READYING MICHIGAN TO MAKE GOOD ENERGY DECISIONS

Michigan Energy Public Forum

Grand Rapids

Monday, February 25, 2013
1:00 p.m. - 5:00 p.m.

GRAND VALLEY STATE UNIVERSITY
Loosemoore Auditorium
401 Fulton Street West
Grand Rapids, Michigan 49504

- - -

Introduction: Steve Bakkal, Director, Michigan Energy Office
John Quackenbush, Chairman, Michigan Public Service Commission

Presentations: Association of Businesses Advocating Tariff Equity - Leland R. Rosier, Senior Attorney, Clark Hill

ITC Holdings - Gregory Ioanidis, Vice President, and President of ITC Michigan

First Energy Solutions - Sharon Noewer, Director, Competitive Market Policies

The Salvation Army - Betty Zylstra, Director of Booth Family Services

Michigan League of Conservation Voters - Patty Birkholz, West Michigan Director

Michigan Energy Innovation Business Council - Dan Scripps, President

- - -

REPORTED BY: Lori Anne Penn, CSR-1315

PUBLIC STATEMENTS: PAGE

Grand Rapids, Michigan

Monday, February 25, 2013

At 1:06 p.m.

- - -

STEVE BAKKAL: Good afternoon, everyone, and welcome. It's great to be here today. My name is Steve Bakkal from the Michigan Energy Office located at the Michigan Economic Development Corporation. On behalf of the Chairman of the Michigan Public Service Commission, Mr. John Quackenbush, and myself, we'd like to welcome you to the second Michigan Energy Public Forum as we continue the process to ready Michigan to make good energy decisions.

As many of you are aware, Governor Snyder gave his energy and environment address this past November where he discussed the three pillars of a sound energy policy; that of reliability, affordability, and protecting the environment, all built on a foundation of adaptability. And in that address, the Governor also talked about 2013 being the year that we engage with our legislators and the public to gather information and facts necessary to make good energy decisions for our future, specifically in three areas that guides much of our energy policy today, that of energy efficiency, renewable energy, electric choice, or other additional

areas that should be considered as well, which brings us to the reason why we're here today.

Last January we launched the input phase of the process. We're gathering this input through two primary methods; one is through these public forums, this is our second one, we had one in Lansing a couple weeks ago, as well as the website that we launched at michigan.gov/energy where we posed a number of questions where we're seeking information and facts for our policymakers and for the Governor and for us to generate our reports. The website will be open until the end of April for submissions.

When you go to the website, you will see a list of over 80 questions, almost a hundred questions in all the four different topic areas, many are very technical in nature, they're asking for specific information, but generally speaking, all of them can be summarized by these two questions: What information do policymakers need to consider in order to make good energy decisions, how do we make an informed decision basically; and what existing data or studies are available that can be utilized by our policymakers when evaluating Michigan's energy policy post 2015? Thus, what you see here is not questions that are asking for what we should be doing, it's not asking what our targets

should be, what our policies should be, or if we should have targets, even if we should have targets in specific areas, but we're looking for the underlying facts that our policymakers and our Governor can use then to make those kind of policy recommendations.

Again, we'll be having seven of these forums throughout the state comprised mostly for, every couple weeks through this month, March, and the last one being April in Traverse City. The format of these forums will be similar to today's format. We'll have about an hour, hour and a half dedicated to formal presentations from stakeholders that will attempt to address the questions that we have posed on the website, then we'll dedicate a large portion of time for public input as well.

All the agendas will be made available approximately two weeks in advance of each forum, as well as all the public input will also be recorded. We have a court reporter here with us today, so a transcript of that will also be available on the website. All the submissions to the questions will also be available for everyone to view, so if you see somebody answering a specific question and you feel that you have a report or better information than what's been posted, we encourage you to submit that as well.

After this input phase, the Commissioner and myself will be outlining what other areas we may still need information on that we didn't collect through this first part of the process. In the July-September timeframe, we'll start to develop the report; we'll also start to release the report in the October-November timeframe, and that will also be made public for input as well. Then finally we'll release the final copy of the report in the November-December timeframe, and it's anticipated that the Governor will utilize the report to develop his own energy policy recommendations that he will announce in December of this year.

With that, I'd like to now introduce the Chairman of the Michigan Public Service Commission, Mr. John Quackenbush. He will give us a little background on where we are today in those three specific areas and give you a little bit more information on how Michigan compares. Thank you.

Please join me in welcoming him.

JOHN QUACKENBUSH: Well, good afternoon. As Steve mentioned, we're seeking data, reports, studies that will help us make good decisions. So as you look at the questions that are on the website, they fall into several areas; one is where do we stand now? What potential do we have in Michigan? And how do we compare

to other states? And so to answer or to kind of address, show you a starting point for the first area, which is where do we stand now, I'm going to show you just a few slides.

And the first one has to do with energy efficiency. This shows, if you can look, see on the left-hand side, we've had targets since '09, the targets have been increasing every year, this is for electricity, and every year we've been exceeding the targets. So we feel pretty good about where we've been, where we stand today. On the right-hand side, you can see what the targets are, the electric energy savings targets as a percent of total sales. And so we started modestly at .3 percent and worked our way by this last year of 2012 up to 1 percent. That 1 percent, by the legislation, will stay there now through 2015 and beyond. And the question we're asking is, you know, what's our potential, where can we go from here? Do we want to alter the target? Do we want to remove the target? Do we want to ratchet it up? All those things is what we're seeking data in order to make those kind of decisions. This chart comes directly from the Commission report that was filed November 30. We have an annual requirement to report to the legislature and the Governor this information.

The next slide is the same thing, except

related to gas energy efficiency. The first one was for electricity. Here again it's pretty much the same story. We've had targets out there and exceeded them every year so far, so we feel pretty good about what we've been able to accomplish. And the targets I'll mention on gas are just a little bit more modest than the electric targets. You can see we built up to, on the right-hand side, .75 of a percent as our target in 2012 and beyond.

This is a brief snapshot of renewable energy. If you look at the bars increasing year by year, you can see us build towards our 10 percent by 2015 target. It's a standard that was set by the legislature, and we're on our way. We built a lot in, a lot of renewables during the year 2012 just past, you can see where that impacts 2013 increasing significantly because, you know, some of those renewable energy facilities that came on line towards the end of the year in 2012 will be producing for the full year 2013, so you can see a big jump up there. And you can see that by 2015, we'll up right, we expect everything's on track to be able to reach that target. If you look at the very, the top line, kind of I call it like a faded gray line, those are bankable RECs which can be used towards future renewables requirements.

Let me just touch on Choice really quick.

There's a lot of numbers on this slide, but what I want to highlight is if you look at the bottom right-hand corner of both of these tables, the first table has to do with Consumers Energy and the bottom table has to do with Detroit Edison; those are our two largest electric utilities in the state. And this shows you how much interest there is in selecting an alternative electric supplier. Under the Choice legislation, customers can choose an alternative energy supplier instead of the incumbent utility for their electricity up to a 10-percent cap, and we currently have reached the cap for both of these utilities. And you can see the interest level, for instance, for Consumers Energy, the number is 24 percent. If there was no cap, then 24 percent of the customers would be interested in selecting an alternative electricity provider. Same number for Detroit Edison is 21 percent, same concept. So that's some of the facts that we have so far.

Briefly, just touching on rates, I'm going to show you just two slides, one's going to be about residential rates and the next one will be about industrial rates. This comes directly from our Electric Choice Report that was filed on February 1. This compares mid Michigan's rates to surrounding states. You can see, if you can follow Michigan, Michigan by 2012

comes out on the high end compared to Wisconsin, Ohio, Minnesota, Illinois, Indiana. You can see we've always been kind of in the upper half of that group, but now we are at the top. And so part of the information we're seeking is why is that, what can we do about it, and you know, what's that, because we're concerned about total customer bills. We do the energy efficiency to help reduce the amount of energy that customers have to use in order to get the energy they need, and then the rates is the other part of the equation.

So let me just move on to the industrial rates. You can see it's a similar story here. Michigan has generally been bouncing around the top half of these states; we've generally been below the national average, but in the upper half of the range versus surrounding states, and we're right up there by the top with Wisconsin here for industrial rates.

So with that, I'm going to stop and turn it back to Steve. All I wanted to do with this was give you a snapshot of some of the data we have. We're looking for more data. If you have supplemental data that can help us out, please bring it on, post it on the website or share it with us today or at a future forum. Thank you.

STEVE BAKKAL: Thank you, Mr. Chairman.

Just quickly going through the rest of the agenda today. Again, we're going to have about six presentations from some of the major stakeholders that will address these questions that we posted on the website. We'll be taking a short break after that, and then coming back for the public comment period. If you would like to speak, there are speaker cards available in the front in the welcome area; please complete those and submit those to, we have a couple staff members with badges walking around, you can submit those.

Before I introduce our first speaker, I'd like to recognize a couple people we have in the audience today. I believe we have the mayor of Grand Rapids here, Mayor Hartwell. We also have Commissioner Greg White from the Michigan Public Service Commission here with us. We also have our local economic development partners from The Right Place here joining us. And we also have a member of the Michigan Economic Development Corporation's executive committee, Mr. Greg Northrup, here as well. If there's any other members of the legislature or public officials here, you're more than welcome to come up at this time and say a few words if I missed you. Not seeing anybody else.

Okay. With that, I'll introduce our first speaker. Our first speaker is Mr. Leland Rosier,

senior attorney from Clark Hill, representing the Association of Businesses Advocating Tariff Equity. Please join me in welcoming Leland to the stage.

LELAND ROSIER: Good afternoon. I'm representing ABATE today, I'm going to have two presentations; the first is on energy efficiency, and the second one will be on renewable energy.

In regard to energy efficiency, the main concern of ABATE is with regard to gas transportation customers. These are customers that only buy delivery service from the utilities, but buy their natural gas from other suppliers. Gas transportation customers have a competitive incentive to become more efficient and reduce their costs due to their own market conditions and the competitive nature of their businesses; and ABATE takes the position that the gas surcharges are unnecessary with regard to these customers and reduce their competitive position, and we believe that they should be permanently eliminated for large customers that's over 100,000 mcf.

Currently, ABATE members pay Consumers approximately $168,000 a year, and Detroit, DTE -- I'm sorry, I'm trying to say Edison -- $132,000 a year. These charges are a burden on Michigan businesses. Moreover, it's inefficient because the utility's

collecting the money and then the customers basically have to apply to get some of their money back if they participate in the programs. We prefer to just cut out the middleman and do it ourselves. The DTE annual program for large commercial and industrial is $20.7 million and Consumers is 18 1/2. The surcharges create a high overhead.

And in addition, customers have to pay the high utility incentives. Electric and gas incentives for both Consumers Energy and DTE during the 2009-2011 period is $53.1 million, and Consumers in a bulletin to their investors dated February 22 indicate that they will soon be filing, seeking another 16 to 17 million in incentives this year.

The PSC currently sets the rates and is responsible -- well, let me backtrack a bit.

We also, ABATE is also concerned regarding the potential conflict of interest involved, because the PSC sets the rates and is also responsible for implementing the energy optimization. Also, the utilities are allowed to administer the optimization program, which is an inherent conflict with their business goal of selling more energy. A separate statewide organization should administer these programs and provide rate recommendations to the PSC.

We believe this agency would establish statewide goals, develop program design, develop a budget, and be responsible for all administration, amend their budget, and costs would be forwarded to the PSC which would then develop the rates. We also would drop the incentives that would -- that alone would have saved customers 53 million over the last three years.

The second presentation today is with regard to renewable energy in Michigan. The Act 295 requires 10 percent of sales to be served, as Chairman Quackenbush mentioned in his presentation, and the two largest utilities must build or contract for 500 megawatts or 600 megawatts of renewable capacity, and that capacity must be located in Michigan.

This slide indicates the big difference in the costs. The advanced natural gas is $1,003 per kW, and on-shore wind is more than twice that.

The crux of the situation as far as ABATE is concerned is with regard to the transfer price. The transfer price is supposed to be the avoided cost of the renewable energy, with the incremental cost of compliance being the difference between the market cost and the cost of renewable energy. The transfer price is collected through the fuel clause, or the PSCR clause. The incremental cost of compliance is collected through the

per meter charges, and the per meter charges are capped. There's a reason for the cap; you don't want to overspend on this. The Commission also has the authority to scale it back if you overspend. The problem is when the transfer price -- well, skipping the slide here.

The total surcharges, as can you see, are $161 million for Consumers, and $238 million for DTE.

The potential problem is where the transfer price is set too high. If it's set above the utility's true avoided cost, that makes the cost caps useless, because this area is not capped within the PSCR case, so more dollars will be spent on renewables than the legislature envisioned, and Michigan rates become even more non-competitive. So the problem we have is we want to be -- the Commission needs to be very careful in setting that transfer price so that the rates do not go too high, being shielded in the PSCR costs.

That concludes my presentation.

STEVE BAKKAL: Thank you, Leland.

Our next presenter is Mr. Gregory Ioanidis, Vice President of ITC Holdings and President of ITC Michigan. Please join me in welcoming Gregory to the podium.

GREGORY IOANIDIS: Thank you, Mr. Bakkal and Chairman Quackenbush. Pleasure to be here today.

It's nice to be in Grand Rapids.

I'm going to take you through the transmission business, and if there's a couple things that you can walk away with after I'm done with my presentation, it would be these two things: To understand that transmission is owned by an independent entity here if Michigan, that's a little bit unique than what we might see across the rest of the United States; and also as you're thinking about energy policy decisions, you need to think about the impact it has on the grid as you go forward with energy policy goals.

You know, this is a good forum, it's going to get data on the table and really help to make informed policy decisions about energy and where we should go as a state. And I think at the end of the day, you know, speaking at least from our company's perspective and probably that of the other utilities, what we want to see is clean, reliable, and affordable electricity. We all want to see a strong Michigan.

I have to include these Safe Harbor statements. There is one element in the presentation that talks about an ongoing transaction. This Safe Harbor statement basically says that you can listen to what I saying, but don't rely on it to trade, you need to do your own research.

So a quick overview of ITC. We are Independent Transmission Company, meaning that we own, operate, and construct transmission; we're not in any other line of business. We're not in the power generation business and we're not in the local distribution business. Transmission is all we do and the only thing we do.

As I reflect upon our company's history, this week will actually mark our tenth year anniversary that we've been in business, February 28, 2013, is when we started with our footprint in southeast Michigan, and through the years, you know, I've seen the company grow from 38 employees now to over 500, with another 500 skilled labor contractors, as well as being in seven states. Pretty remarkable considering it was just ten years ago when we started out. In addition, we have a pending transaction with the Entergy Corporation, which is down south, and that would give us a footprint in the gulf coast area, and that transaction we hope to close here in 2013. It will eventually double the company, depending on what metric you want to use, whether it's employees, miles of transmission line, or actual connected capacity.

One of the two things I like to mention about the State of Michigan, just so you have an

understanding of its relative size and as you think about energy policy, is that the transmission system represents about 8,300 miles of transmission line, and serves a load, a peak load of consumption of 22,000 megawatts.

So we are the person in the middle, we operate in the wholesale market space, we take power generated from power distribution plants and deliver them to local distribution networks, which in turn deliver the power to homes and businesses. Our primary regulator is the Federal Energy Regulatory Commission, they regulate our rates, terms and conditions of service. We do fall under the Michigan Public Service Commission as it relates to siting of transmission lines, where we actually route transmission projects. We also fall under some environmental agencies, such as Department of Environmental Quality, and then local regulations as it relates to some specific construction activities; permits, processes.

There's also another organization that's very important to our business called the North American Electric Reliability Corporation. That organization is charged with making sure that utilities comply with mandatory enforceable reliability standards. The penalties for noncompliance can be up to a million dollars a day, so it's very important that we keep the

grid reliable.

One of the things that isn't always understood is how much transmission comprises of the end-use bill because you don't see ITC as a specific line item on your electric bill. Here in Michigan, it represents on average about 4 percent, and this is just looking at a typical residential customer, whereas nationally that average is more like 11 percent for the transmission component of the retail bill. And this reflects the fact that since 2003 when we started out, we've invested $1.9 billion in the transmission system in the two Michigan utilities here, so it's pretty remarkable that we are only 4 percent of the overall bill.

One of the things that isn't understood about transmission and, you know, in addition to being able to connect the customers as well as power stations, what transmission can do is actually improve the reliability profile of the grid; in addition, provide access to markets and with the overall goal of lowering the overall cost of delivered energy.

So one of the questions asked about structural separation, and I think ITC is a perfect example of structural separation in that we are independent from other interests in the market, we're

singularly focused, so our capital improvement plans are dedicated to making prudent investments in the transmission grid. There is no internal competition for capital, we don't have multiple businesses over which to allocate it. And so for us, you know, this gives us a natural inclination to want to invest in the grid where it makes sense to invest in the grid to improve overall service quality and prices for customers.

