDACTED] wrote:
There are a number of changes that were made for last Wednesday's presentation. I think we can include these as a part of this Wednesday's meeting without re-inventing the entire thing all over again.

Ray

On Jun 16, 2013, at 11:26 PM, Tamara Burns wrote:

Hi,
Happy Father's Day to David and all the other father's on our TF!
Please find the last two graphics attached. Let me know your thoughts.
I am heading to Denver for the AIA convention Wednesday morning, so will not be at the meeting this week. I will be connected to email and phone but may not be able to respond very quickly.
Thanks,
-Tamara

From: Zachary Gaines
Sent: Friday, June 14, 2013 2:40 PM
To: Tamara Burns (tamara.burns@hopkinsburns.com)
Cc: Neal Billetdeaux
Subject: DTE site and Ped bridge graphics

Hi Tamara,
Hope the meeting on Wednesday went well. If any helpful feedback came out it'd be happy to listen.
Attached are the latest passes at graphics for site #'s 3 and 13. Let me know if we are on the same page.
Thanks.

Zach Gaines
Intern

.....
SmithGroupJJR
201 Depot St., Second Floor
Ann Arbor, MI 48104
t [734.662.4457](tel:734.662.4457) **d** [734.669.2732](tel:734.669.2732)
f [734.780.8804](tel:734.780.8804)
Zach.Gaines@smithgroupjjr.com

Expect the Unexpected.
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<DTE Site Amenities.jpg><Ped Bridge over Main Street.jpg>

Alexa, Jennifer

From: Briere, Sabra
Sent: Monday, June 17, 2013 10:01 PM
To: Beaudry, Jacqueline
Cc: *City Council Members (All)
Subject: DS-3 - amending the FY2013 budget

DS-3 - amending the FY2013 budget

I move to amend DS-3, removing the reimbursement of \$112,000 for staff salary increases at the 15th District Court and setting the new budget amendment at \$455,000.

Sabra Briere
First Ward Ann Arbor
734-995-3518 (h)
734-277-6578 (c)

Emails received and sent to me as a Councilmember regarding City matters are generally subject to disclosure under the Freedom of Information Act.

Sent from my iPad

Alexa, Jennifer

From: Michael Benson [REDACTED]
Sent: Monday, June 17, 2013 9:22 PM
To: Briere, Sabra
Subject: This might explain the CO2 comment....

Hi Sabra,

I'm not sure if this is what the professor was referencing but it is a possible explanation.


<http://www.forbes.com/sites/jeffmcmahon/2012/05/30/wind-power-may-not-reduce-carbon-emissions-argonne/>

-Michael

Michael L. Benson
Ph.D. Candidate, Radiation Laboratory


The University of Michigan
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Jeff McMahon, Contributor
 I cover green technology, energy and the environment from Chicago.
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TECH | 5/30/2012 @ 2:07PM | 8,673 views

Wind Power May Not Reduce Carbon Emissions As Expected: Argonne


 13 comments, 9 called-out |
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Adding wind power to the existing electric grid may not have the effect of reducing carbon emissions as much as expected, according to a new study published by researchers at [Argonne National Laboratory](#).



Cars and trucks on the Interstate 10 freeway pass wind mills near Palm Springs, California. (Image credit: Getty Images via @daylife)

Because the wind blows inconsistently, power companies would have to turn fossil-fuel plants on when windmills fall still. Turning fossil-fuel plants on and off adds inefficiencies, producing carbon emissions just to heat up boilers before energy production can begin.

“Turning these large plants on and off is inefficient. A certain percentage of the energy goes into just heating up the boilers again,” said Lauren Valentino, one of the authors of the study, which was published in the journal [Environmental Science and Technology](#).

These inefficiencies may cancel some of the carbon savings of the wind power.

“We did find there was a net reduction, it just wasn’t proportional,” said ANL spokesman Louise Lerner. “As you add more turbines [the carbon emissions are] not reduced in a linear way.”

In the researchers own words:

“The reduction in emissions during operational periods is great enough that the trend of total emissions is clearly decreasing with increasing wind power penetration. However... we see that for most pollutants, the marginal emissions benefits are reduced for high wind power penetration levels, mainly driven by the higher start-up emissions [of fossil-fuel plants].”

Fossil-fuel plants also operate less efficiently at less than full power, so reducing demand for their power, without eliminating it, can offset carbon savings, according to the researchers.

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Jeff McMahon
 Contributor
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I have covered the vexed relationship between humans and our natural environment since 1985, when I discovered my college was discarding radioactive waste in the dumpster out back. That story ran in the Arizona Republic, and I have worked the energy-and-environment beat ever since—for dailies in Arizona and California, for alternative weeklies including [New Times](#) and [Newcity](#), for online innovators such as [True/Slant](#).

The author is a Forbes contributor. The opinions expressed are those of the writer.

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A group of researchers are working on one possible solution to this problem: Video batteries that can store wind power for use when the wind stops blowing—as well as store solar energy for use at night.

Where's That Radioactive Sulfur Now? Possibly In Your Pants 39,014 views Search companies, people In Action EPA: New Radiation Highs in Little Rock Milk, Philadelphia Drinking Water 33,645 views

The researchers modeled their study on the electric grid in Illinois, which depends on a large number of coal and gas plants, and where the wind blows strongest at night, when demand is lowest.

MORE FROM JEFF MCMAHON

“The analysis in this paper is limited to the state of Illinois, where the results show that wind power to a large extent replaces coal-fired generation with relatively high emissions,” the researchers write. “However, the analytical framework is general and could be applied to any region. The emissions implications of increased wind power penetration is to a large extent determined by the portfolio of other power plants.”

CORRECTED to reflect that researchers did find a net reduction in carbon emissions from the addition of wind power, just not a proportional reduction or as significant a reduction as expected.

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[Wind Power's Future May Depend On Gas Fracking's Fate: Panel](#)

[Fracking Gas Is Writing America's Energy Policy](#)

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Jeff McMahon, Contributor 1 year ago

Author

The headline is corrected, S. Wright. Thank you for your comment.

Called-out comment

Reply



tomgray 1 year ago

A recent analysis from Argonne Laboratory has generated some press interest for its conclusion that adding current levels of wind energy to the grid yields even greater reductions in emissions of harmful pollutants than expected, but that at levels of wind energy several times higher than are on the grid today, the incremental pollution savings of adding wind energy to the grid are somewhat smaller than they are at lower levels of wind. Unfortunately, this study's findings have been misreported in the press, so we'd like to set the record straight:

- Much of the press coverage of this study is incorrectly reporting that the study finds that wind energy does not reduce pollution, or that the pollution savings are always smaller than expected. The study is explicitly clear that neither of those interpretations is correct.
- "The study finds that at the wind energy levels of today and the foreseeable future, wind energy's emissions savings are even larger than expected (12% carbon dioxide emissions savings with 10% of the electricity on the grid coming from wind, 21% carbon dioxide emissions savings at 20% wind)."
- The study acknowledges that its findings are a theoretical exercise based on the assumption that power plants in Illinois are operated in isolation from those in other states, and as a result the study's conclusions have little to no bearing on how the actual utility system works, particularly at high levels of wind generation.
- The study also acknowledges that it uses very outdated and unreliable estimates for making assumptions about the efficiency of fossil-fired power plants at different output levels.
- Other analyses using more accurate assumptions and more reliable sources have found that wind's emissions savings are as large or larger than expected.
- Real-world data confirms that states that have added significant amounts of wind energy, such as Illinois, have seen fossil fuel use and emissions decline by as much or more than expected.

Finally, analysis of readily available DOE data puts to rest the idea that wind energy has a significant negative impact on the efficiency of fossil-fired power plants.

Wind energy is one of the most environmentally friendly ways to generate electricity. Wind energy emits no pollution, creates no hazardous waste, and uses virtually no water. All of these advantages are beneficial to wildlife, and they are not shared by any non-renewable energy source.

For a more detailed analysis of the Argonne study, please see here:
http://www.awea.org/blog/index.cfm?customel_dataPageID_1699=16631

Tom@AWEA

Called-out comment

Reply



Jeff McMahon, Contributor 1 year ago

Thank you for these comments.

Argonne links to this story from its own front page, and its own summary of the study says its researchers "found that adjusting for wind power adds inefficiencies that cancel out some of the CO2 reduction." Nonetheless, your points are excellent ones, and I thank you for sharing them here.

I think it's also important to note that wind power can also be useful in applications that don't involve the grid, and that we all hope the grid itself will improve.

Called-out comment

Reply

NortheasternEE 1 year ago



The wind industry for years benefited from the claim that every megawatt-hour of clean wind generated energy on the grid saved all the carbon emissions that went into generating the same energy with fossil fuel. The model for this study claims this to be partially true, and what is missing is utility scale energy storage. Other study models show the need to ramp and cycle thermal units for grid balance fails to avoid any carbon emissions, and under some modeling assumptions wind penetration increases carbon emissions.

In the meantime, it now appears that for the last 10 years we have been killing birds and bats, defacing mountains, and burdening neighborhoods with noise annoyance and ill health for nothing in return.

These are some of the unintended consequences of states who mandate solutions by providing financial incentives for selected industries instead of waiting for the market to select the best solution.

Now, I am wondering how many false energy storage solutions we will be forced to fund to solve a problem that may not exist.

Called-out comment

Reply



Jane Eggebeen 1 year ago

Not only does wind not significantly reduce emissions, because of inefficiencies created in the baseload plants, there are increased costs because of these inefficiencies. Operation and maintenance costs go up due to cycling; increased revenue uplift if generators are taken out of merit order; increased cost of ancillary services dealing with wind's intermittency. One expert said this week, "It's hard to say whether wind will bring prices down or whether the increasing off peak energy is just being dumped." see EnergyBiz: "Wind not a silver bullet study says."

As a taxpayer, I do not agree with spending 14 Billion in PTC's to something that very insignificantly reduces emissions, does not contribute significantly to baseload, and could very well just end up being "dumped" because the wind isn't blowing at the time of needed power.

Called-out comment

Reply



Ben C 1 year ago

I think there's a fallacy in this report. It assumes that boiler technology is the backup for wind power. This is because of the one US state that it's based on.

In fact, backup could be hydro, geothermal, or open cycle gas turbines, which fire up very quickly and have no need to heat boilers. In future, it could increasingly be solar thermal, which is also flexible/dispatchable power. In other words, the study's findings might hold for Illinois, but not necessarily other places.