Reliability is a pretty important cornerstone of what we do. And if you reflect back on the Governor's special message on energy and the environment, he talked about reliability and contrasted the strong reliability profile of the Lower Peninsula to that of the Upper Peninsula, and noted how the Lower Peninsula has a pretty strong reliability profile and there's still a ways to go in the Upper Peninsula.

In terms of metrics that are out there, you know, there are some utility-specific standards that are looked at that are referred to SAIDI and SAIFI, and those are metrics that are more geared towards companies that serve retail customers and look at impacts to overall customers. There's also North American Electric Reliability Corporation, and they do a reliability outlook, and it's another good source of data to get a picture at least of the nation in terms of what does the

reliability outlook look for the next ten years. You know, in our mind, having NERC as this oversight organization ensuring that you remain in compliance with standards, reliability standards that are mandatory is really another sense of achieving reliability from a transmission perspective.

For us, we try to look at reliability and what we've done in the past and then continue to do so is benchmark ourselves against our peers. We participate in a survey called SGS Statistical Services, it's a national survey, it represents about 60 percent of the utilities in the United States, and what it does is it allows us to benchmark our performance to those of our utility counterparts. And what you can see both on sustained outages and outage duration, that both of our two Michigan utilities rank in the top decile, so in the top 10 percent in terms of system performance. Very keen focus of us again on reliability, and these are types of statistics and metrics that we think are important to be considering when you're formulating energy policy.

And I mentioned before that we've spent about $1.9 billion in the transmission grid to improve the overall system. Just to give you a snapshot of some of the projects that we've done across the state, here's just a small sample size. You could really think about

the projects falling into a couple categories; it's either to interconnect new generation sources, it's to replace outdated, antiquated equipment, or it's to add capacity to remove bottlenecks, that's what these investments have done.

Another important project that I want to just touch upon, and this came out of Public Act 295 which created wind zones, and the ultimate charter to us was to then design a transmission plan that would be able to accommodate both the minimum and maximum wind potential which was slated to be in the thumb portion of the state. So this project that we conceived is called the Thumb Loop Project, and it's 140 miles long when it's all completed at 345,000 volts, 345 kilovolts. And really, again, the purpose of this project is to bolster the reliability in the region, as well as provide for the interconnection of renewable resources in that region. And when you look at this project as part of the portfolio of bigger projects, what you find is that it can actually help to lower the overall cost of delivered energy and lower wholesale market prices. Siting was approved in 2011. Pursuant to the process with the Michigan Public Service Commission, we hope to have the first leg of the project done here in the latter part of 2013, and the rest of the project in 2015.

So transmission siting, there's really two statutes that govern that for us. Public Act 30 deals with lines that are greater than 5 miles and 345 kV and above; that process takes about a year to complete. Public Act 295 had an expedited siting process, only took six months to get through, and that was part of what we used when we did the Thumb Loop Project.

You know, we think it's good to look at siting measures, particularly those in other states, and see if there's best practices and if there's more streamlining that can be done as it relates to getting through the siting process, because at the end of the day, we don't want transmission to be the bottleneck to our energy policy goals.

Also, important to note that we are a part of an interconnected regional wholesale market, and very highly interconnected. While Michigan may be a peninsula from a geographic standpoint, electrically it is very robustly interconnected, and it's important to understand that as you're formulating your energy policy goals, that we do have interconnects with the state, and when you're building transmission, that you can actually help improve that interconnectivity, you can reduce congestion or bottlenecks, provide access to alternative forms of electricity and more economic forms of

electricity, as well as lowering the overall cost of delivered energy. So we could suggest looking at Michigan's connectivity within the Midwest ISO market, as well as looking at locational marginal prices over the course of time.

Here's just a quick chart that shows through January 2009 and September 2011 the import and export activity of the state as it compares to the Midwest ISO market. And if you take the three bars and add them together, it represents about 55 percent, meaning 55 percent of the time Michigan is in a position where it's importing energy. And then the bar on the right shows you that for all quantities, Michigan finds itself in an export situation 20 percent of the time. Just to put these numbers in perspective, 3,000 megawatts would represent about 15 percent of the peak demand of the state.

So with that, you know, we're happy to be here, we think this forum is really a good way to get a lot of data on the table, and we can make a very informed policy decision as to where we want to go as a state relating to energy policy. And we look forward to providing our written comments and participating in future sessions. Thank you.

STEVE BAKKAL: Thank you, Gregory.

Our next presenter is Sharon Noewer, Director of Competitive Market Policies with First Energy Solutions. Please join me in welcoming Sharon.

SHARON NOEWER: Good afternoon. And thank you, Director Bakkal, as well as Chairman Quackenbush, for allowing me the opportunity to participate today. We think that the energy forums and the Governor's process to collect information is really important for Michigan. And today my remarks will mostly be focused on the area of Electric Choice and the importance that that can bring to consumers in Michigan.

First Energy Solutions, my company, is headquartered in Akron, Ohio. We are a subsidiary of First Energy Corporation. We own about 18,000 megawatts of generating capacity. So to give you some perspective, that's about 95 million megawatt hours per year, and that's nearly enough to serve the energy needs for the entire State of Michigan and what Michigan used in 2011. So that gives you some perspective of how much generating capacity that is. We are the second largest retail supplier for electricity in the United States in Choice states for both residential, commercial and industrial customers. We are, however, a regional provider, we're not in California and Texas, we are in the midwest region in the Choice states that surround Michigan; so that

would be Ohio, Illinois, Pennsylvania, and then a little further to the east, you've got New Jersey and Maryland. We have been serving customers in Michigan since 2002.

First Energy Solutions is uniquely qualified to comment on reliability and generation in a deregulated state. Back in 1999 in Ohio, Senate Bill 3 created competitive markets and mandated Electric Choice for all consumers in Ohio beginning in 2001. So First Energy separated its regulated and unregulated operations and transferred ownership of our power plants over to First Energy Solutions. So at that time, then, and after that time, all the generating investments, including the risks with operating those power plants, were borne by the shareholders of the company and no longer by captive ratepayers. And since 1999, First Energy Solutions has actually invested nearly $6.4 billion in making those plants more efficient; and that's something that if generation were more deregulated in the State of Michigan could occur as well.

So investment in generation will continue, as I just talked about, with respect to part of the State of Ohio, but it's also true across the entire state that more than 10,200 megawatts of new generation has been added and another 2,100 megawatts is scheduled to be built. The COMPETE Coalition estimates that there

were similar results in Pennsylvania, which is also a 100-percent Electric Choice state, that about 8,500 megawatts of new generation has been added since the passage of the Electric Choice Act in 1996. In addition, it's not just the traditional sources of generation that have been added, but there's also been a focus on other more renewable sources, like 500 megawatts of wind First Energy Solutions has under contract and nearly 1,700 in total renewable power. In addition to that, we've continued to focus on developing solar projects. For example, we have a solar project that we worked on with the Cincinnati Zoo.

In addition to investment in generation continuing, we can also expect that system reliability will continue. And as the prior speaker said very articulately, that Michigan is a peninsula, but it is also robustly interconnected with the power system, and that I think is an important point for Michigan, that regardless of Customer Choice and Choice for generation suppliers, reliability will still continue to be a focus in Michigan.

And per federal regulations, MISO is responsible to ensure that adequate capacity is available, as well as ITC Holdings shares in that responsibility.

And as a part of MISO's regional transmission planning, they have implemented the resource adequacy construct that looks at incenting generation construction where and when it's needed. And importantly, I think as utilities in Michigan think about building construction for new generation to serve Michigan's needs, it would be our thought that that should also be considered in terms of what other competitive resources could be supplied instead of building a new generating plant here.

And then lastly, again, the prior speaker mentioned that there are other multi-value projects for transmission to continue to look at, for example, the Thumb Loop Expansion, to improve reliability across the state.

This next chart says a lot; it looks at the national average on an historical line, and then the bars represent Michigan's rates through the years. So to the far left, up until the year 2000, that was before competition in the State of Michigan, and the rates in Michigan were greater than the national average. And then the next set is the period where you'll see where competition was in place from 2001 up until the shopping cap in 2008 and 9 that was placed on Michigan rates for Michigan shoppers, and the rates at that period were

below the national average. And then in the more recent years, they're continuing to skyrocket again. So this is again an important datapoint to be considered when we're looking at the future of Michigan's energy market, that Customer Choice does mean lower prices to consumers.

There is an enormous opportunity for savings from Choice programs in Michigan. The COMPETE Coalition estimates that just those customers in the queue that Chairman Quackenbush showed you at the beginning, the chart where he said that, you know, there's a 10-percent shopping cap, but in the queue there are consumers up to the 23-percent level waiting for Choice so that they can have an opportunity to shop for these savings. We've also heard claims that there's concern that some of the customers that are shopping are not saving. I can not, of course, respond for other suppliers, but I will say for us, and we are the second largest retail supplier in Michigan, that that claim is false. In fact, the data would not be available to anyone. FES dual bills all of its customers, and it's non-public competitive intelligence information, so that claim is not true and our customers do save.

As regulated rates in Michigan continue to rise, this is an important opportunity right now for Michigan to consider full retail electric competition.

And in our experience in Ohio, we will tell you that there are several characteristics that are important for successful competition, and the first is corporate separation, actually taking the generating units and separating them from the wires business, which is the distribution wires that lead to your house or to your business; we think that those should be either transferred or divested so that they are completely separate. This ensures that the wires business will remain financially strong, but gives generation-owning affiliates still the ability to compete for customers. In addition to that, we believe that wholesale auctions should take place for default supply so that customers who choose not to shop and stay with the utility would still get their rates based on competitive procurements which gives them the benefit of competition and lower rates even for that supply. And then lastly, there shouldn't be any caps or restrictions on shopping, it should be open to all customers. Right now, with the shopping cap at 10 percent, for the most part, all of the customers that are shopping today are all commercial/ industrial large customers, the residents don't have the opportunity to save from Choice today as it stands.

One of the methods that we would like to share with folks here today at the forum is the concept

of municipal or government aggregation. That allows residents and small businesses to buy in an aggregated pool through a government entity so they can participate in Choice. So if the cap were lifted or removed, you would have an option for these customers to band together and get more savings through larger groupings of customers. FES currently serves 1.6 million customers through municipal programs in multiple states. The Illinois Commerce Commission just put forth a report as of end of 2012 that showed that there were savings of $16.4 million for just the first five months of 2012 for customers in those government aggregation programs, and that does not include savings from the over 300 communities that have aggregated since, including the City of Chicago.

And aggregation has proven to be not just a short term, but also a sustainable option for smaller customers to take on the benefits of Choice. The Northeast Ohio Public Education Council is one of the nation's largest municipal aggregations. It's located in Ohio, and it estimates that by 2019 it will have saved consumers more than $300 million, and to date it's already saved them $175 million since 2001 when it was first initiated. And NOPEC is being served currently by First Energy Solutions, and there are about 500,000

customers in that pool.

So in summary, we think Electric Choice works and competitive markets work. It provides lower electric generation prices for all classes of customers, it increases productivity and efficiency from existing power plants, and allows for there to be competition, and there would only be incentive to build plants when they're needed, and that it shifts risks from captive ratepayers to shareholders.

I thank you all for the opportunity to speak today and provide our views on Electric Choice. Thank you.

STEVE BAKKAL: Our next speaker is Betty Zylstra, Director of Booth Family Services from The Salvation Army. Please join me in welcoming Betty to the stage.

BETTY ZYLSTRA: So thank you so much for this opportunity. Thank you, gentlemen. Salvation Army is pleased to be part of this conversation.

We are here with a little bit different attention here from what you have heard in the last few presentations. Salvation Army, as you probably know, is involved in basic needs assistance for low-income households across the state. I'm here representing not just Kent County today, but the work that The Salvation

Army does across all 83 counties. We have over the last decade, because of the funding that we've received and been entrusted with from the state, we've served an average of about 20,000 households, and these are persons who sometimes receive additional DHS assistance but that wasn't sufficient to resolve their crisis, or people who were ineligible for that assistance. We've been involved in various community coalitions and collaborations that are dealing with the energy needs in this county and statewide. The Coalition, certainly, to Keep Michigan Warm is part of that. Our interest is making sure that persons and households, homeowners and renters who are low-income persons who need assistance in order to stay stably housed, that they are assisted and that there is education so that they can become more energy efficient themselves.

Ninety-seven percent of the households that seek assistance from us have a household member who would be considered vulnerable; that is, a minor child, a senior citizen, or a disabled person. We have seen the average energy assistance payments climb more than 39 percent over the prior year because of the change in funding. Through funding administered by the Public Service Commission, The Salvation Army coordinated assistance with over 500 energy vendors; most of those

are small and unregulated utilities. We do want to continue to work with everyone, we want to make sure we're a good partner in this. Energy self-sufficiency is just one component for household stability.

This is part of a bigger plan for this community for The Salvation Army in terms of this is a tool for homeless prevention, it is all about housing stability, and this is an important component in that. When we were able to receive the Vulnerable Household Warmth Fund funds, The Salvation Army addressed energy assistance needs for a total of just over 8,000 accounts statewide; we averted shutoff on nearly 7,000 accounts, we provided fuel delivery on about 450, and we restored service on over 1,000 accounts.

We believe that there has to be more than one solution. We know that this is addressing some chronic needs for vulnerable households, for very materially poor individuals, we also know that there are persons who show up with a short-term crisis, they need different kinds of fruitions, and we want to address those in an appropriate way.

We certainly are part of the conversation to take into consideration the needs of the utility vendors. We also want to recommend that the solution focus on the needs of the residents so that they can be

stable and they can be better informed. We believe that that really does need to include energy education and weatherization; those are really big components that could make a significant difference, both saving taxpayers and ratepayers money. The affordable, energy-efficient housing stock needs to be part of the long-term plan for Michigan.

We also believe that part of what we can do and others like us is to provide some of the strength-based case management to work with the households so that we help them to maintain their household stability as quickly as possible, but we build relationship with them so that the crises don't occur as often and that they can move into greater interdependence. We know that that requires skilled workers on our end and on those nonprofits who are doing that kind of work.

We believe that a consistent, predictable funding stream is necessary to be able to have an ongoing effective plan, that a coordinated and streamlined approach to getting households the assistance they need is essential.

We are grateful for conversations like this and many that we have been part of, and dialogues with legislators and community citizens and utilities

over the years. We need that kind of open discussion, we need to evaluate progress and process and outcomes. Freedom and ability to conduct a household needs assessment is important to non-profits like The Salvation Army so that we can create the most effective plan with and for that household.

We thank you very much for this opportunity and for the work that so many of you are doing in very high-tech ways throughout this state. Thank you.

STEVE BAKKAL: Thank you, Betty.

Our next presenter is Patty Birkholz, West Michigan Director for the Michigan League of Conservation Voters. Please join me in welcoming Patty to the stage.

PATTY BIRKHOLZ: Thank you very much, Commissioner Quackenbush and Director Bakkal, and thank you to Governor Snyder for helping you, supporting you, and holding these hearings across the state to learn what has happened and what is happening and what some of us would like to see happen in the future.

I am Patty Birkholz, and I am the Director of the League of Conservation Voters for Michigan, I'm the Director of the West Michigan office, our new West Michigan office, and proud to be here in

Grand Rapids with Mayor Hartwell. Our main office is in Ann Arbor, and we are Michigan's political voice for our air, land and water.

I'm speaking on behalf of Michigan's incredible natural resources today, and I represent about 86,000 voters.

Full disclosure, I am a former state senator, and I was the lead author of Senate Bill 213, which became Public Act 295, the Renewable Portfolio Standard legislation. In working on this legislation, I have to share with you that we spent many, many, many late night hours negotiating, renegotiating, rehashing, redrafting, and drafting again many parts and pieces and wholes of the bills that came out. In the end, we came out with what I think was a positive bill. A lot of hard compromises were made, and you've heard some of those addressed today, and changes that we need to make going forward. But there were good things for Michigan's Portfolio Standard for Michigan ratepayers, Michigan businesses, and Michigan job providers. I'm proud that it's working and it's helping to improve our public health, it's saving money, creating jobs, and also improving Michigan's air, water, and water quality.

But now do we want to stop being successful or do we want to do more? To begin this

journey, in 2009 wind was at 11.5 cents a kilowatt hour; today it is at 5.2 cents a kilowatt hour, and in Holland, just south of here, 4.5 cents a kilowatt hour. These are the goals: Control the cost, minimize the risk, fair rates for customers, promoting economic development, protecting public health and natural resources, and preserving excellent reliability. And these are laudable goals that we should be moving towards and continuing.

Controlling costs are very important. Some people forget the fact that when we pay as ratepayers, we pay to build plants, we pay to decommission plants, we pay to upgrade plants, all the time we're paying our electrical bills. So that is very important, and I'm glad that the PSC recognized that on page 28 of the report.