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It's good that the researchers drew this conclusion from the data. It's like this is that we shouldn't build wind farms. Shame about the spin from the renewable-denier brigade.

Most Popular Anti-Wind Conclusion

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Called-out comment

Reply



Jeff McMahon, Contributor 1 year ago

Author

Ben, thank you for your comment. The researchers admit that limitation to their study: "The analysis in this paper is limited to the state of Illinois, where the results show that wind power to a large extent replaces coal-fired generation with relatively high emissions," the researchers write. "However, the analytical framework is general and could be applied to any region. The emissions implications of increased wind power penetration is to a large extent determined by the portfolio of other power plants."

Called-out comment

Reply

+ expand comment



renewableguy 1 year ago

There are tremendous environmental costs now and in the future from fossil fuels. They aren't included in the cost of generating electricity. The intermittency issue is dealt with in this study in which very little fossil fuel supplement is needed. I'm assuming peak gas generators could be used which would get around the inefficient large boilers.

<http://www.ieer.org/reports/NC-Wind-Solar.pdf>

The conclusion, to summarize, is that a high-penetration solar and wind utility system is possible, that it requires supplementation of about 6% of electricity demand, from sources now used for peaking purposes. A corollary observation is that the concept of baseload generation is more or less irrelevant to its successful operation of such a system. The conclusion, to summarize, is that a high-penetration solar and wind utility system is possible, that it requires supplementation of about 6% of electricity demand, from sources now used for peaking purposes. A corollary observation is that the concept of baseload generation is more or less irrelevant to its successful operation of such a system.

Called-out comment

Reply



NortheasternEE 1 year ago

What I get from this is that we would have to abandon the concept of baseload generation which means abandon nuclear and coal and replace them with natural gas, gamble on the development of storage and smart grid technologies, while continuing the added implementation of very expensive wind power in the hope of avoiding carbon emissions.

The use of open cycle natural gas to firm the output of wind turbines generates about the same carbon as using the twice as efficient combined cycle natural gas turbines alone. Relying on a single fuel (natural gas) is economically dangerous. Unless you can show clear avoidance of carbon emissions, the extra cost is for nothing in return.

Called-out comment

Reply


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Real-Time Billionaires

Alexa, Jennifer

From: Briere, Sabra
Sent: Monday, June 17, 2013 9:21 PM
To: Hupy, Craig
Subject: Fwd: Wind Power in Ann Arbor
Attachments: PastedGraphic-2.pdf; ATT86278280.htm

fyi

Sabra Briere
First Ward Ann Arbor
734-995-3518 (h)
734-277-6578 (c)

Emails received and sent to me as a Councilmember regarding City matters are generally subject to disclosure under the Freedom of Information Act.

Sent from my iPad

Begin forwarded message:

From: "Beaudry, Jacqueline" <JBeaudry@a2gov.org>
To: "Anglin, Mike" <MAnglin@a2gov.org>, "Beaudry, Jacqueline" <JBeaudry@a2gov.org>, "Bowden \ (King) \, Anissa" <ABowden@a2gov.org>, "Briere, Sabra" <SBriere@a2gov.org>, "Crawford, Tom" <TCrawford@a2gov.org>, "Fulton, Paul" <PFulton@a2gov.org>, "Harris, David" <DHarris@a2gov.org>, "Hieftje, John" <JHieftje@a2gov.org>, "Higgins, Marcia" <MHiggins@a2gov.org>, "Higgins, Sara" <SHiggins@a2gov.org>, "Kailasapathy, Sumi" <SKailasapathy@a2gov.org>, "Kunselman, Stephen" <SKunselman@a2gov.org>, "Lumm, Jane" <JLumm@a2gov.org>, "Petersen, Sally" <SPetersen@a2gov.org>, "Postema, Stephen" <SPostema@a2gov.org>, "Powers, Steve" <SPowers@a2gov.org>, "Satterlee, Joanna" <JESatterlee@a2gov.org>, "Schopieray, Christine" <CSchopieray@a2gov.org>, "Taylor, Christopher \ (Council) \ " <CTaylor@a2gov.org>, "Teall, Margie" <MTeall@a2gov.org>, "Walker, Nancy" <NWalker@a2gov.org>, "Warpehoski, Chuck" <CWarpehoski@a2gov.org>, "Wondrash, Lisa" <LWondrash@a2gov.org>
Subject: FW: Wind Power in Ann Arbor

Please see the attached from Councilmember Kailasapathy.

Jacqueline Beaudry, City Clerk
City Clerk's Office | Guy C. Larcom City Hall | 301 E. Huron, 2nd Floor · Ann Arbor · MI · 48104
734.794.6140 (O) · 734.994.8296 (F) |
jbeaudry@a2gov.org | www.a2gov.org
I Think Green! Please don't print this e-mail unless absolutely necessary.

-----Original Message-----

From: Kailasapathy, Sumi
Sent: Monday, June 17, 2013 8:57 PM
To: Beaudry, Jacqueline
Subject: FW: Wind Power in Ann Arbor

I thought you might be interested to read this given the wind turbine contract is on the agenda.