Energy efficiency is one of the most important and particularly urgent pieces of the legislation, and I know Governor Snyder recognized in his comments by saying energy efficiency is a no-regrets policy for Michigan, so we need to work more and more on energy efficiency. The cost of energy efficiency is 2 cents a kilowatt hour. So together with what was talked about just recently with our last presenter with what's happening with The Salvation Army, I'm sure you can see the importance of that.

I point to this graph, which was also in your report. I think it's very important because, if you can see, the red line shows the deep, deep downward trend the cost of new coal-fired facilities in Michigan, and that's one thing that I think people need to take note of and need to be considered in the solutions that you're moving towards. When we look at energy efficiency, it's one of the cheapest ways of investing our dollars, both personal and state dollars; 2 cents a kilowatt hour.

The most effective ways of energy optimization and renewable energy standards show that the combined weighted average is $45.98 a megawatt hour; the cost of new coal is $166 a megawatt hour. Pollution controls are expensive. They do not come cheap, and as I said before, something that we all deal with in paying the costs.

The other costs that are not always considered are the annual health costs that come out of our pockets, taxpayers' pockets, residents of Michigan. I'm not going to go through all of these, but most people who have allergies will note that it's often a quick trip to the drug store, those who have respiratory problems will note that it's not only a quick trip to the drug store, but it can also be a quick trip to the hospital with often several days' worth of stay. So those costs

need to be considered in any decisions that we make as a state going forward.

Here you'll see the valuation of the annual public health impacts of some of our biggest power plants in Michigan.

Renewable energy and energy efficiency are two of the best ways that we can move forward as a state. In this chart, you will see both of them. I'm not going to go into a lot of details, but they do help create jobs, they help with our business community, and they help with the cost of providing energy for our homes and our businesses.

This map shows, one of your maps, shows the wind and solar projects across the state. You can see that there are jobs, jobs and more jobs springing up all over the state.

I'm very proud of what we're seeing here in Grand Rapids and in west Michigan. I've worked with several of the companies when I was in the legislature to help bring them here or grow them here. I can tell you, I know a lot of these families, I know a lot of these companies; these are people who care about Michigan, they're invested in Michigan, they want to grow in Michigan, and they want to continue to live here and provide more jobs. This can be done and they're

committed to it. Deep roots in our communities. But there's one caveat, and that is that we can't defer the activity. We have to increase the use of renewables and energy efficiency or we know the market will dry up. These people will move, the jobs will be lost, the companies will leave, and I can speak personally to that, several of them have told me about being wooed by other states, and they're already working here.

I leave you with this wonderful picture of an Outdoor Discovery Center, it's a little bit south of here between Holland and Saugatuck, about a mile inland from Lake Michigan, where when I was in the senate, they came to me and they wanted -- they had one building, actually a portable trailer, and a utility company, whose name I won't mention, wanted to put a test windmill on, inland from Lake Michigan, but not too far inland. I worked with them, they were able to do this. Now the Outdoor Discovery Center has four buildings, they have several various activities, you can see they even have solar lighting, and they're putting electric energy back on the grid, they've cut their energy bills in half, and they're showing the community how it can be done.

So with that, I thank you for your work, I thank you for the work that you have in front of you that you haven't done yet. We're very hopeful and we

want to be helpful in any way that we can going forward. Thank you very much.

STEVE BAKKAL: Thank you, Patty.

Our last formal presenter is Dan Scripps, President of the Michigan Energy Innovation Business Council. Please join me in welcoming Dan to the stage.

DAN SCRIPPS: Thank you, Chairman Quackenbush, Director Bakkal.

My name is Dan Scripps, I'm the head of the Michigan Energy Innovation Business Council. I'll be focusing my comments today on energy costs and economic impacts related to renewable energy and energy efficiency.

Just briefly about the two organizations: The Michigan Energy Innovation Business Council is a business association representing companies in Michigan that are engaged in the advanced energy space. The Institute for Energy Innovation is the not-for-profit sister organization with the mission to promote greater public understanding of advanced energy and its economic potential for Michigan.

Advanced energy is both a growing field, a field with a ton of opportunities, as well as a robust existing field. This is a study that was released last month that showed that energy, advanced energy today is a

$1.1 trillion global market; global revenues from 2012 installations were $200 billion. And what you're seeing on the chart on the right is that that will grow by, between now and 2018 to between $300 and $350 billion in annual installations for advanced energy.

Here in Michigan we've done some benchmarking studies to look at the size of the economic impacts here, and advanced energy manufacturing alone, and this includes wind manufacturing, solar manufacturing, battery manufacturing, a couple other things, provides $4.9 billion in annual economic impact, and that's just manufacturing. So the construction of the actual turbine farms and solar deployments is not included in this, and research and development is not included, this is just manufacturing, $5 billion a year. It also doesn't include energy efficiency manufacturing, which adds $2.3 billion in annual impact by 2015. And that, again, it does not include the weatherization or anything else, this is just manufacturing, but manufacturing across the whole sector, $7.2 billion a year.

And Michigan, and particularly west Michigan, represent a full spectrum of advanced energy companies. We have efficiency companies here, wind companies, both deployment and manufacturing solar,

bioenergy, transportation, we've got MAREC at Grand Valley State that's doing an awful lot of research, The Right Place was mentioned earlier that's leading efforts to connect this with economic development in the area. So the full spectrum of advanced energy, both in west Michigan and across the state as a whole.

So now I want to talk a little bit about the economic impacts of the RES and the efficiency standard. This all comes from the reports, I don't think this will be new to many people in the room, but total direct investment under the RES is $1.8 billion. In Mason County, in Ludington, they saw an impact of $10 million because of the construction of the Lake Winds Farm that Consumers Energy did. DTE's three projects are expected to contribute $150 to the state. While it's mostly wind, we've also seen solar, methane digesters, some other technologies. And as has been mentioned in the past, this has come in below the statutory rate caps. So we are doing this at less cost than was envisioned in 2008 when the law was passed.

The result has been that more than one gigawatt of renewable energy has been installed since passage of PA 295. And what's striking to me, and I understand that your -- I saw this on Patty's chart as well, so we're sharing slides I guess -- but what's

striking to me in this is when you look at the left side of the chart, you see what happens as we're starting -- we have the law in place, but we're starting to ramp up, we don't have the things fully -- it takes time, there's a time lag in order to get there. And then you get to 2012 and we're gangbusters, and 2013 we're continuing the same thing. What I'm curious about is what happens in 2015, and if we wait until 2015 to move, do we have the same three-year ramp-up period again where we see economic activity fall off?

And one of the other things to note is that Michigan placed eighth in the nation in new wind development in 2012 for the first time that we have been in the top ten, and all of the utilities are on track, with the exception of one small public lighting authority in Detroit, to meet the renewable energy standard by 2015.

For energy optimization, you see the same thing, that we're saving money while boosting the economy. The EO program is expected to net more than $2.5 billion between 2011 and 2015; that's when you take the total impact and you subtract the costs, it's still $2.5 billion to the good over those four years, and $500 million in 2011 alone in terms of savings. We get $3.55 for every dollar in EO expenditures, and as Patty

mentioned, the cost of electricity use avoided is 2 cents a kilowatt hour; that's a third of the cost, a third of the wholesale cost of generation and a fifth of the retail cost of electricity.

The other thing that's not included in this is the impact on the transmission and distribution. Energy efficiency can be most effective at peak load times at reducing peak demand, and peak demands take the biggest wear and tear on the transmission and distribution systems because of the amount of electricity that needs to be pumped across the wires. So if you can shave those peaks through efficiency, you not only have direct savings, you also -- you can postpone, defer, sometimes even avoid transmission and distribution upgrades. So that's another added savings that doesn't get fully covered in the slides.

So there's been some discussion that we've achieved all that we're going to get out of the efficiency program, and that is just wrong, and for two main reasons: First, there are a number of states across the country that have had programs far longer than ours. Ours is about four years old. California, for example, is about 30 years old, and they're still finding cost savings each and every year. Second, the cost effectiveness is actually built into the criteria for

programs under PA 295 using something called USRCT, the Utility System Resource Cost Test. In other words, if it's not cost effective, you can't do it under PA 295, so the discussion about whether we should go forward with efficiency, whether it's still cost effective, it has to be or else it falls outside of 295 scope.

So we do have a couple of recommendations to strengthen the energy optimization program.

First, as I alluded to, continue full implementation of energy optimization program.

Second, because more rapid energy efficiency programs are actually both more effective and efficient, we'd accelerate the pace of the energy optimization programs.

Third, provide the Commission with clear revenue decoupling authority; in other words, allow the utilities to make, and their shareholders to make money through efficiency in the same way that they do through generation. We thought we had this in the Act, the court disagreed, so the legislature should clarify that and make sure that the Commission has clear authority in that area.

Fourth, provide additional incentives for energy savings during peak period or in specific areas, so-called geo-targeting. This gets back to the

transmission and distribution argument.

Fifth, adopt least-cost planning for transmission and distribution; so as utilities are making those decisions, they are actually looking at efficiency as an alternative.

And finally, phase out the credit for those efficiency measures that would be adopted anyway. If this is supposed to be, have market transformation effects, those are best served by making sure that as the market moves and as people respond and are doing things anyway, that then the incentives move to actually incentivize people, not just rewarding them for what they're already doing.

So I'll skip through these pretty quickly, but the cost of renewables is falling rapidly and far faster than expected. The earlier -- the earliest contracts for wind were signed at about $1.12, they're now down to 52 cents per kilowatt hour; that's half the cost of new coal. And lowering cost actually drives innovation, creating a virtuous cycle. So lower costs mean that more people want to be engaged in the space, the more people that are engaged in the space, you come up with new technological breakthroughs that further reduce the cost. And the best way to describe that is with these two maps.

The one on the left takes a look at the wind zones that we thought as we passed the Act in 2008, and the pick areas are the best areas, and they're very clustered around the coast and not much inland. Because of one simple technological breakthrough, and that is moving tower height from 70 meters up to 100 meters, we now can get a 23-percent increase in capacity per turbine, 55-percent in energy production per turbine, and economic wind production is now available in 60 percent of Michigan's land mass, on-shore land mass, and that's the map on the right. What stands out to me is that pink dot right in the center, which is the site of Michigan's largest wind farm that doesn't even show up as one of the best wind areas when you passed the law in 2008. That's how much technology has changed. And as a result, on-shore wind potential using 2012 technology, assuming no further advances, though we know there will be, we will meet another five times our total electricity demand for 2011.

Solar prices are also dropping fast. In fact, we expect that we'll get down to about $2.50 per watt installed this year. When we get $2.00 per watt installed, that's a break-even price.

And that requires a new energy paradigm. When it's cheaper for businesses and individuals to

generate their own electricity than to purchase it from their utility, we need a totally different way of thinking about electricity. What does it look like? Who pays the stranded costs? How do we maintain overall system reliability? What's the appropriate regulatory response? Just to name a couple of questions. And this is, importantly, not something that can be deferred and taken care of later in the next round of energy listening sessions, it has to happen now, because whether it's five years or ten years, we'll get to this tipping point in the timeline that's being envisioned by this process. So we're hoping that that can be a part of the discussion going forward.

In addition to price, the other major piece is risk considerations, and they're central to a no-regrets energy policy, that when you sign a contract for wind today, you are signing and you know exactly what the price is going to be every year for 20 years -- that's not true with gas, it's not true with coal, it's not true for the inputs of nuclear energy -- because wind is going to be free and solar is going to be free, and for that reason, advanced energy provides an effective hedge against future price risks, and that risk consideration should be part of the overall analysis.

So finally we've got four additional

recommendations that I'll leave you with.

First, the Governor has laid out four criteria for evaluating our energy options: Cost issues, reliability issues, the flexibility of the overall approach, and the environmental impact. We'd add economic growth and development considerations to that list, and note that advanced energy has a more diffuse economic impact than traditional base load generation, especially when you get into distributed generation, this happens in every community across the state as opposed to a couple of centralized generation places.

Second, structure policy to drive down costs, while also acknowledging that where there are residual cost gaps, that there are policies we can enact to actually address those; so things likes credit enhancements, low-cost debt capital for deployment of these technologies, some of the innovative solar financing programs that we've seen in other states. Adopting those, we can actually reduce or eliminate the remaining cost differential as prices continue to drop. And what I know is that these can be done through better utilization of existing funds. We are not in any way calling for a new charge to ratepayers, just better use of the existing charges.

Third, there are areas where current, the

status quo actually provides incentives for traditional generation as opposed to advanced energy; things likes stand-by rates, net metering caps, permitting and tax issues, and other structural biases. We'd ask that that as we're approaching the policy, that we try and level the playing field so that you actually can compare apples to apples.

And finally, because of the knock-on effects of innovation throughout the rest of the economy, we should be having as one of our policy focuses advancing innovation.

I'll leave you with two stories. The first is -- and you heard Jeff Metts talk about this at the Lansing thing from Astraeus -- Astraeus, GE and Dow are collaborating, taking technology that they developed to make better wind turbines and now they're using it in the automotive sector as well. So you're seeing economic impacts in our traditional automotive industry that were developed because of our focus in energy. That's a win/win for all of us.

On the flip side, there's a company in Ann Arbor called Flexis [sp] that has been working to develop flexible rings for aerospace applications. Those same technologies can actually make wind turbines longer lasting by reducing the wear and tear on them and

actually increasing the output. More technological advancements that can further drive down costs coming from one sector to another.

So focusing on innovation across the board, even though this is an energy conversation, is a way to impact the entire economy.

With that, I'll say thank you. I appreciate the opportunity to present, and look forward to being engaged in this conversation going forward.

STEVE BAKKAL: Thank you, Jim.

That concludes our formal presentations. Now we'll be taking a ten-minute break and coming back with the public input. Again, if you'd like to speak, there are some cards available at the welcome desk, please complete those and give those to some of the staff members. Thank you, and we will we see you in ten minutes.

(At 2:20 p.m., there was a ten-minute recess.)

- - -

STEVE BAKKAL: All right. Why don't we get started. We have a number of requests to speak. Just to give you background, in our Lansing event that we had about a week and a half ago, we had about 30 requests to speak and about two hours to do that in, and today we have about 70 requests to speak in approximately two and

a half hours. We are prepared to stay a little longer here, in Lansing we had to leave at 5:00 o'clock, we are prepared to stay a little longer.

We'd like to give every speaker an opportunity to speak and give them a reasonable time. We're allowing each speaker four minutes to speak. We have a staff member in the front who will signal the speaker when they have approximately a minute left, and we please ask you to adhere to that time allotment to allow everybody who's asking to speak to speak, please respect that time.

And to move things along quicker, I'm going to be calling speakers in groups of three, and when I call your names, if you could please make yourselves come up to the front, take a seat in front, and the first speaker can just make their way to the stage here. When you speak, please just announce your name, where you're from, and any affiliation. And again, we have a member here in front, just to make sure you look for your time allotment.

The first three speakers Kim Walton, Kelly Slikkers, and Jim Evans. If you can all start to come up to the stage here, and then, Kim, if you don't mind, you can just come up right now. Thank you.

KIM WALTON: Good evening, everybody.

I'm Kim Walton. I would like to thank the department of the government, Michigan, for taking all this into consideration and listening to us, that's great.

I work at MAREC, which is the Michigan Alternative Renewable Energy Center, and I just have to throw this up here, because I always hear that Michigan doesn't have good solar. Here's some 30 years of data, and I'm not going to go into it, but if we set a solar panel at latitude in Michigan and a solar panel at latitude in Florida, we get 81 percent of Miami, Florida's solar radiation. So we do have pretty good solar here.

MAREC has been working on, as the other universities have been working on, research and business support for years. This is not a quick thing. We've got a new test bed going up that's going to look at regional solar resources and snow; it's never been done in Michigan. We work with the Great Lakes Renewable Energy Association to help businesses and companies and residents and installers get the best practices and really help understand what they're looking for, what they want, and how to get what they need. We are also doing a big wind study, we have a floating buoy, it's out in Lake Michigan during the summer, it's actually on the dock right now, and we're doing all kinds of data. And,

again, we're even looking at bird and bat ecology, not just wind speeds.

And we only have a short summary here, but I wanted to say that just because something is intermediate or intermittent, it does not mean it's unreliable. Wind and solar is intermittent, but it's not unreliable. We know how much solar and wind we're going to have in a year's time, and that can be worked around; it works excellent with peak load, they work excellent together, and paired with baseline, we have really good possibilities for saving Michigan businesses and residents a lot of money.

This is not a quick fix, and we need to prepare now for going on in the future, and we need to keep moving forward. Thank you very much.

KELLY SLIKKERS: My name is Kelly Slikkers and I'm vice president of business development and a founding member of Energetx Composites based in Holland, Michigan.

Energetx Composites was founded in 2008 as a diversification effort from our sister company, S2 Yachts. S2 Yachts is a luxury yacht manufacturer that has been located in Holland for its entire 50-year history.

Energetx Composites was created to

capitalize on our long-standing history of composite manufacturing excellence and expertise. We wanted to bring the same manufacturing systems used in the boat manufacturing industry to industries such as wind energy, mass transportation and defense. Today, to date, wind energy has been the primary focus for Energetx. We are currently manufacturing our first 45.3-meter wind turbine blade. At almost 150 feet, it is a large-scale, utility-sized turbine blade. We have already provided other composite components to various wind energy OEMs throughout the United States.

In addition to making parts for the wind energy industry, we have manufactured all composite bus bodies for a hybrid bus OEM. We have built weather buoys for marine application. We are working on a composite housing which utilizes solar panels for off-grid applications. We are looking for other applications of this made-in-Michigan skill set. The overarching goal for Energetx Composites is to provide a stable work environment for our employees and to bring new, innovative products and technologies to market.

Like the yachting industry, the wind energy market is one that fluctuates in response to both economic and policy initiatives. In Michigan, we feel fortunate to be in a state where there's a comprehensive

renewable energy legislation in place. We firmly believe that much of the growth that we are seeing at Energetx can be directly attributed to Public Act 295 passed in the 2008. Over the last two years, we have hired over 100 team members ranging from highly technical engineering positions to manufacturing positions making parts. We have plans to hire many more within the ensuing months.

Public Act 295 is having a significant impact on our business because Detroit Edison and Consumers Energy have advocated for Michigan-based content in their wind projects. Private project developers have also advocated for Michigan-based content. This has allowed our organization to meet with the primary supply chain decision makers from nearly every leading wind energy OEM in the market today. These discussions have lead to commercial agreements that will result in production and hiring in Holland, Michigan.

While this legislation has been a tremendous driver for our organization, it has also created a ripple effect through our own supply chain. Energetx has contracted with 70 plus different Michigan companies over the last three years that have supplied product to us. This number will continue to grow as we see an increase in orders and thus production. From

Maslo Fabrication in Hamilton, Michigan, to Kerr Pump and Supply in Detroit, Michigan, we rely on great work and expertise in other Michigan communities, both large and small. You may only see one company here in front of you, but in reality we represent dozens and dozens of Michigan companies and Michigan jobs.

We all know that Michigan's economy has been hit hard over the last several years, however, diversifying our economy, just like our internal diversification, will undoubtedly enable our state to thrive and bring new talent into Michigan as opposed to watching it leave. Public Act 295 and the legislation to expand on this beginning effort can be an important driver for helping to grow new industries like the renewable energy sector in this state.

Thank you again for allowing me to speak, and I look forward to continue playing a role in ensuring that Michigan keeps its place as a premier manufacturing center for the world.

STEVE BAKKAL: Just a quick reminder, if you do have prepared remarks, please leave those behind. It will greatly help the court reporter.

JIM EVANS: My name is Jim Evans, and I'd like to thank the governor, Governor Snyder, and Mr. Quackenbush for hosting an informational session like

this. I think it's important that a lot of the facts come out, not just the flowery side of renewable energy.

I'm from Benzie County, and I'm a fifth generation member of Benzie County. My family was instrumental in forming Benzie County. My great-great grandfather was James Benzonia Walker.

And I'd like to see a cost study done at some point in time on the degradation and the division of the communities that these particularly industrial wind come into. It's devastated our community. I haven't heard any terms like death threats and eminent domain, which are familiar terms with us in Benzie County regarding wind energy.

I'd also like to ask that we hold these promoters and developers accountable for the projected numbers that they've presented here today and at upcoming presentations as well.

Third thing is I'd like to beg the legislature and Governor Snyder that we be allowed to keep local control of siting wind energy, renewable energy in areas and not have the state come in and do what petroleum has done, natural gas, things where they're siting these things and there's nothing a small community can do.

Being from Michigan my whole life, it's a

beautiful state, went to the college in Northern Michigan, Marquette, no two places is the same here, and to have some sort of cookie cutter come in and say you're going to have it, you're going to have it this way is wrong. But I appreciate the time. Thank you.

STEVE BAKKAL: Thank you. Our next three speakers are Stephanie Mabie, Kathleen Roper and Greg Northrup. If could you all please come up to the front and, Stephanie, you can come up right to the stage.

STEPHANIE MABIE: Thank you. Hello, everyone. My name is Stephanie Lynn, I am a student at Grand Valley State University, as well as a member of Kent County Water Conservation. And my main points that I want to talk about is water withdrawals regarding high-volume horizonal hydraulic fracturing. And I have a question on what the exemptions are exactly from the Great Lakes water compact in regards to oil and gas industry.

Encana Corporation earlier this month in the State of Michigan used a record of 21 million gallons for a single fracked well, that's a national record, and it's a Canadian company, and that's just one job. You can frack a well multiple times, and it's 21 million gallons. And that water, the process literally contaminates the water with toxic chemicals so that it

can not return to the water cycle, it has to be injected into bedrock or moved somewhere else. And our Great Lakes, as probably most of you know, two of them just hit record lows for water levels.

Our livelihood, our tourism, our shipping, fishing industry, water, and where we raise our families all depend upon the Great Lakes. We had the summer drought, we have to hit record snowfall for the season to get back to pre-drought ground water levels. We also have counties like Ottawa County who are mining for water because they've also used up their glacier aquifer. And we're using millions upon millions of fresh water for these high-volume injection wells -- or fracking wells. Pardon me. We also have national water shortages.

And I know that the Governor did endorse Proposal 3, and that it seems, that it seemed lofty to citizens that rode into town, but I just want to point out that the great City of Grand Rapids is at 23-percent renewable energy right now in 2013, so it's entirely possible; and wind and solar don't use the mass amounts of fresh water which is our most precious and limited resource that we have.

I also heard a statement -- I was hoping to address Governor Snyder directly -- but that he wanted

to run Michigan like a business and that we are customers, and I really disagree with that, because we're not buying anything from him, we live here and we survive off the land and our livelihoods are off the land, and I think he should run it like a state and like our governor and not a business. Our animals, vegetation, people, we all depend on the health of our ecosystems and our fresh water.

Earlier this -- well, last year now, October 24, the State of Michigan leased out the mineral rights to my hometown for oil and gas production, and while there's nothing there yet, I'm hoping that we really look into water use for high-volume horizontal hydraulic fracturing and what that means for our state before they go and give the permits to these wells. And please know that people who live there, like I ride the White Pine Trail on my bike and walk my dog, and that entire trail is leased out.

So thank you for your time, and I promote renewable.

KATHLEEN ROPER: Thank you. I'm Kathy Roper from Fennville, Michigan.

In the past we foolishly buried our trash and toxic waste believing or I think just hoping that the toxins would disappear and not leach into the earth and

the ground water. We threw our toxins and waste into lakes, rivers and streams hoping again that they would magically disappear. We now realize that the toxins don't disappear and become harmless. States, corporations, and individuals spend millions of dollars each year dealing with the toxic water pollution from the past.

Right now on the shore of Lake Michigan, Palisades nuclear plant, there are six casks of nuclear waste sitting literally with no place to go. There's no way to dispose of this horrible waste because nobody will take it. There was a plan, but that plan fell through, so we're sitting with a problem that is literally impossible to solve. Also, right now within the next, within a few miles of that contaminated, those contaminated casks, gas companies want to drill deep into the earth, set off explosive charges, and inject toxins at very high pressure directly into the earth. We are told that fracking is safe, and I don't believe that's possible. Common sense tells me that poisons will not just disappear. Common sense and observation tell me that these poisons will pollute our land and ground water, and that the citizens of Michigan will be left helpless with no viable solution. It will be too late to manage the problem, just as it's too late to the solve

the problems of the nuclear waste at Palisades nuclear plant. We will once again be left with the results of our own foolishness.

We all realize that we need energy sources. I believe that fracking is too risky and will leave Michigan citizens with many unsolvable environmental problems. I encourage the government to work to stop all fracking at this point and continue to support the study and development of renewable and efficient energy sources. I believe this is the only way we can ensure an energy future that is without any regrets. Thank you.

GREG NORTHRUP: Good afternoon, everybody. My name is Greg Northrup. I was formerly president of the West Michigan Strategic Alliance; my job at that point in time was to make sure that west Michigan was a best place to live, work and play. And I'm pleased that the State of Michigan would come to west Michigan to hear the views of our citizens about how those options should play out from an energy perspective, Chairman Quackenbush, Steve Bakkal from the MEDC, and so I appreciate the opportunity to have some input into this process.

I think the other thing I want to do today, though, first of all, is to acknowledge that we

live in a great city, and I want to acknowledge the leadership of our mayor, George Hartwell, who I don't think to be here. But as I have traveled around the country, there is not many cities that can step up to the plate and say we're doing what we need to do to make sure that alternatives and renewables are part of the mix of the supply base in our state, so I applaud the mayor for what he's trying to do and the staff of the city's commission for what they've done.

I am formerly with Consumers Energy, so I'm crossing over from the dark side. And I have to say to you, I had a wonderful career there, and I have to say as well, thanks to Consumers and DTE for the infrastructure we have in the state and our ability to be competitive in today's manufacturing marketplace.

I'd also have to say that energy's not a question of either/or. It's not whether we should have nuclear or whether we should have coal or whether we should have natural gas that's trading at record low prices today -- trust me, it won't be there tomorrow -- and it's not a question of whether we shouldn't have renewables; the question is, what's the right mix? And the best question to answer is, how do you put together the mix in terms of the assets that you have as it relates to how you can be competitive in the marketplace?

I formed a company a year and a half ago called Sustainable Partners; we're developers of biomass renewable energy power plants. The one thing that we could and should be doing better because -- now here's my bias -- if we look to our friends in Germany, they have 6,800 biomass plants. They generate power from waste. And as a policy, Germany has done a great job of trying to better understand how do you use your assets.

In our case, we have a thousand plus dairy farms in our state, all of which would be capable of generating significant amounts of power. The problem is, they don't have access to the grid, and because of that, they can't sell power at the prices that they should be able to sell power for but for net metering, but for standby charges. And so from a policy standpoint, what we're ignoring is in fact a set of assets that would allow us to be very successful in using those assets and building a base. Biomass 24/7/365, just like our utilities run.

And if you learn nothing else about this industry, you ought to learn about the importance of reliability and cost. We walk into this auditorium and we expect the lights will be on and goodness for us, goodness sakes for us, the lights are always on because we've got an integrated infrastructure.

The other thing is food processing. If we want to be smart about this process, we should integrate our egg strategy with our energy strategy, from the time that we grow a product to the time we take it to the market. And if you look at what's going on in the food industry, we don't do a very good job of integrating waste streams with the generation of power. And so I would hope that we'll look at the integration of that thought process as part of the thought.

Thank you very much for the time.

STEVE BAKKAL: Our next three speakers are Thom Peterson, Dave Prouty, and Shirley Kallio. If you can all please come up to the front and, Thom, please come up to the stage.

THOM PETERSON: Thank you, Director Bakkal, Chairman Quackenbush, thank you for coming to Grand Rapids.

I've been an energy manager for over 30 years, and I do a little stuff with energy accounting, too. I'm from Grand Haven, work here in Grand Rapids at the public schools for about 25 years.

Michigan's renewable energy and energy efficiency policies are creating jobs for Michigan workers and sparking investment in communities across our great state. Michigan is now ready to take the next step

and become a regional leader in clean energy manufacturing and technology, but we must have a long-term energy plan in place to make that happen.

The Governor's energy and environment remarks and the decisions to hold these forums across the state are welcome by those of us who see a need to act now to respond to the reality of climate change. There are advocates for particular approaches, as well as opponents of particular approaches, who will be stating their cases here and in other places. I don't think it's the role of the MPSC for the State Energy Office to gather all of these remarks and go behind closed doors and judge these ideas, rather, I believe your role should be to design a process for all concerned to make their cases to one another, to be heard, to hear each other in a rational decision-making process based on integrated resource planning models. It has been done before in our state.

The Michigan Electricity Options Study, or MEOS, M-E-O-S, was completed in 1987. Friend of mine, Fred Giroux {sp}, was on several of those committees, has kept all those papers, and we're submitting that, the summary report and all the subcommittee reports to the Energy Office here today. We can benefit greatly by reviewing not just the results of this previous effort,

but also the format and the processes designed for this intensive and in-depth effort by multiple stakeholders. I think their ability to talk directly with one another was one of the key elements of that study.

Another key element in the earlier MEOS assumptions was the principle of lowest lifecycle cost. If we choose to apply this principle now, energy efficiency as an important component of demand management will reveal itself to be our first choice. We know this already. We should agree on how lifecycle costs are fairly determined and proceed. The proceeding is more important than the procedures, I think. We have to get going on this, our market penetration for energy efficiency is not as good as it could be.

I have to say that the questions on the website look like a final exam in a graduate class in energy and public policy; they seem most interested in evaluating efforts thus far. It's unclear to me how the energy efficient program promulgated by the MPSC and utility companies are actually fulfilling the mandates of Public Act 295, and I would like to request the documents that explain how the energy reduction targets that are drawn up and how the results are measured are calculated. There seems to be a disjointedness in that.

My point is I believe that there should

be somewhere along the line actual measurements of energy efficiency, and I would propose a standard that I've used for 30 years; namely, Btus per square foot per degree day. The resultant number accounts for variation in building size and weather from year to year, helping to isolate differences in consumption that can be attributed to better insulation or higher efficiency motors, pumps furnaces, et cetera. Let's build a statewide database of real results to inform our subsequent policy decisions.

I think that every building owner ought to pay attention to this, just like car owners know whether their car gets 25 or 55 miles per gallon. But we know -- you need to pick up some of this information from the participants in these weatherization programs and put together this statewide database, maybe not all the participants, but a good random sample of them, and we can see what works and how well it works. Thank you.

DAVE PROUTY: Hello. My name is Dave Prouty, I am the president of Heat Transfer International. We are a manufacturing and design firm here located out by the airport, and we started about seven years ago with the purchase of a bunch of Michigan patents, and what we do is we take things that you would consider trash and garbage, your black bag garbage, telephone poles, railroad ties, things that nobody wants

around, and we convert them into a combustible gas and use that combustible gas to drive power turbines.

So there are three things that I would like the Public Service Commission and the state to consider as we go with this policy over the next few years, and those are the things that I would consider to be roadblocks to further development or impediments. So those three items that I'd like you to consider would be thermal RECs, so generating renewable energy credits based off of the waste heat off of a process and allowing that to then be used to create power. I would ask you to consider the standby charges, because those tend to be impediments, as do our cap on -- what do I want to say -- our cap on net metering. So currently the standard, somewhere around 100 kilowatts or 1/10 of a megawatt, there's some rules and laws that say you can go up to 500 kilowatts if you're doing anaerobic digestion, but in general it's about 100-kilowatt cap.

So the facts. We're located in Michigan, our design is located here, our manufacturing is located here, we have about 500 people in our manufacturing facility, we have 15 people in design and development, we do almost 100 percent of our business in other states. So we'll do about 75 million in business this year, of which all but 1 million will comes from states that have

more advantageous renewable energy standards.

Michigan did a great job getting started in 2008, but I think you could -- we could look to other states that have now taken it to the next level. And so we were asked to take it to the next level in the fall, which we didn't, that's okay, so we're talking about it now, but there is opportunity if we take it to the next level that will drive more alternative energy business back to Michigan. So thank you for your time.

SHIRLEY KALLIO: My name is Shirley Kallio. I am a retired accountant and an energy advocacy volunteer.

I am more convinced with each passing day of the urgent necessity of transitioning from fossil fuels to renewable energy, and that we are compelled by our growing recognition of the hazards of global warming to use every tool at our disposal to achieve that transition; a stronger renewable energy standard and energy efficiency are two of those tools. We've already heard two excellent presentations laying out very clearly the value, the success, the need, and the ability to expand on their use. It is no longer ability that holds us back, it is political will.

It is in our, the public's, interest that we move swiftly to raise that standard to at least 25

percent by 2025, and it is in the public's interest that the people's representatives aggressively seek means of incentive advising and facilitating investment in renewable energy generation in the private sector as well.

The Michigan Public Service Commission reported just last week that renewable energy and energy efficiency are creating jobs for Michigan workers and helping to rein in rising electric costs. As I've already pointed out, or has already been pointed out, the utilities are on track to meet our current renewable energy and energy efficiency goals. Continuing down this path is good for our economy, our pocketbooks, and ultimately better for our health and the future of our natural resources.

We are paying a terrifying price for our reliance on fossil fuel, a reliance that must soon be brought to an end in favor of a head-long pursuit of genuinely clean renewable energy. The national renewable energy laboratory tells us that we are already -- that we already have the technology for generating by 2050 80 percent of our country's electrical energy from renewables hour by hour across the country. We have only to find the political will to make it happen.