Sumi Kailasapathy
First Ward Councilmember
Tel: 734-769-5698

-----Original Message-----

From: Tarle, Gregory [REDACTED]
Sent: Sun 4/14/2013 11:02 AM
To: Kailasapathy, Sumi
Subject: Wind Power in Ann Arbor

Dear Council Member Kailasapathy,

I am concerned about the recent decision to spend over a million dollars of taxpayer money on wind turbines sited in Ann Arbor. I am currently teaching a class "Energy for our Future" at the University of Michigan. One of the first things we learn when studying wind power is that the power you can get from a wind turbine goes as the cube of the wind velocity. Effective wind turbines must be sited in places where the wind velocity is high and steady or where there are frequent high velocity gusts. Attached is a map of US Wind Resources from the Department of Energy. As you can see, wind resources are marginal at best in Ann Arbor but are excellent offshore in the Great Lakes. Winds increase with altitude (because of wind shear) and that is why large towers are needed. It is not educational to site wind turbines at sites selected for non scientific reasons.

I know that you believe you are being a good steward of the environment by promoting wind power. I am an avid environmentalist and I am very worried about the accelerating global greenhouse gas emission. Do you understand that wind power (especially when poorly sited) has a large carbon footprint? With capacity factors of ~30% (at excellent locations) and highly fluctuating power output, wind turbines displace base load power (much of which is carbon free nuclear power) and require fast reacting (usually natural gas) backup power for the remaining 70%. Extending wind farms over large areas and improving electrical distribution grids alleviates this problem somewhat but it is still a problem. Wind is not as environmentally friendly as its proponents suggest.


Please reconsider your decision to site these turbines in Ann Arbor. If you believe in expanded use of wind power and want to go ahead with this project, then please erect these turbines near the shores of Lake Michigan, or better yet, offshore. If wind is economical, you should be able to sell the power to the grid and make money for the city off the project. Finally, let me say that you should use the resources of the University of Michigan when making such decisions. There are many faculty members that would be more than happy to donate their time and advice on technical and policy issues such as these.

Regards,
Gregory Tarlé

Gregory Tarlé
Professor of Physics

Randall Laboratory
450 Church Street
Department of Physics
University of Michigan
Ann Arbor, MI 48109-1040

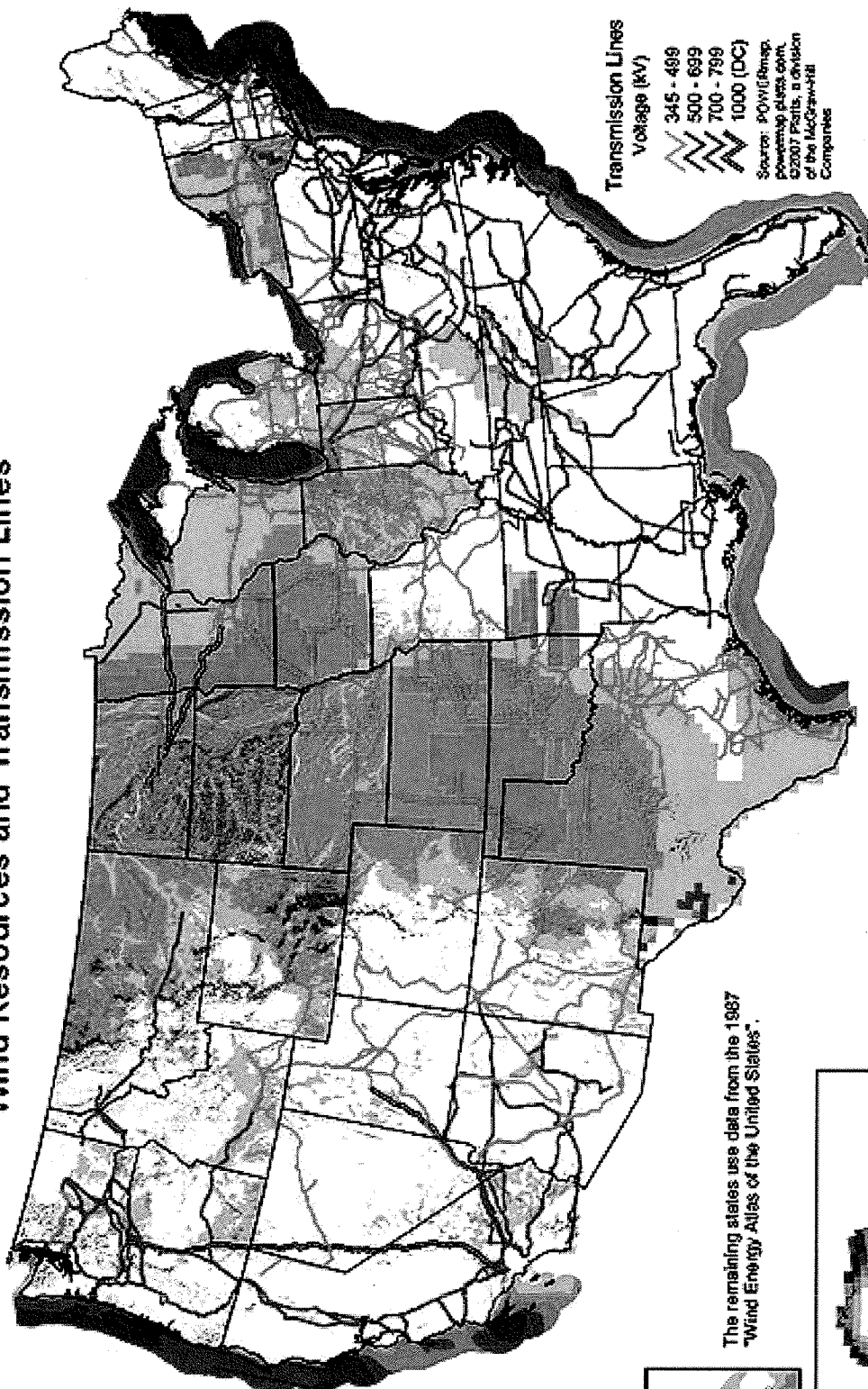
Office: 359 West Hall
Office Phone: (734) 763-1489
Fax: (734) 936-6529



Wind Resources and Transmission Lines

NREL Updated Maps:

- Arizona (2003)
- California (2002)
- Colorado (2004)
- Connecticut (2001)
- Delaware (2002)
- Hawaii (2004)
- Idaho (2002)
- Illinois (2001)
- Indiana (2004)
- Maine (2001)
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- Massachusetts (2001)
- Michigan (2004)
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- Wyoming (2002)

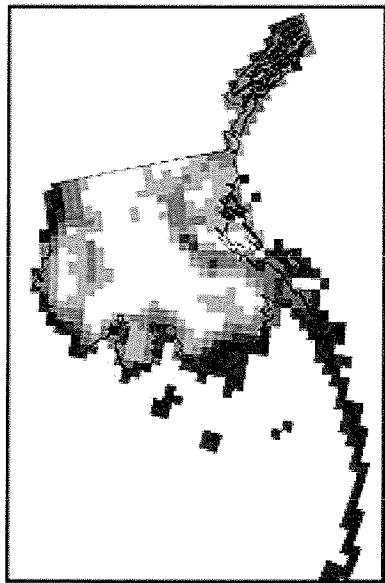


Transmission Lines
Voltage (kV)

- 345 - 499
- 500 - 699
- 700 - 799
- 1000 (DC)

Source: POWERmap
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Companies

The remaining states use data from the 1987
"Wind Energy Atlas of the United States".



Wind Power Classification			
Wind Power Class	Resource Potential	Wind Power Density at 50 m W_{50m}^2	Wind Speed at 50 m
2	Marginal	200 - 300	5.6 - 6.4
3	Fair	300 - 400	6.4 - 7.0
4	Good	400 - 500	7.0 - 7.5
5	Excellent	500 - 600	7.5 - 8.0
6	Outstanding	600 - 800	8.0 - 8.8
7	Superb	800 - 1600	8.8 - 11.1
			12.5 - 14.3
			14.3 - 15.7
			15.7 - 16.8
			16.8 - 17.9
			17.9 - 19.7
			19.7 - 24.8

Wind Speed at 50 m mph

* Wind speeds are based on a Weibull k value of 2.0

U.S. Department of Energy
National Renewable Energy Laboratory



19-MAR-2007 1:59

Alexa, Jennifer

From: Beaudry, Jacqueline
Sent: Monday, June 17, 2013 8:58 PM
To: Anglin, Mike; Beaudry, Jacqueline; Bowden (King), Anissa; Briere, Sabra; Crawford, Tom; Fulton, Paul; Harris, David; Hieftje, John; Higgins, Marcia; Higgins, Sara; Kailasapathy, Sumi; Kunselman, Stephen; Lumm, Jane; Petersen, Sally; Postema, Stephen; Powers, Steve; Satterlee, Joanna; Schopieray, Christine; Taylor, Christopher (Council); Teall, Margie; Walker, Nancy; Warpehoski, Chuck; Wondrash, Lisa
Subject: FW: Wind Power in Ann Arbor
Attachments: PastedGraphic-2.pdf

Please see the attached from Councilmember Kailasapathy.

Jacqueline Beaudry, City Clerk

City Clerk's Office | Guy C. Larcom City Hall | 301 E. Huron, 2nd Floor · Ann Arbor
· MI · 48104

734.794.6140 (O) · 734.994.8296 (F) |

jbeaudry@a2gov.org | www.a2gov.org

☐ Think Green! Please don't print this e-mail unless absolutely necessary.

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Tel: 734-769-5698

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I know that you believe you are being a good steward of the environment by promoting wind power. I am an avid environmentalist and I am very worried about the accelerating global greenhouse gas emission. Do you understand that wind power (especially when poorly sited) has a large carbon footprint? With capacity factors of ~30% (at excellent locations) and highly fluctuating power output, wind turbines displace base load power (much of which is carbon free nuclear power) and require fast reacting (usually natural gas) backup power for the remaining 70%. Extending wind farms over large areas and improving electrical distribution grids alleviates this problem somewhat but it is still a problem. Wind is not as environmentally friendly as its proponents suggest.

Please reconsider your decision to site these turbines in Ann Arbor. If you believe in expanded use of wind power and want to go ahead with this project, then please erect these turbines near the shores of Lake Michigan, or better yet, offshore. If wind is economical, you should be able to sell the power to the grid and make money for the city off the project. Finally, let me say that you should use the resources of the University of Michigan when making such decisions.