As stewards of the 20 percent of the

world's fresh water, we should be in the forefront of its protection. Instead, we seem poised to put volume and purity of that precious resource at risk with full exploitation of the new technologies in play with high-volume hydraulic fracturing. Yet there is abundant and growing evidence elsewhere in this country that current extraction practices exceed current ability to control risk to land, air and water, and accelerate rather than slow down contributions to already high greenhouse gas emissions in the atmosphere.

Prudence, especially in the face of market glut, dictates moratorium pending future development of sufficient safeguards. What is to be gained by extracting more oil and gas if we destroy ourselves in the process?

We are told by reputable scientists that survival of a tolerable planet is dependent on leaving 80 percent of known reserves in the ground, a wrenchingly difficult change of course from business as usual. But we must make that change.

Here in Michigan we can achieve far greater efficiencies, which we know and have experienced to be the cheapest form of energy, and we can and are beginning to supply ourselves abundantly with wind energy. Solar is gaining, costs are dropping

dramatically, and sun generation, given its chance, will take its place as equal contributor in the state's portfolio. We have only to look at Germany, a country with comparable sun exposure to our own, as testimony to that possibility.

Let us find the courage to confront the crisis honestly and respond boldly to the responsibility our knowledge imposes on us. Thank you.

STEVE BAKKAL: The next three speakers are Charles Rop, Tim Kumbier, and Kurt Krueger. Again, remind you if you have anything prepared, please leave those behind. Thanks.

CHARLES ROP: My name is Charles Rop. I am a college professor at the University of Toledo, I am an ecologist, I'm a naturalist, and my students are preparing to become teachers, most of them in science education.

And one of the things that I've seen recently and I think increasingly in the last few years is that my students, as they come to me, are increasingly disconnected from the natural environment and from the land. They don't appreciate where their food is coming from, they don't understand that pollution and degradation of the natural environment affects them.

I am for alternative energy, a hundred

percent for it, but only if it's done wisely and correctly and elegantly. There are a couple technologies that have been talked about today that are not wise, not elegant, they don't make any sense economically, and certainly they don't make any sense environmentally.

Large wind turbines is one of those technologies. There's considerable evidence that large wind turbines kill a large number of birds, migratory birds. We are smack dab in the middle of the Mississippi fly-away, one of the most important bird migratory pathways in the world. We can't afford to kill those birds on their way south and north, depending on the season. We also have endangered bats in this state that are being killed by large wind turbines.

There's considerable evidence growing that on the economic sense, large wind turbines harm property values. Now that's not necessarily environmental, unless you consider human health and welfare and peace of mind and quality of life an economic issue. I do. I think that the Pure Michigan campaign is excellent, I think it's wonderful, I think it's genius, but we need to keep our focus on keeping Michigan clean, keeping Michigan pure, keeping Michigan open for people who want to travel the woods and waterways. Fly fishermen who do not want to -- I'm a fly fisherman -- do

not want to fly fish under a large, noisy industrial machine.

I think that another thing is that we have to be very careful with our open spaces. We have a limited amount of open space left. If you look at the history of industrial technology in this state, we've destroyed our forests, we've eliminated our white pines, we've destroyed many of our wetlands. We can't keep doing that. The footprint of any alternative energy source should be small, it should be carefully maintained and carefully protecting of our natural environment. So thank you very much.

TIM KUMBIER: Hi. Thank you to the Energy Office, the Commission, and, frankly, all the people here who are committed enough to be here for the whole afternoon. My name is Tim Kumbier, I'm a GLREA member, but today speaking as a citizen.

For the last five years or so I've been helping to catalogize clean energy businesses, supply chains and markets here in Michigan; however, earlier in my career I worked in nuclear power and gas turbine industries I would say while I'm passionate about clean energy, I'm also accepting of the realities of all of the above type strategies, and most importantly, I think I'm a pragmatist. So in that regard, I wanted to just share

what I thought were some energy commonsense principles that I hope the Commission will consider, and so I have five.

First: Get the most out of what you've got. Energy management, efficiency, conservation are low-hanging fruit. There are ways of minimizing waste, maximizing yield. So common sense tells us the cheapest energy is energy not used.

Second: Usually you can't get something for nothing. We, as a society, we value our ever-improving lifestyle and quality of life, all the flat screens, computers, and all that stuff we have. Of course, this entails a cost; we need energy to support those choices, and lots of it. So common sense tells us that fossil and nuclear power and the like are not going to go away.

But having said that, when you can get something for free, take advantage of it. Wind, sun, the heat of the earth, these are free fuels that are there to be taken advantage of and used. And for other renewables, we're actually taking on waste that nobody wants anyway. So in addition with these sources, there's no disposable or clean-up costs, so common sense tells us optimize the use of free fuels within the mix.

Fourth: Don't put all your eggs in one

basket. Diversify fuel, diversify generation location, generation size. Common sense tells us to take a portfolio approach to minimize risk.

And fifth: Practice makes perfect. Volume drives down costs. The more we manufacture, the more we install, the cost comes down. These are learning curve concepts. In addition, better and better technology drives increased efficiency and yield. So common sense tells us the more we do, the better we get.

So relating this to the Governor's, Governor Snyder's pillars and foundation, in terms of affordability, as I mentioned, the cost of fuels for the renewables are zero, thinking of wind, solar, geothermal, et cetera, so we should take advantage of that. These costs are predictable, i.e., certain over time. The up-front costs, as many have showed, are steadily improving, and as many have showed, the levelized costs of energy are steadily improving.

In terms of reliability, these fuel sources are dependable, they're independent of politics, economic cycle, supplier leverage, global conflict, et cetera, and the generation is diversified. In a portfolio of type, location, size, et cetera, it mitigates risk.

In the environmental standpoint, there

are no extraction impacts, no drilling, mining, et cetera for the fuels, no emissions or spent fuels.

And finally, on the adaptability foundation, size, capacity can be added in smaller chunks; speed, capacity can be added more quickly.

So in conclusion, I ask the Energy Office, the Governor, the legislature, the Public Service Commission, to keep these common sense fundamentals at the forefront in developing our next phase of energy policy. Thank you.

KURT KRUEGER: Good afternoon, everybody. My name is Kurt Krueger. I'm the plant manager of Martin Marietta Magnesia Specialties, it's a manufacturing facility in beautiful Manistee, Michigan.

My topic is "green jobs". I've read the Public Service Commission's report, and quite frankly, I'm very disappointed in how they presented the green jobs argument. It's easy to, you know, to count, you know, the green jobs associated with building this wind turbine or the construction jobs, but there's a whole nother half to this equation. There's companies like mine that are competing in very competitive global marketplaces that we use lots of energy, and we stay competitive only because we're productive and efficient, and compared to most of the world, we have low cost of

energy. When our cost of energy goes up, I'm going to be less competitive, I'm going to hire fewer people, I'm going to be less profitable, and that's bad for the State of Michigan. There's thousands of manufacturers like me around this state that are in the same position.

And when the Public Service Commission only counts the positive side of the equation when you spend, you know, roughly $12 billion on wind energy, they don't count the other half of the equation, and that's somebody's paying for that. Us ratepayers and us manufacturers and businesses out there are paying the cost of that. That comes directly off my bottom line and makes it harder for me to hire people and to run my business.

And also in regard to the Public Service Commission's report is the use of the word investment. They call Public Act 295 an investment in Michigan. Well, if that's an investment, it's kind of a different investment than I'm familiar with. As a business manager, when I invest, I buy a piece of equipment that makes my business run more efficiently and makes me more profitable, I earn a return on that investment. In this case, the state, people of the State of Michigan, the ratepayers, aren't making an investment; the people making an investment are the multinational wind

corporations and the utilities, they're putting their wind turbines on our land, and then charging us for that. It's the opposite an investment; it's an expense, and it's an expense on Michigan businesses that's hurting us. It's bad for our economy, bad for businesses like mine. We need to put limits on the amount of renewable energy so that we can compete.

STEVE BAKKAL: Our next three speakers are Karen Fifelski, Kirk Barber, and Haris Alibasic.

KAREN FIFELSKI: Hello. My name is Karen Fifelski, I'm from Allegan County. I want to thank you for this time that we have to offer our ideas and our concerns on Michigan's energy policy.

As you know, Michigan currently gets about 60 percent of its energy from coal imported from other states. There are also almost 30 other states that have stronger renewable energy and energy efficiency goals than Michigan.

In the past few years, there has been a strong focus on natural gas with a push to lease the mineral rights on all of our state lands, which is already being drilled using the controversial practice called horizontal hydraulic fracturing to produce gas and oil. Although we have been fracking in Michigan for some 50 years, this newer process has many more risks. Many

of the citizens in Michigan and other states feel that gas and oil obtained by using the practice horizontal hydraulic fracturing, or another name is high-volume slickwater horizontal fracturing, is not clean energy.

The millions of gallons of fresh water used during this practice is injected with toxic chemicals, such as copper, lead, benzene, formaldehyde and naphthalene, which in turn contaminates the millions of gallons of water that's used. That water can never be returned to our aquifers.

I have been under the impression that horizontal hydraulic fracturing used 3 to 5 million gallons of water for each frack, which I thought was bad enough, but I was surprised to see permits issued from the DEQ to Encana, a Canadian company that is drilling in Michigan, that permits the use of 16 million gallons of fresh water for one single well, and another one is 21 million gallons. Again, this water will not return to the aquifers because of the toxic chemicals used in the process. It will be disposed of in injection wells, of which Michigan has over 800. Since we are responsible for almost 20 percent of the world's fresh water, can we really afford to continue these practices?

Air pollution is also a problem using this process. There is a release of excess methane,

benzene, hexane, and volatile organic compounds during the well completion stage. It is well known that methane is a greenhouse gas that is 20 times more potent than carbon dioxide. In 2011, a Duke University study showed evidence that methane contamination was 17 times higher in water wells that were near to hydrofracking sites.

Horizontal hydraulic fracturing is exempt from the Clean Water Act, the Clean Air Act, the Superfund Act, and the Michigan Water Withdrawal Rules that were enacted to protect us and our environment. The federal government and our state have basically given them the go ahead, and there are little to no protections for the public.

I ask that any exemptions or incentives provided to the gas and oil companies be taken away and used to develop renewable sources of energy. I also ask that, at the very least, we put a moratorium on the process of horizontal hydraulic fracturing in Michigan until the EPA has revealed the results of the study they are currently conducting and a study has been done on environmental impacts for this process. I ask that Michigan step into the future and pursue and encourage renewable energy to keep Michigan pure and protect our water and air. Thank you.

STEVE BAKKAL: Kirk Barber, I called your

name.

HARIS ALIBASIC: Hello, everyone. My name is Haris Alibasic. I work for the City of Grand Rapids, I direct the Office of Energy and Sustainability. Chairman Quackenbush and Director Bakkal, thank you for the opportunity to speak on behalf of the City of Grand Rapids and to share with you a couple of our ideas on the future of energy in the State of Michigan. The city welcomes the opportunity to work with the Governor's office in enhancing Michigan's energy future.

It was encouraging to see a few years back an RPS standard that was adopted, 10 percent by 2015, and energy optimization programs that came out of the state, however, much more can be done and needs to done, especially in the areas of energy efficiency and renewables in the State of Michigan.

City of Grand Rapids has set very specific targets when it comes to areas of energy efficiency, in all areas, as a matter of fact, of sustainable energy; to reduce our energy consumption, to educate on the importance of energy, and to increase renewable energy production. We'd like to see an increased investment in policy support to encourage more collaborative partnership that further reduce energy consumption in municipalities, businesses and residential

sector.

We have a great partnership with local organizations, such as WMEAC and others; for example, we work on the Better Building project that does energy audits in homes and provides energy efficiency improvements in residential areas. The project, however, could not have been done without state support and active work together between the local organizations and the, at that time, DLEG, Departments of Labor and Economic Growth. So that's an important objective of -- objectivity for our work here, that we have to really work together.

The city has significantly reduced energy consumption in city operations since 2005, and started investment into geothermal and solar. And solar does work, it works really well; we have one in our LEED-certified building, it's producing electricity as we speak right now, I just got an e-mail from the water department director, it's working really well, so we should encourage more solar on-site energy production in our state. We're working on getting another big project on the ground and off the ground as part of our plan for the Superfund site, and hopefully we're going to see that coming pretty soon in the future.

Investment in energy efficiency and

renewables is a direct investment that benefits everyone, residents and business in Michigan. And to be honest with you, when we look at renewables and when we look at energy efficiency, we look at from first and foremost from the economic benefit. If it doesn't make economic sense, it doesn't make social and environmental sense for the City of Grand Rapids. So that's an important aspect. When we talk about policy directives for the future, we have to look at energy efficiency and renewables, we have to look at it from the economic and then social and environmental perspective as well. The city's very supportive and interested in innovative approaches to meeting the renewable energy targets.

Small technical policy suggestion regarding the feed-in tariff would be to look at feed-in tariff from a different perspective, to allow larger-scale projects to occur and encourage utilities, Consumers Energy and DTE, to really work together with organizations, and instead of using a lottery approach, to use it more directly when the project becomes available to support those kinds of projects with feed-in tariff. So that's one small policy suggestion. There are others that, I know we have a very limited amount of time allotted, but I would be happy to share online when we have that available.

In closing, City of Grand Rapids offers to serve as a resource and work with the Governor's office and with the MPSC, we enjoyed the cooperation we had in the past. And we support strong energy policy agenda with a focus on economic, social, and environmental benefits from investments in energy efficiency and renewable energy in the state. And I thank you for your attention.

STEVE BAKKAL: Our next three speakers are Douglas Wood, Rachel Ball, and Ken Chester. Please come up.

DOUGLAS WOOD: Wow, I had some of their Starbucks coffee, I'm wired. My name is Douglas Wood, I'm director of the Kent County Department of Public Works. Our department is responsible for solid waste management programs and water and sewer services in the county.

What does this have to do with energy? Right down the road here, two miles from here, we've got a waste energy facility; that waste energy facility produces 18 megawatts of electricity. We've been producing that electricity since 1990. We sell that electricity to Consumers Energy. Right down the road this way about 15 miles we have a landfill on 300 acres; we bury garbage there. On that site we also have a

gas-to-energy facility. We make 3.2 megawatts of electricity on the 300 acres. The waste energy facility down here is on 10 acres.

Some of our other speakers -- and by the way, I also in the past five years have purchased another 300 acres in Allegan County, they agreed to it, in Allegan County to expand the landfill.

The point of bringing this up is, one, in our environment, we generate garbage. This garbage has, a gentleman talked about Btu value. We have to manage this garbage some way, and there are opportunities to remove the energy from that garbage before it goes to a landfill, comparing 10 acres to 300 acres plus. I think in terms of some people might bring up and comment about air emissions and what have you; waste energy down this way is a lot more cleaner and environmentally sound than producing energy from a landfill because a lot of the methane gas escapes, whereas the waste energy facility is controlled combustion. We are held to a lot higher standards than any coal-fired plant in this state or any other state. We have $6 million worth of air pollution control equipment on that system.

I'd just like to close with a comment. As some of the other speakers mentioned, European countries, I would also like to highlight that. In

Germany, France, England, a lot of the European countries, and also in Japan, they have hundreds of waste energy facilities to produce electricity. They conserve their land, and so this is an opportunity to make sure that it's included and not discouraged in the RPS. Thank you.

RACHEL BALL: Hello. My name is Rachel Ball, I am the office manager at DwellTech Solutions. We are a local company that specializes in residential energy assessments and improvements. DwellTech's been serving the west Michigan area since 2009.

Over the past four years, we have tested hundreds of homes, largely as part of state-funded programs such as Better Buildings for Michigan. We perform various tests, including a blower door, CAZ and infrared imaging. Afterwards, we provide the homeowner with a list of recommendations, which are ordered from most important to least. From there, the customer will choose whether or not they'd like to move forward with improvements. Almost 100 percent of the time additional incentives, such as utility rebates, play a role in whether or not a customer decides to do work. When the improvements are completed, we perform a test out and submit all necessary paperwork, including rebate applications. From here, I understand that energy

savings data is analyzed at this state level for efficacy.

I can see why those analyzing the data would deem energy optimization in the State of Michigan a success. But before anyone gets too excited, there are a few factors that need to be taken into consideration.

First, this is just the tip of the iceberg. As I mentioned earlier, we have been in hundreds of homes and given thousands of recommendations for improvements since our 2009 inception. The amount of customers who have gone forward with improvements is not as many as you would think. In the past two years, we have tested 800 homes in west Michigan. This just includes those tested per BPI standards, and does not include walk-throughs or clipboard audits. Out of those 800 homes, less than 300 of them have gone forward with any kind of energy efficiency improvements. This means that there are 500 homes out of 800 still in need of energy retrofits. If you extrapolate this data and project it on a larger scale, it becomes very evident that we have a lot more houses to fix. In Kent County alone, there are 149,719 owner-occupied homes and condos. If you add Ottawa, Ionia, Allegan and Barry Counties in the mix, this number more than doubles. The way we see it, we have another 300,000 homes yet to test, and at

least 187,000 yet to fix before we can start thinking about expanding into other markets. And as a state, this means we have a long ways to go before we can even dream of calling ourselves energy efficient.