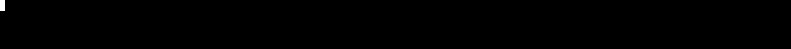
There are many faculty members that would be more than happy to donate their time and advice on technical and policy issues such as these.

Regards,
Gregory Tarlé

Gregory Tarlé
Professor of Physics

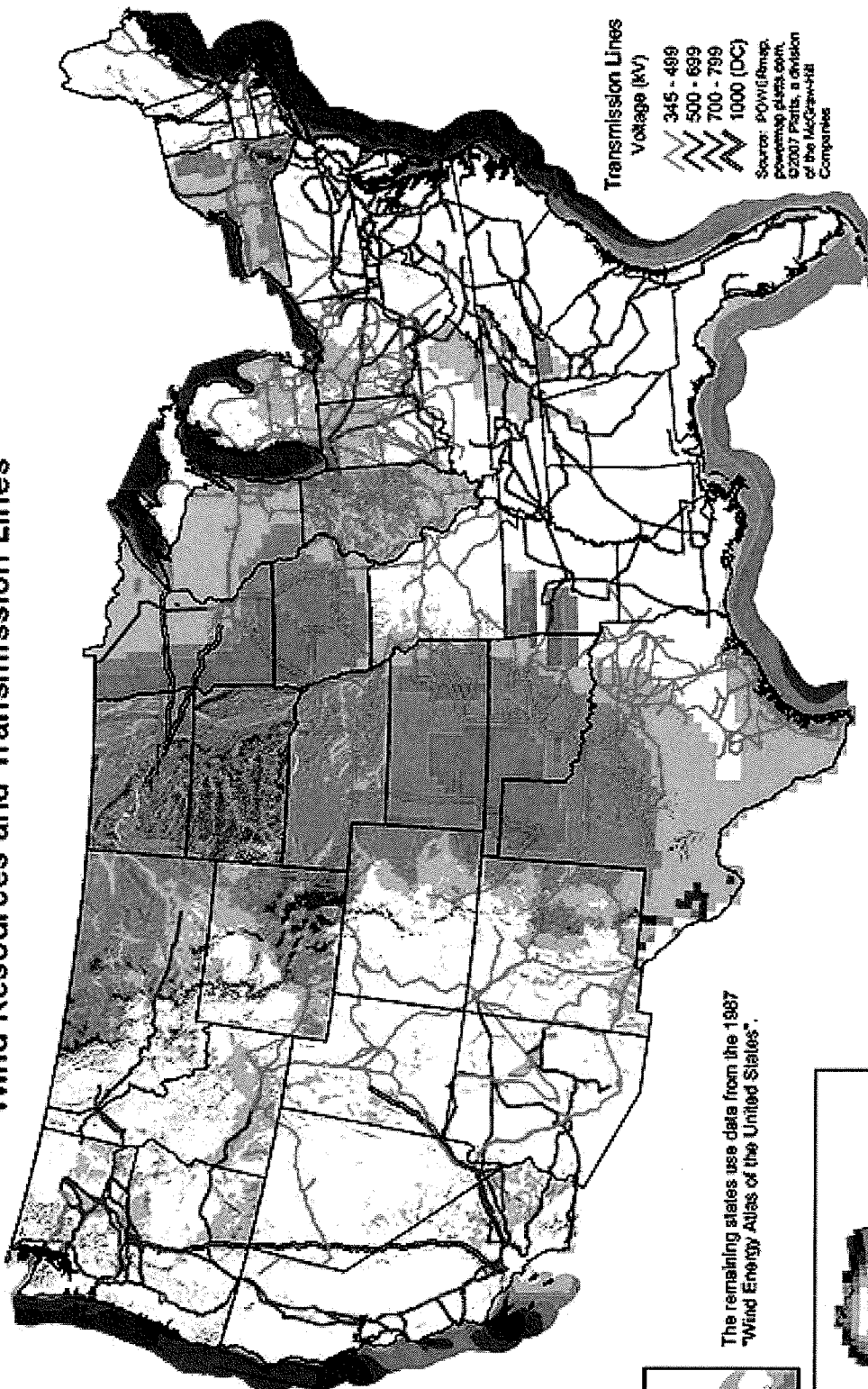
Randall Laboratory
450 Church Street
Department of Physics
University of Michigan
Ann Arbor, MI 48109-1040

Office: 359 West Hall
Office Phone: (734) 763-1489
Fax: (734) 936-6529



Wind Resources and Transmission Lines

- NREL Updated Maps:**
- Arizona (2003)
 - California (2002)
 - Colorado (2004)
 - Connecticut (2001)
 - Delaware (2002)
 - Hawaii (2004)
 - Idaho (2002)
 - Illinois (2001)
 - Indiana (2004)
 - Maine (2001)
 - Maryland (2002)
 - Massachusetts (2001)
 - Michigan (2004)
 - Missouri (2005)
 - Montana (2002)
 - Nebraska (2005)
 - Nevada (2003)
 - New Jersey (2002)
 - New Hampshire (2001)
 - New Mexico (2005)
 - North Carolina (2002)
 - North Dakota (2000)
 - Ohio (2004)
 - Oregon (2002)
 - Pennsylvania (2002)
 - Rhode Island (2001)
 - South Dakota (2001)
 - Texas (2000)
 - Utah (2003)
 - Vermont (2001)
 - Virginia (2002)
 - Washington (2002)
 - West Virginia (2002)
 - Wyoming (2002)



Transmission Lines
Voltage (kV)

- 345 - 489
- 500 - 639
- 700 - 799
- 1000 (DC)

Source: POWERMap, Powering plans.com, ©2007 Powis, a division of the McGraw-Hill Companies

The remaining states use data from the 1987 "Wind Energy Atlas of the United States".

Wind Power Classification

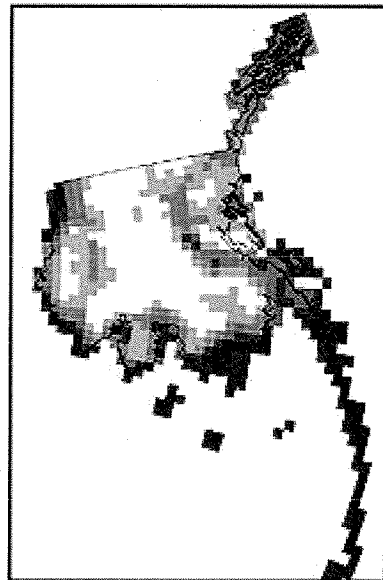
Wind Power Class	Resource Potential	Wind Power Density at 50 m W_{m^2}	Wind Speed at 50 m m/s	Wind Speed at 50 m mph
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	800 - 1600	8.8 - 11.1	19.7 - 24.4

^a Wind speeds are based on a Weibull k value of 2.0

U.S. Department of Energy
National Renewable Energy Laboratory



19-JUNE-2007 1.9.9



Alexa, Jennifer

From: Kailasapathy, Sumi
Sent: Monday, June 17, 2013 8:57 PM
To: Beaudry, Jacqueline
Subject: FW: Wind Power in Ann Arbor
Attachments: PastedGraphic-2.pdf

I thought you might be interested to read this given the wind turbine contract is on the agenda.

Sumi Kailasapathy
First Ward Councilmember
Tel: 734-769-5698

-----Original Message-----

From: Tarle, Gregory [REDACTED]
Sent: Sun 4/14/2013 11:02 AM
To: Kailasapathy, Sumi
Subject: Wind Power in Ann Arbor

Dear Council Member Kailasapathy,

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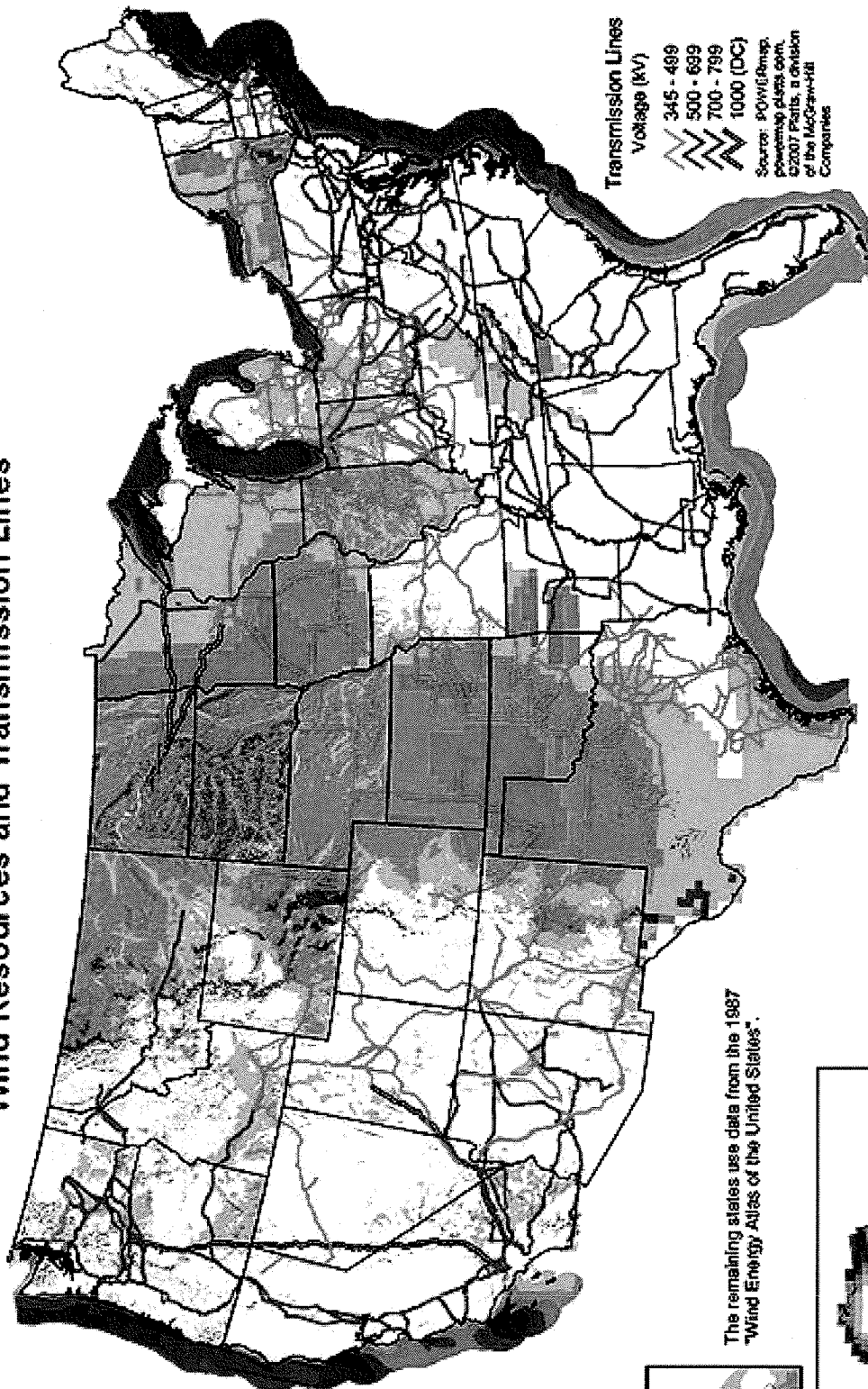
Fax: (734) 936-6529