Here's a second factor you need to consider, and that's that these energy savings have not come easily. I don't mean just the spray foaming of rim joists or crawling around in an attic in search of air bypasses; what I'm referring to is the paperwork. Here is what I have learned about the energy efficiency business. There are minimum barriers in terms of accessing the industry, but there are a maximum number of bridges you must cross once are you in. For example, utility rebates are wonderful incentives. In our line of work, they are great sales tools and motivators for homeowners to take action. How often does your gas company cut you a check for using their service? We think that without these rebates, there wouldn't be too many incentives out there for the average homeowner, incentives that make our business model possible.

So here's what I propose as a recommendation: Simplify, simplify, simplify. There is a easier way to show energy savings. I am not suggesting that each utility must have the same rebate form, but there are definitely some standardization processes that

need to take place. Help us help you by simplifying processes and procedures. Energy optimization should not have to be so complicated.

And last, this is my final recommendation: We need more energy efficiency. There is a lot more work to be done, and there are a lot more houses to fix. To leave that kind of potential on the table right now would be senseless. We need more energy optimization in order to field more private investment in renewable energy and energy efficiency, which will ultimately secure the future of Michigan.

KEN CHESTER: I want to thank the forum here for a chance to speak. So far from what I've heard, if I was having to put a baseball team together out of the speakers, I think I'd have an overabundance of left fielders so far, but it's still good to hear all different points of view.

What we're talking about is trying to make good energy decisions. And excuse me. My company, Pro-Active Search, I find technical and engineering people for companies that are based in Michigan. I've been in this field for over 28 years. I do study issues. I hope that they take all of the information they got, look at the data to see how anybody gets their results. I think that's where the proof in the pudding will be

found out.

Alternative energy, which includes wind, solar, and hydroelectric, require heavy subsidies, lead to higher energy prices, and are regressive in nature on the groups least able to afford them, and that is the poor, the middle class, and the small business community.

There's some realities to alternative energy. Wind- and solar-powered plants cost more to build and run than coal or gas-fired plants. The new term you heard today was new coal. What they're referring to is sequestering of coal, which isn't done much yet in the United States because of the expense, so that's why they're using the term.

Both wind and solar require huge tracts of land. They receive large subsidies compared to coal, natural gas and nuclear; they provide temporary construction jobs that are specialized. Joe Six Pack isn't getting one of these jobs.

Parts required are big and they come from manufacturing industries that are more polluting than other forms of manufacturing. Plus, the industries that supplies these parts are very small in number because of the enormous cost to produce these. And these companies have a lot of unused capacity because there just hasn't been that many windmills or solar farms built.

Think about this: Household income is now at 1995 levels in the United States. 27 percent of Michigan workers are in low-wage jobs. Michigan leads the nation in the loss of retail jobs over the past five years. Michigan has one of the highest concentrations of manufacturing jobs in this country, which increased alternative energy mandates would severely impact.

The real question is: Why do we need these forms of energy? Personal spending on energy goods and services in 2011 reached its lowest level since 1998. Per person, it was the lowest since 1995. Since 2006, the U.S. has led the world in CO2 reductions, with average American CO2 emissions down to levels not seen since 1964. From 1998 through 2010, manufacturing industrial electricity is down by 18 percent. Major pollutants have declined 25 percent over the last 30 years. Of the 260 metro areas in the United States, 212 have been trending downward as far as pollution is concerned.

America's environment is getting cleaner and greener due to smarter appliances, energy efficient homes, higher mileage forms of transportation, and aging demographics, and the increased use of natural gas. There's no need to rush into forcing a greater percentage of alternative energy taxes on Michigan residents when

there is great experiments taking place around the world. You've got experiments in Spain, in Germany, in Texas, in California, and if you look at the results, they're not good. People's taxes going up quite a bit for electricity use.

So what I can sum up is that it kills jobs in efficient industries to create jobs in inefficient industries while forcing higher energy bills on those who are least able to afford it. Let the decisions be it business or personal on who wants a windmill or puts solar cells on their house; do not let private companies use government power as their business model for success. Thank you.

STEVE BAKKAL: Our next three speakers are Cary Shineldecker, Pam Curtis and Eric Justian. Please come up.

CARY SHINELDECKER: Hi, folks. My name is Cary Shineldecker. I've come to speak on behalf of the citizens of Michigan that live out in rural areas that are faced with industrial wind turbines, not only in their backyard, but in their homes with them. I'd kind of like an interactive dialogue with the audience if everyone would follow along and participate with me.

When we take a look at renewable energy and we take a look at wind turbines and we take a look at

industrial wind, the picture on the screen up here is kind of what we look at, and it looks green and it looks good and it looks clean, but I'd like to give you a sense of my reality.

I'd like to have a show of hands in the audience how many people support renewable energy in Michigan. I agree.

How many audience members believe renewable energy creates meaningful jobs in Michigan? You've got a good participation.

Since we only have five minutes, I'm going to cut closer. How many audience members live within 50 miles of an industrial wind project?

How many within 10 miles of an industrial wind project?

How many within one mile of an industrial wind project?

How many audience members have a turbine within a half a mile of their house?

How many have a turbine, five turbines within a half a mile of their house?

How many members have a turbine 1,139 feet, 476-foot tall, towering over their home? Fourteen out the front window of my home. Turbines out every window of my home. I have 20.

How many homes are filled with industrial noise, low-frequency vibration?

How many people sleep on an air mattress in a storage room in their bedroom?

How many people's wives in this room have stress so bad trying to sleep with the low frequency going through their home that she was just diagnosed with her upper four teeth in her mouth loose? She's a second grade teacher. She's teaching today or she'd be here.

This is the location of my home in the Consumers Energy Lake Winds Project. The little blue spot is the Shineldecker home. The turbine closest my home is 1,139 feet. I have 25 turbines within a mile and a half of my home. They dominate my life. They dominate my world. I have continual headaches. This is a picture of my home that I took with the nearest turbine across the road from my house.

Now, we all support green energy, and we think that all other kinds of energy are bad. The impacts to my family thus far is: Sleep disturbance, awakenings as many as 20 times a night, day on end, week after week, to the point where when I take sleeping pills, I'll sleep for 13 hours at a time. Now, unfortunately I can only do that on the weekends. Tinnitus in my ear, I have degenerative bone

disintegration in my inner ear. The tinnitus in the two months since the turbines have started has doubled. A few weeks ago the turbines stopped because of icing. When they started after a week, within two hours the tinnitus had doubled in my head. Just a loud shrieking ring. Continual headaches for myself, my wife, our neighbors. Twice in the last month my left eye has went blurry and I've lost vision in my left eye. I didn't know what that was, but it scared me. I went to my doctor, who's running me through a series of tests.

I'll conclude. All of these symptoms are real. We live them every day. The wind industry knows about them; they hide them in gag clauses. My next door neighbor, who is leased, came to me and said he can not stay in his house, it's the worst place to live in the world because of the turbine that you see in this picture across from my house.

Consumers Energy uses gag clauses that restricts the farmers and the landowners from saying anything, speaking out or making complaints. Heritage, DTE does, also. Heritage in the Garden Peninsula, Consumers and DTE. I'm just going to read this, and then I'll stop.

Lessees shall have a nonexclusive easement over and across said property for audio, visual,

view, light, noise, vibration, air turbulence, wake, electromagnetic, electrical and radio frequency interference, and any other effect attributable to lessee's operation. The lease further stipulates that the lessor waives any claims with regard to such interference or effects.

Now you may say that the only people that complain are the people that are not getting money from wind turbines, which I turned down the lease, I own 250 acres total; the people that complain are the people that can. Many people out there that are suffering are held by gag clauses.

When you go forward with renewable energy, don't forget that there are victims out there, because there are. My family is one of them. Thank you.

STEVE BAKKAL: I called out Pam Curtis. Pam's not here. Eric Justian.

ERIC JUSTIAN: Hello. I would like to thank the state for coming to our neighborhood and for giving citizens a chance to speak about Michigan's energy future. And I'm going to be talking about question number 13.

My name is Eric Justian, I am from Muskegon, Michigan. I am president of the West Michigan Jobs Group, a nonprofit organization in west Michigan

working to strengthen independent businesses and lure sustainable industries to west Michigan and the surrounding area.

We've gained national media attention for west Michigan through our cash mobs which build public awareness of independently-owned businesses, and we organize thousands of west Michigan voices in favor of renewable energy, which helped area businesses lure a 150-megawatt wind farm proposal to Muskegon County.

Our goal is to do whatever we can as citizens and businesses to help diversify Michigan's economy, because a greater diversification of industries will create a more buoyant and durable economy going forward. That's a major reason why we support 25 percent renewable energy standard.

Our economy is growing, it's growing again, and our unemployment is dropping, and that's fantastic. However, the University of Michigan's 60th Annual Economic Outlook concluded that most of our gains are from a resurgent auto industry; and that's great, I'd love to see our auto industry growing, but we are still overly dependent on a single industry, and that should worry Michiganders who have lived through the state's economic free-fall for most of the 21st century. Our jobs and economy are too vulnerable to a market slowdown

in a single sector.

We need to diversify, because Michigan should never go through that again, where our friends and our family are losing their jobs in huge numbers, and our kids and our grandkids, our future innovators, have to leave Michigan and find work and start families elsewhere. We need to diversify into responsible and growing industries. That's why Michigan should increase the renewable energy standard to 25 percent. It's one of the industries we should diversify into. And we should do it in such a way as to use as many Michigan companies as possible, supporting the current and future businesses that can supply the growing global demand for renewable energy and put Michigan to work.

The Public Service Commission reports that 10 percent, the 10-percent renewable energy standard is working. Our clean energy sector, our alternative energy sector support 20,500 jobs and generates $5 billion in annual economic activity, and it's prepared to grow. I see it happening in my own community. West Michigan Jobs Group had a renewable energy booth at Bike Time, which is a huge motorcycle rally attended by over 100,000 people, at least in 2012, and we talked to dozens of folks from west Michigan who make a living because of the renewable energy sector; engineers, fabricators,

electricians, steelworkers, crane operators, drivers, solar panel installers. One guy in his 20s talked to us about his job at Energetx. That's one more young man who can start a family and make a living here in Michigan. And that's what we need. I mean I want to buy from him. I want to diversify into more of the energy supply that strengthens the innovative companies that hire people like him.

The Lake Winds Energy Park alone added almost $10 million in economic activity to Mason County and Michigan, while three of DTE's wind farms will contribute $150 million to the state's economy, and the energy we generate will keep more of Michigan's dollars here in Michigan.

Each year we send $1.7 billion out of our state to import 100 percent of our coal for our power plants. Renewable energy reduces the need for coal purchases and keeps more of that money here in the Michigan economy.

Over 30 U.S. states have gone before us in raising the renewable energy standard above Michigan's, about 30. So this is well-traveled area.

My time is up, so I would just like to thank the state again for coming to our neighborhood. Thanks.

STEVE BAKKAL: Our next three speakers are Patrick McKearnian, Barb Olson, and Sara Simmonds. Please come up.

PATRICK McKEARNIAN: Hello. My name is Patrick McKearnian, I'm from South Haven, Michigan. Thank you all for giving me this opportunity.

I have very one small thing, I'm kind of tempted to talk about a few more things after hearing so many different issues this afternoon, but I will maintain it with the one.

I am a proponent of renewable energy, but I think that there's one area that I really would like to see the state keep their hands off, that's called the off-shore wind turbines. And my particular reason for this issue is quite simple, lot of people look at me like I'm an idiot when I say it, but it's called mental health. At end of the day, I would like to be able to go somewhere where I don't see all of our crap, and that is one place where so far mother nature still gives us quite a good show almost every day, and it's something we really do need. It's not something I can put an economic dollar on, it's not something I can say that this is what's going to happen, it's just something that I, and I know quite a few other people feel the same way, we'd just like to have one place to go and really enjoy what

we see and what we have. Thank you.

BARB OLSON: Thank you, all, for the opportunity to weigh in on such a timely and important matter that affects us all present here today, but even more importantly, the children and future inhabitants of this planet. Because my main point that I personally want to emphasize and remind all present here today is that the decisions that are made by the people in power in this state will show a ripple effect that will be felt all over this planet now and continuing into the future for many years to come, just like the effects our planet is now feeling through climate change that were enacted by previous persons in power in good faith, but with little foresight on environmental impact.

I would like to see the State of Michigan lead the nation in clean energy production. Electricity from coal is not the correct choice for Michigan, it will never be clean. High-volume hydraulic fracking will never be clean either, and also is not the correct choice for Michigan. HVHF, hydraulic fracking, is being protested in sites all over this country, and the negative health effects associated with hydrofracking are being examined at state and federal levels as we speak. Governor Cuomo of New York State has, as you probably are aware of, agreed to postpone their hydrofracking plans so

that that state's Department of Health can examine the issue before investing money into a process that turns into the next Chernobyl nuclear disaster, the next Exxon-Valdez nature disaster, the next BP Gulf of Mexico ecosystem destroyer, the next Kalamazoo River pipeline leak failure. The list is endless of people in power making decisions that have hurt humans and ruined this planet.

So I am just asking you to please give careful consideration to the proponents that are presenting evidence for solar, for wind, and not those big-bladed winds, I agree with you on that issue, but for solar, wind that's not like that, and alternative energy production. I am asking you to listen intently to the arguments that come from the environmental folks and give weight to their knowledge and experience.

Personally, I would love to say in the near future that this state leads in the nation in green energy production and blue water recreation, that this state can exemplify that model. And to the people here who are still pushing for dirty outdated energy creation because of jobs or whatever, it ain't worth it. Your grandchildren will appreciate your joining us to work for a cleaner, more beautiful earth than the dismal scenario that faces this planet if we stay in this present course.

And thank you so much.

SARA SIMMONDS: Hello. My name is Sara Simmonds, I am with the Kent County Health Department, and I'm here on behalf of Adam London, our administrative health officer, who was unable to attend today. I'm going to read a prepared statement.

The Kent County Health Department appreciates the efforts of the Governor, the Michigan Air Health Coalition, and others to address energy needs and to protect our air quality statewide. Those of us in west Michigan are all too familiar with ozone action days, high concentrations of particulate matter in our air. As public health professionals, we understand the risks that these pollutants pose to our community; asthma, pulmonary stress and lung cancer are just a few of the adverse outcomes associated with the exposure to air pollution. These are very serious health issues which impact Kent County citizens today, and will also play a major role in determining what type of place Kent County is in the future.

We also recognize that energy policy and air pollution are complicated subjects. There are many causes and complicating factors involved in this matter. We commend all involved for their work trying to sort out these factors and identifying effective strategies for

addressing energy needs while protecting public health.

We also encourage all involved to consider and carefully weigh the possibility of unintended negative health consequences resulting from well-intended policy decisions. As we all understand, the health of the community is strongly linked to the health of the local economy. Any proposals which hold potential for economic or environmental harm should be carefully scrutinized.

Thank you once again for your work on this very important topic. The Kent County Health Department looks forward to working with you to make our region a healthier place to live, work and play.

STEVE BAKKAL: The next three speakers are Brian Bosgraaf, Kathleen Russell, and Lucille Janowiak. Please come up.

BRIAN BOSGRAAF: I'd like to thank the Service Commission and the Energy Office for hosting this event. My name is Brian Bosgraaf, I'm owner of DwellTech Solutions, a west Michigan-based performance contractor.

I have nine employees who are energetic and passionate building science geeks. Many of them have graduated from local colleges that have been trained in green jobs, as well as sustainable degrees from Aquinas and Calvin.

Every day we wake up and we do battle with the status quo. People live in their houses and believe they can't change anything; it is what it is. The Public Act 295 with the energy optimization credits does help, that's one tool to battle that status quo.

I'm sure everyone here has seen the advertisements that DTE Energy and Consumers Energy have had on the TV and radio; I wonder, though, if it is helping. Our building analysts are in the houses doing the tests, standing at the kitchen table showing the results, and sometimes the rebates just don't motivate enough. Sometimes the ads make it feel I think to a point where they, the homeowner feels that the utility company owns some of their energy problems and are waiting for bigger rebates.

I would ask the Commission to consider a few things: One is if the utility companies are getting some type of credit for all these massive marketing campaigns, that we look into that and possibly tone down the message a little bit.

I'd also ask that the energy optimization rebates and incentives be made larger, and that the marketing be left to the home performance contractors. If the rebates were meaningful and if MLive reported it, you would hear more about DwellTech Solutions, because we

would be marketing to promote the incentives and the rebates that were real.

Also, I would ask that the energy optimization rebates and incentives be directed at items that -- and focused on things that keep the heated air and conditioned air in the house longer. Currently we have programs that change lightbulbs and replace furnaces; however, homeowners control thermostats and lightbulbs burn out, and the change isn't permanent. Any additional -- the rebates currently are very low on air seal and insulation and attic work and things that are lasting; if we could get things fixed that would last a long time, the economic impact for generations would be much greater.

Also, I think the home performance labeling is very important, something that is market-driven and volunteer would be very helpful so people know how their houses compare to the neighbors.

And I'll end with that. Thank you.

KATHLEEN M. RUSSELL: Thank you for this opportunity. My name is Kathleen Russell, and I have worked as an energy auditor, home energy auditor for 12 years, and there was something that I noticed that was significant that people have talked about today, and thank you for bringing all these things up.

I think your name was Betty with Salvation Army was talking about home heating assistance. There are a lot of people in this community that are renters, and a lot of the rental properties in this community and other communities in this state are not well insulated, maybe they have no insulation at all in the ceilings, and some of them don't have storm windows and are in serious need of weatherizing, and we are paying to heat these homes month after month, sometimes $2,000 monthly heating bills, and that money could be used, in my opinion, more appropriately to do what the gentleman just before me was talking about, which is permanent improvements to the housing stock.

What I would like to suggest is some kind of legislation statewide or encourage municipalities to say that all rental properties had to meet minimum standards of six inches, eight inches of ceiling insulation, storm windows, and some other things. I think that would save all this money, all this energy, and perhaps a coal energy plant or a few large wind turbines could be saved if we conserve money, conserve money and energy and improve the quality of life for many families in our state. So let's go back to this old idea of conservation first. Thank you.

LUCILLE JANOWIAK: Thank you for this

opportunity. I am Lucille Janowiak, a member of the Dominican Sisters of Grand Rapids, however, I am here as a, giving my personal views and as a citizen interested in the well being of our state and of our world.

Question 1: What info do policymakers need to consider in order to make a good energy decisions?

Number one, I would request that they look at the long view. What impact will the policy have 50 to 100 years from today?

Secondly, I request they keep in mind the ultimate source of earth's energies: Where does it come from? I'd also ask that they know and keep in mind the basic science and economics of coal, oil and natural gas. What is their origin? Where did they come from? What are they made of? What are the effects of their current location in the earth? And what are the effects when these substances are brought to the earth's surface and burned? At the same time, the same questions can be asked about the renewable energy and energy efficiency.

The second question: What studies are available for policymakers to consider?

There are many scientific studies that show connections between our health and the environment. Although I'm not personally -- I have not personally done

research, I have a strong sense that there is that connection. My religious community has a prayer line and I hold in heart daily so many people who are ill and suffering, young parents and children, and I believe part of it comes from the environment.

And I would cite one of the studies, and I ask the policymakers to do the same, that I learned at a Michigan Interfaith Power and Light conference a few years ago. Dr. Karl-Henrik Robert, a Swedish medical doctor and cancer researcher, became concerned about the rising cancer rates among children. His research convinced him that the causes were connected to environmental factors, not lifestyle. So in the 1980s, he, along with some 50 leading Swedish scientists, agreed upon principles for supporting a healthy sustainable environment. This information can be found under the Natural Step Framework. Actually, it would be great to have our policymakers and Governor use the Natural Step as an overall framework for their energy policy decisions.

And just as policymakers listen to large company advocates, I hope that they will also listen to us as individual citizens, and that our voices carry the weight. So thank you very much. Thank you.

STEVE BAKKAL: Thank you. Our next three

speakers are Dan Filius, Keeley Lent, and Joshua VanCamp.

DAN FILIUS: Hi. I'm Dan Filius, I live in the Village of Pentwater on the shores of Lake Michigan in Oceana County.

What Michigan needs is a dependable, predictable, and inexpensive method of producing electricity. Natural gas, clean coal and nuclear meet these requirements: Solar and wind do not meet any of these requirements. Therefore, increasing the state renewable energy requirements will increase the cost of electricity to both consumers and business, and will negatively affect our economy and the consumers who live in Michigan.

Industrial wind facilities reduce land values, they kill birds and bats, and compromise wildlife habitats. It has been found that birds do not nest within a half a mile of a giant wind turbine. Turbines' strobe lights negatively affect the nighttime environment. Installing a man-made machine out of proportion to all the natural surroundings has a negative effect on people and their perception of the natural views, as we have heard previously.

Wind or solar energy does not replace fossil or nuclear power electrical generation. A conventional electrical production source must be kept on

standby to ensure the electrical demands can be met due to variations in wind and sunlight. Wind energy does not reduce greenhouse gas emissions. A conventional fossil fuel or nuclear electrical generating plant must be kept on line in order to take over when the unreliable and variable wind fails to produce enough electricity to meet the demands of the consumers.

Additional grid infrastructure is needed to accommodate wind or solar energy. Increasing the number and size of transmission infrastructure will result in increased costs to electrical consumers and devalue property values of nearby properties.

No developer would invest in wind turbines or solar unless there were subsidies. Government tax money is given to these developers. Electrical providers are required to purchase extensive -- excuse me -- expensive wind or solar electricity. Electrical consumers are required to pay additional dollars each month to cover the cost of this expensive renewable energy.

Wind energy produces insignificant local employment. Turbine manufacturers use specially trained crews for the construction, off-site monitoring, and the maintenance of these wind turbines. Current Michigan wind industrial facilities consist of turbines built

somewhere other than Michigan. Up in the Mason County area just north of me, the blades produced in China are unraveling as we speak, and they've only been in operation since November.

Current Michigan wind industrial facilities consist of turbines that will affect tourism, property values, the health of local residents, and investment in local businesses. Thank you.

STEVE BAKKAL: Keeley Lent. Not here, so Josh.

JOSHUA VanCAMP: Good afternoon. My name is Josh VanCamp, I'm one of the directors of the IICC. I'd like to thank Mr. Bakkal and Mr. Quackenbush for giving me an opportunity to come up here and speak today.

And I'm here to discuss the need for a little common sense and honesty with regard to the cost of renewable energy. I believe if we're going to have an effective energy policy, the public needs to be provided complete and honest information.

Now, these comments are made with all due respect to Commissioner Quackenbush, but unfortunately, our Public Service Commission is not providing the public with the accurate information we deserve. Here are just a few examples of where I believe the PSC has let us down.

Example No. 1. Let me start with the simple example. I'll ask all of you to read your next power bill. On it you will see the following statement: "For the average Michigan residential customer, renewable energy is expected to avoid $3.90 per month of new coal-fired generation costs." This is an absolutely false statement. I would guess that anyone here today understands that wind is an intermittent source of energy, and as such is not a substitute for a fossil fuel plant. Wind is only capable of supplementing conventional generation, it is not a substitute for conventional generation.

The U.S. Energy Information Administration concurs, and they say: The duty cycle for intermittent renewable resources, wind and solar, it is not an operator-controlled, but dependent on weather or solar cycle (that is, sunrise or sunset), and so will not necessarily correspond to operator dispatched duty cycles. As a result, their levelized costs are not directly comparable to those for other technologies, (even where the average annual capacity factor may be similar) and therefore are shown in separate sections within the table.

This is elementary information that informed people understand, yet this false statement

continues to appear on our monthly bills. MISO places the capacity value of wind at 8 percent, yet the statement on our power bills assumes a one-for-one substitution of wind for new coal plants. This is not only misleading, but it is absolutely false. If we are to have an honest discussion about energy policy, we need to start by providing ratepayers with honest information. A good start would be for our PSC to remove this false statement from our bills and replace it with a statement that describes the full and complete cost of renewable energy.

Example No. 2. Our PSC has routinely understated the cost of wind energy, thereby distorting the whole discussion of renewable energy. The PSC's cost estimates ignore the PTC, or production tax credit, ignores the Section 1603 grants, ignores the Michigan incentive credits, ignores the billions that will be spent for new transmission lines, ignores the cost of integrating wind into the grid, ignores the negative efficiency impacts wind has on existing conventional sources, and ignores the low value of wind power. All of these costs are real and need to be included in the cost of wind; and unfortunately, our PSC has chosen to ignore these costs and is hiding them from ratepayers.

Example 3. PA 295 assumes wind will

displace coal generation. While this may happen to some small degree, it is much more likely that wind will displace natural gas generation and not coal; and that environmental impacts of gas are much lower than those of coal, yet PA 295 continues to require a bogus substitution of wind for coal in their calculations. This is wrong and it distorts the fair and honest dialogue that this subject requires.

The bottom line is that if we're going to have an effective energy policy, our PSC needs to provide Michigan ratepayers with accurate information about the true costs and impacts of wind energy. Any energy policy is only as good as the foundation upon which it is built. If this foundation is one of false information and industry propaganda, then we will have a failure in which the utilities and multinational wind companies profit at the expense of ratepayers. It is up to our PSC and our elected officials to ensure we have a policy that is based upon facts and serves the citizens of Michigan, not the wind companies and their enablers. Thank you.

STEVE BAKKAL: Our next three speakers are Nancy Finney, Nicholas Pietrangelo, and Wayne Kiel. Please come up. Doesn't seem like Nancy is here. How about Nicholas, come on up.

NICHOLAS PIETRANGELO: Thanks for the

ability to speak here today, thanks for the moment, thanks for your attention, everybody.

If I appear to be a little negative, I've been doing this for 30 years, I'm tired, I'm old, and I'm broke. I started this -- I'm involved in solar for the last, photovoltaics for the last 30 years, I'm involved in the advanced batteries for the last 22 years. I've started several privately-funded companies. Let me understate [sic] that. Privately-funded companies. Millions of dollars.

No. 1: Power by Sun, we do photovoltaics all over the world, including Africa, which has the fastest growing GDP in the world, Italy, Europe, all over North America. PiSAT Solar, we also do primarily photovoltaics in Africa, and we put up systems in Rwanda, in Kenya, Sierra Leone, et cetera, et cetera, et cetera. And I also was the founder of, one of the founders -- please forgive me, I'm not taking all the credit for this -- of Harding Energy, an advanced battery company in Norton Shores, Michigan. We employ 25 people, we've been around for 22 years.

And before I get much further on this, I want to say one word, and it's in reference to the nun that spoke from the Dominicans, wherever she is. A very dear friend of mine and very wonderful supporter of me

has been Mr. Peter Whiting, and let me tell you, this community is blessed, blessed like you won't understand how wonderful and innovative and far-reaching this man has been. Peter is 92 years old now, he's also very tired, but he's done so many wonderful things for this community, especially for the environment. I just want to pay tribute to him.

So we've done multiple solar projects with different photovoltaic technologies, all kinds, crystalline, monocrystalline, polycrystalline, thin films of all size. North America, Europe, Africa installations for 30 years. Like I say, advanced batteries for approximately 25 years in both manufacturing and marketing of these technologies into the worldwide markets. That's RD energy. Storage is critical for renewable energies. Critical.

I started this whole gig -- I'm an anesthesiologist by trade, 35 years in the operating room. I saw a lot of cancer, a lot of lung cancer. I also saw a lot of respiratory failure. We used to manage the respirators in the intensive care unit. That's one of the major reasons I got involved in this clean air.

The State of Michigan has limited requirements for renewable technologies, along with very limited state incentives. It has been demonstrated over

and over again where states/countries have strong incentives for renewable technologies; feed-in tariffs, et cetera, et cetera. Manufacturing and sales and installation of these technologies flourish; examples abound all over the place. Let's look at Germany, let's look at Japan, let's look at New Jersey, let's look at California.

Now, Germany, let's take that for instance. Less sun than we have. Germany in one month -- it's willed, it's willed -- one month put in three gigawatts of photovoltaics, December of 2011, and I think you realize who Chancellor Merkel, does anybody know her background? She's a nuclear physicist. Do you think she knows a little bit about nuclear energy?

Japan now has submitted -- that's their administrative industry and technology, jobs, jobs, and more jobs -- has submitted $10 to $12 billion for feed-in tariffs for photovoltaics. Why did Japan do that? Is everybody familiar with Hiroshima, and I'll leave it at that.

Today Michigan has touted itself as the perfect place for green energy manufacturing, largely in part because of its many manufacturing talents. Sadly -- now I'm not trying to be negative, I'm trying to be real. Somewheres along the line somebody's got to tell the joke

about the emperor's new clothes, somebody's got to do it, so I guess I'm elected, self-elected. Sadly, this hype has not come true. Frankly, I hate to say it, but it has been an abysmal failure. Examples stand out in many fields, such as advanced battery manufacturing, lithium in particular, lithium ion batteries. We have lithium ion batteries in our facility, we had a $1.2 million fire from one lithium battery. Specifically, A123, bankrupt; LG Chemical, bankrupt; JCI-Saft, bankrupt, to name a few, all in the State of Michigan. Billions of dollars have been spent to jump start this industry to align with the auto industry with little to no results. You're all familiar with the Chevy Volt and the Nissan Leaf. Now their sales have shown that this has not come true. And now add to that a little problem that Boeing is facing with their 787, eight -- let me get that right -- one-quarter of a trillion dollars of commerce hangs on it's the battery, stupid. So lithium ion battery.

However, the successful nickel metal hydride battery. Have we been asleep? This was invented, developed in this State of Michigan. Folks, you lost it. It's now controlled by the Germans, Bosch, Covansys, (inaudible), and the Japanese, a little company called Toyota. Have you ever heard of the Toyota Prius, powered by nickel metal hydride batteries, gasoline

hybrid. Five million worldwide. Hear of any fires, explosions? It's the third most popular car in the world. For god sakes, we should start waking up, will you.

All right. Wait, wait. I'm not quite done. I'm not quite done. Okay. Let me just go a little further here.

On the side of solar cell manufacturing, with much state input, tax abatements and money, huge photovoltaic factories of United Solar in Auburn Hills and Greenville are now shuttered as the solar industry, although challenged, grows yearly. Now put -- it's growing at a double-digit rate. Now put this in your head. There's 100 gigawatts of solar cells in place worldwide. Okay. I'll be two seconds. 100 gigawatts, that's 70 nuclear power plants. You'd get excited about that. And just last year -- and I'll end with this -- 30 gigawatts of solar, this is purely solar, has been put in and installed in the world. That's a total of approximately 20 nuclear power plants. That would be front page news all over the world.

Last statement, then I'll shut up. One hour of sunlight, one hour of sunlight worldwide supplies enough energy for the world for one year. Thank you for your time.

STEVE BAKKAL: Wayne Kiel.

WAYNE KIEL: I'm not used to this, so you'll have to bear with me. I have to get my glasses on because I'm getting old. My name is Wayne Kiel, I own and operate a blueberry farm along with my wife over by Holland, Michigan.

I put a 7.2 k system up in the spring of 2010, and it was operational May 31, 2010. The cost of that was $6.32 a watt installed before incentives. There was a 30-percent tax break at the time, so the cost was $4.43 a watt, and that was through a Consumers Power 12-year contract program. My wife and I were so pleased with that that I applied for and received a regrant for a 20 k system next to my packing house for my main farm on the corner of U.S. 31 and Blair Street in Holland, Michigan. This was purchased last July, and I did most of the work, along with my employees, and we put it up in late December, and it was operational January 5. The cost of that system was $2.50 a watt before incentives. With the 25-percent regrant, that was $1.87 per watt installed. That does not include the 30-percent tax, federal tax credit, nor does it include any depreciation that will come along with that system. The racking design was by Solar Tilt, which is a Michigan-based company; the panels were sold to me by a Michigan-based

company called SEF.

At the price you are producing power, right now I am producing power for parity, according to some things that were talked, for less than grid costs. Today with PV prices 34 percent less than when I purchased them in December -- or I mean July, I can put that same system up today for $1.90 to $2.00 a watt before incentives; and with incentives, I can put it up for $1.35 a watt. That is below the cost of buying electricity from either Consumers or DTE by six cents a watt if you just look at the price of the electricity.

I'm here to attest that not only is solar a viable choice for making power, but it is a cost-effective choice, according to all my calculations, and I paid for this out of my pocket, along with my wife and the sweat equity involved.

We created real jobs in the State of Michigan, and that initiative makes us more sustainable. I believe that Michigan needs to get a lot more aggressive in their alternative energy programs, i.e., solar. Solar makes sense, it does work here.

And I would like to recognize the companies that helped me, four Michigan-based companies were instrumental in helping me put a solar system in for $1.87 a watt. SEF based out of Holland, Michigan; Power

by Sun based out of Spring Lake; Butler Electric based out of Standale; Solar Tilt, the racking manufacturer based out of Holland. This is the way to create jobs in Michigan.

Last but not least, my closing statement. In conclusion, when I hear someone tell me it costs $5.00 per watt to install solar, I don't know what planet they're from, but obviously they're not from the planet earth, because I did it for $1.87, and today I can do it for $1.35 with the incentives.