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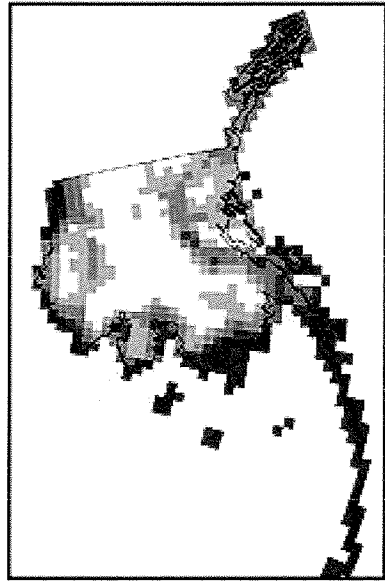


Transmission Lines
Voltage (kV)

- 345 - 499
- 500 - 639
- 700 - 799
- 1000 (DC)

Source: POWERMap, Powering plans.com, ©2007 Pacific, a division of the McGraw-Hill Companies

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Wind Speed at 50 m mph

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16.8 - 17.9
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19.7 - 24.8

* Wind speeds are based on a Weibull k value of 2.0

U.S. Department of Energy
National Renewable Energy Laboratory



15-AUG-2007 1.9.9

Alexa, Jennifer

From: Todd McWilliams [tmcwilliams@adamsoutdoor.com]
Sent: Monday, June 17, 2013 7:52 PM
To: Petersen, Sally
Subject: Re: Additional Information

Sally,
The current ordinance is 350 square feet. We are proposing a 10' X 30' digital or 300 square feet.

I do not know the size of the MDOT signs.

Todd McWilliams


Message sent by 4S I-phone

On Jun 17, 2013, at 5:26 PM, "Petersen, Sally" <SPetersen@a2gov.org> wrote:

So your current signs are only 300 square feet? I thought you were advocating for 350 square feet. I am referring to the ordinance amendment changes sent by Todd several weeks ago referencing a total of 700 sq. feet or 350 per face.

Do you happen to know the square footage of the MDOT digital signs on 1-94????

From: Karolina Traver [mailto:ktraver@adamsoutdoor.com]
Sent: Monday, June 17, 2013 4:58 PM
To: Petersen, Sally
Cc: Mitchell Gasche; Todd McWilliams
Subject: RE: Additional Information

Sally,

Attached please find the requested visual reference of 200 vs 300 sq ft.

Let me know if you need anything else.

See you tonight,

Karolina Traver
Real Estate Representative

Adams Outdoor Advertising
880 James L. Hart Parkway
Ypsilanti, Michigan 48197
734.327.8999 (p)
248.866.9549 (c)
734.327.9104 (f)
www.adamsoutdoor.com

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From: Mitchell Gasche
Sent: Monday, June 17, 2013 4:29 PM
To: Karolina Traver
Subject: FW: Additional Information

Mitchell Gasche
Real Estate Manager

Adams Outdoor Advertising
880 James L. Hart Parkway
Ypsilanti, MI 48197
734-327-8999 (p)
734-327-9104 (f)
www.adamsoutdoor.com

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From: Petersen, Sally [<mailto:SPetersen@a2gov.org>]
Sent: Monday, June 17, 2013 4:25 PM
To: Mitchell Gasche
Subject: RE: Additional Information

Hi Mitch – Can you provide visual references of a 200 square foot sign and a 350 square foot sign?
Thanks! Sally

From: Mitchell Gasche [<mailto:mgasche@adamsoutdoor.com>]
Sent: Monday, June 17, 2013 3:02 PM
To: Hieftje, John; Briere, Sabra; Kailaspathy, Sumi; Lumm, Jane; Petersen, Sally; Kunselman, Stephen; Taylor, Christopher (Council); Higgins, Marcia; Teall, Margie; Anglin, Mike; Warpehoski, Chuck
Cc: Todd McWilliams; Karolina Traver
Subject: Additional Information

Mayor/Members of City Council

I have attached some additional information that was not included in your packet for tonight's meeting for your review.

Respectfully

Mitchell Gasche
Real Estate Manager

Adams Outdoor Advertising
880 James L. Hart Parkway
Ypsilanti, MI 48197
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