In closing, I would just like to say that basically I have three things going on: I have fixed racking by my house, I have one-access tracking racking by my packing house, and on any given day -- this changes everybody's concept -- the one-access tracking on sunny days is outproducing in the fixed tracking by 150 percent. Thank you for your time.

STEVE BAKKAL: Our next three speakers are Angela Topp, Chrysteen Moelter-Gray, and Tim Lundgren. Please come up.

ANGELA TOPP: Hi, everyone. And thank you so much for having me today. I was asked to come to talk about renewable energy.

I currently live in Holland, Michigan, and own a retail store here if Grand Rapids called Tree

Huggers. It would be surprising if -- thank you. I was going to make a joke about how I was going to come and talk about how much I love coal, but that would just be kind of silly. But anyway, I'm here to talk about the importance of renewable energy from my point of view.

I would like to think 200 years from now renewable energy will be something that we will be taking for granted, similarly to how we take for granted a flip of a light switch or a lightbulb. It will be so engrained in our community that it will be a part of our everyday life.

I often find myself thinking about ideas, and how ideas become inventions, and how inventions become intuition -- or innovation -- I'm sorry -- inventions become innovation, and how innovation within time becomes mainstream. Whether you are holding a pen, drinking a beer or turning on a light, how do these items start as an idea and then become something we never thought we could live without. I also think about Thomas Edison creating the light bulb or Henry Ford creating the automobile. I wonder if they were to create these items today, if they would be met with opposition and barriers. Would they be successful, or would they give up because their ideas were so radical?

Today it seems we as Americans, we are

afraid to innovate. Today political differences have stalled progress, and good ideas are ignored because they are thought to be too left or too right, regardless of logic, and too many special interests are sitting at both ends of the table confusing innovation that much more.

I also wonder if Thomas Edison and Henry Ford were around today, if they would be proud to have created such an important contribution to society, but also at the same time feel a bit of guilt about the overuse and reckless consumption that stem from their creations. These innovations were a major step forward, but at the same time, we as citizens, businesses and politicians need to reduce our dependence upon them.

I was excited to have Governor Snyder elected to office to provide a fresh perspective and a nonpolitical outlook we so desperately need: Michigan, a forward-thinking corporation with citizens being treated like customers and a state putting aside differences working towards a bright future with innovation being the task at hand. I picture Michigan leading the change to cleaner energy for all, similarly to how Apple innovated technology. Like my handy iPhone, Michigan could create a product I did not even know I needed, a product that now I can not live without. Renewable energy is the future. The question is if Michigan will be leading the

race or following the leaders trying to catch up.

When coal, oil and gas are harder and harder come by, the sun will still continue to shine and the wind will still continue to blow, almost as if asking, why did you not look to us sooner. I would like to see our state help businesses and residents reduce their consumption and shift energy from dirty, outdated technologies to renewable clean technologies. Michigan needs to become the innovators of clean technology. Unlike coal and gas, the sun does not dim from tapping in and harnessing its rays, and the wind does not stop blowing because we use its gusts to power our communities. We are in a unique position to manufacture these technologies right here in our great state, creating jobs for current and future Michiganders. Michigan needs to be the pioneer in cost-effective energy solutions using renewable energy. Allow us to turn on the lightbulb for the rest of the nation.

CHRYSTEEN MOELTER-GRAY: My name is Chrysteen Moelter-Gray, I live in Grand Haven, Michigan, and I'm truly reading from notes that I have jotted down while we were sitting here today.

I am fully in support of what the speaker in front of me said. I really don't have a whole lot more to say. Few phrases.

I'm not a pragmatist, I'm an idealist. We are all citizens of the world, we all need to take care of our own neighborhood, our region, our state, and we're all connected, we have to think about the impact that what we do has on the whole rest of the world. Fossil fuels, both the mining and the acquisition of them and the burning of them only contribute to the fouling of the atmosphere, illness among our children, and damaging the earth.

So the question is: Do we need to alter our standards for energy, our energy standards? Yes. We don't need to alter them, we need to ratchet them up drastically, we need to totally turn the model on its head and use the tremendous potential of Michigan's people, our research and development, to create a new model based on the need to keep fossil fuels in the ground, not use precious resources to mine them or produce pollutants by burning them.

Michigan's children I see as the primary stakeholders in this process, and so I'm hopefully here to speak a little bit for them, and say that they need a world in which we are holding down our contribution to the warming of our climate, and we need to keep the air clean for them. We need to lead in energy conservation and efficiency, not in energy consumption. We need to

preserve our connection with the environment and keep moving forward from there.

One little note I also wrote. ITC, the transmission company, if you think wind turbines are not attractive, think about those transmission lines that we see every day that run through our communities. Can't we do something about them.

STEVE BAKKAL: Tim Lundgren, is he still here?

Okay. Our next three speakers are Nicholas Occhipinti, Charlie Muller, and Kraig Schultz. Please come up.

NICHOLAS OCCHIPINTI: Hi. My name is Nick Occhipinti, I'm the policy and community activism director of the West Michigan Environmental Action Council. WMEAC has been an environmental advocacy non-profit since 1968.

The best source of new energy is energy we save every day. We must explore new business models that reward energy savings, especially for utilities and ultimately the customers. We must expand the suite of voluntary programs, mandates, and fiscal incentives for greater benefits of energy efficiency.

Now, those aren't my words, those are the words of the U.S. Chamber of Commerce to the President

and Congress. So this is a policy that can really unify and get people together.

In this conversation WMEAC is asking citizens and decision makers to respond -- to reconceive our buildings and energy infrastructure as a new source of energy to be tapped and mined similar to coal, gas and oil. We should treat investments in energy distribution, energy efficiency, generation and transmission the same.

Energy efficiency programs are already active in west Michigan; we've got 2,000 homes that will have been retrofitted in Grand Rapids through the Better Buildings for Michigan by the end of the summer. But these are just the tip of the iceberg, as the metaphor was used earlier.

WMEAC is working with the City of Holland and interested citizens on a number of energy task forces with the goal of labeling and retrofitting the entire community. This is a community-wide, world-class energy plan in Holland in which we're looking into some really innovative models, including on-bill financing and energy labeling.

I'd like to talk a little bit about on-bill financing. This innovative model addresses several of the major barriers to residential energy retrofits: Opportunity costs, risk, transaction costs,

and landlord-tenant dilemma.

Notable on-bill financing programs including Kansas's How$mart, the City of Portland Housing Bureau, Clean Energy Works Oregon, and the Electric Cooperatives of South Carolina's Rural Energy Savings Program. Now, what's so great about on-bill finance is the up-front costs of energy efficiency retrofit are paid for on the utility bill and can be amortized over the length of those investments. And they Kansas How$mart program is finding that you can do this with only 90 percent of the savings realized. The loans would collect interest at a five-percent rate, and it's a way that you can pay for those retrofits which often have really high up-front costs, you know, over the lifetime of those installations, so you don't have to face a $10,000-$20,000 sticker shock, and we can do more in fewer energy retrofits that way. Really cool stuff. Starting to happen in Holland, and we hope to see it spread out more, and we hope the Commission looks at interesting and innovative models like that, and also some other major kind of opportunities I'd like to have them look, and we'll be submitting more information about this electronically.

So time-of-use pricing, we have a huge opportunity here to create efficiency just by knowing how

much our energy costs, to get that feedback from consumer products. So realtime information feedback, policies to spur, automate and capture ratepayer interest in energy efficiency. So currently it costs a lot of money it go out and find who's interested in energy efficiency retrofits. If we can develop mechanisms that automate that, through utilities, through different structures, we can cut that cost out of the whole process.

New solutions to implement comprehensive healthy home retrofits that deal with lead, asbestos and (inaudible) wiring and energy efficiency in one bill so that no building or homeowner is left behind. You know, right now we have a lot of buildings and a lot of homes that we just can't retrofit because of issues of health in the home. We should be doing that all in one go if we possibly can, so I'm hoping that the comprehensive statewide energy plan would take a look at that.

Thank you so much for the opportunity to contribute to this process, and I look forward to more dialogue with the Energy Office. And thank you so much.

CHARLES MULLER: Gentlemen, are you still with us. Long time to sit, I just feel like we need a collective stretch.

Well, good afternoon, my fellow Michiganders. My name is Charles Muller, and I'd first

like to thank the gentleman from Holland, the blueberry farmer, who put actual numbers on the price of solar electricity. That was fantastic.

I live in Oceana County with my wife and children, we own a small homestead and operate our business, Laughing Tree Brick Oven Bakery, which specializes in artisan bread made with many Michigan-grown ingredients. I grew up in Grand Rapids and attended the University of Michigan where I studied economics in the business school, and after graduating from Michigan, I served as a Peace Corps volunteer in West Africa for two years.

My wife and I moved to our property eight years ago with a commitment to living sustainably. Over the years we built a house of recycled materials, established a large garden, and built our bakery adjacent to our home. The motto for our bakery is "small good things matter", and our small, good enterprise has sustained us financially now for several years. I'm proud to say that we meet the majority of our home and our business's electric needs with a 1,000 watt solar panel array. We installed these panels on a financial shoestring, before we even built our house and without any tax credit incentives or subsidies. I wish we had actually done this last year, because, and we hadn't

started so early, because literally the price of solar has gone down so low we probably paid over half of what we've would have paid today. Our system is living proof that solar electricity works well here in our beautiful state, and I'm pleased with its performance and pleased that we have remained true to our values in this arena. Clean energy is important to us because we are concerned that our children's future includes the economic externalities of clean water, clean air, and weather patterns that are semi-predictable. We do not want to leave future generations bereft of the very basic resources they'll need for true economic security and prosperity.

My vision for Michigan's energy future is based not only on my own experience with solar electricity, but also on the example of inspiring people I've met over the years. I understand the concerns of those who propose that an investment in renewable energy will somehow burden ratepayers and business in the state, but I have seen over and again that creative people find ways to make given technologies work to their advantage.

While living in Mali, I was inspired by the toys children in our neighborhood would create out of wires they found in the local dump. I am similarly inspired by a country like Germany, which has figured out

how to make renewable energy pay off collectively. I am inspired by the example of Solar Ypsi, which is responsible for outfitting businesses and the city government of Ypsilanti, Michigan, with solar electricity. I'm inspired by Mayor Hartwell, who has challenged his municipality to run off 100 percent renewable energy within a few years. I am inspired by Torreson Marina in Muskegon for making their solar electricity available for public consumption. Finally, I am inspired every time I open the fridge in my home and turn on the mixer in our bakery, both of which are powered by the sun.

In conclusion, it is my hope that our homestead serve as an example, however be it small, of what is possible at the state level. We are a state vast in resources of smart visionary people. Why don't we produce the majority of our residential power with solar and the rest with a mix of other clean technologies? Why can't we be a state that is the light to the country, the example and the leader of renewable energy production? Why can't we be the state that manufactures the parts to serve the world's growing demand for clean energy? So I invite you, and all of us, to innovate with me and with those who want to come home and plug in their hybrid, potentially produced right here in our own state, to an

electric grid powered by limitless clean energy. Thank you.

KRAIG SCHULTZ: Thank you to this forum for coming out to let us hear the voice of our community. Thank you. My name is Kraig Schultz, I live in Grand Haven, Michigan, with my wife and two teenage sons.

I am an engineer, and today I am here representing the communities that live on the shore of Lake Michigan. I speak from an engineering perspective as a citizen who is actively involved in building a better future for our children and great grandchildren.

We are the Great Lakes State. For thousands of years you could travel anywhere on this land and drink the water from nearly any source; the rivers, the lakes, and especially the Great Lakes. Fish and plants could be eaten without fear of illness or disease, and the land was pure and clean. But in the last 100 years we have laced our surface waters with bacteria, chemicals and radiation that have made them increasingly less healthy to drink. Today we have found new ways to get cheap energy; fracking our land, putting underground drinking water at further risk, and encouraging us to fracture the very surface of the earth for the short-term limited supply of energy.

I want to throw out a challenge here to

all of us in the room, and that's to think about a new paradigm for how we approach energy production. Instead of thinking about a process to make energy that does minimal harm to the environment in comparison to the process we have right now, what about thinking about a process that actually cleans the air and cleans the water, so that people fight to have a production site in their neighborhoods, because the trees are greener near the industry, and the water is cleaner having passed through the plant, a car that drives down the road and its exhaust is purer than the air coming from in front of the car. Why aren't we thinking this way? Why are we thinking that the best we can do is zero? Today we're at a negative, and the best we can hope to achieve is to get as close to zero, but on the negative side, as possible. I'm saying why can't we bust through the zero and go positive.

Now, for the doubters in the crowd who say I'm a dreamer, but in the real world we can't do that, I say to you I'm just a normal guy with a Michigan public school education and I drive an electric vehicle that I built in my barn that gets over 350 miles per gallon equivalent over the last 6,000 miles. Now, can it be done? Yes, it can be done. We must envision it and we must take action to make it happen by designing

cleanness into the design of the product. We must put away the childish thoughts of making electricity with fire, coal, natural gas, and nuclear; these were the tools the 20th century. We must design cleanness into energy production.

Here's good news. Last year we installed a bunch of wind turbines in Michigan. This isn't Michigan. Thank God. The good news is that wind power is less expensive than coal now in Michigan. The bad news is that we have 641 wind turbines and they're making about 1 gigawatt. That's about the equivalent of an average nuclear power plant or a big coal-fired plant. That's a lot of wind turbines. We got to be careful with these, because we don't want Michigan to look that cluttered.

Here's good news. Solar. We heard a couple guys from Holland and Grand Haven in this area with, they're living with the solar. Here's what they're doing in Germany: Last year they were getting 40 percent of their peak energy from solar PV. It's real world. They're doing it in Germany. Look at this, look at the color of Alaska, look at the color of Germany; Germany gets about the same amount of sunlight as Alaska. Look at Michigan; we're getting 30 to 40 percent more sunlight than Germany gets, and Germany got 40 percent of the

their electricity from PV last year, solar PV.

This is what's left of Big Rock Point plant in Traverse City. We buried the rest of the plant, but we're left with this for 10 to 100,000 years; this is the high-level nuclear radioactive waste. I just want to make one point on that. Let me read my notes. There are people who say that the solar and wind won't work because we don't know how to store the energy. Let me remind you that the people who say we can not store energy overnight are the same people who say that we can safely store nuclear waste for 10,000 years.

And besides that, we do have good storage. A123 is testing them all over the world. We have -- each one of those trailer, tractor-trailers there has a capacity to hold up to 4 megawatt hours of capacity. And here in Michigan we build cars, right, we have three battery plants that we helped pay for; those cars, like my electric motorcycle, each one of those electric cars can hold a day worth of electricity to power your house. That's decentralized grid storage, and that's a reality today. We just need to buy those cars and hook them up to our solar cells.

So in summary, and I apologize for going over, six things:

I recommend that we phase out coal,

nuclear and natural gas at the existing plants as soon as they get to the end of their lives and replace them with clean, less costly renewable sources, like wind and solar.

The second point is that Germany's success should be a template for us. 20 years ago they instituted feed-in tariffs with 20-year contracts and guaranteed grid access. And the thing that, one of the other things that holds us back is we have to pay about twice as much in the United States for solar installations as they do with the same panels in Germany because of paperwork. A big thing we need to do is work on the installation, individuals and small communities.

That's the other thing in Germany, their model has been successful, it's half of their solar power -- remember, half of their -- 40 percent of their electricity last year came from solar PV, half of that was at the individual and small community level, and that was because of feed-in tariffs and guaranteed grid access. It's a legislative requirement, we have to put that out there.

We need to work on developing a standard to allow our electric vehicles to function as grid storage systems. We need to encourage our Michigan battery producers to support grid storage applications.

And we need to keep setting those higher standards for efficiencies in our buildings and our cars. And we all need to work on it together. Thank you very much.

STEVE BAKKAL: The time is 5:00 o'clock, that is when we were scheduled to end, but we still have a number of more requests, and we're, you know, we can stay a little longer. I do ask you again, please adhere to the time you've been allotted just to give everybody that's still staying here that wants to speak an opportunity. Also remind people, you have the opportunity to go to the website and submit your comments as well.

Our next three speakers are Linda Langs, Ed Clifford, and Robert Stegmier. Please come up.

LINDA LANGS: Good afternoon. I'd like to give you a stretch break, I'm sure everybody needs it. My name is Linda Langs, I'm an entrepreneur, life-long entrepreneur. I own Upbeat Audio, which is a manufacturing firm. We produce little pocket amplifiers that motorcyclists love to use with their GPS and laptops. And I also own Ilume Media, and Ilume Media does public relations work and social media marketing, and I particularly worked with several clients that are in the clean energy field.

And what I would like to suggest is

needed is the Pure Michigan campaign's been brilliant, but we need another campaign that starts to make people aware of what's happening with renewable energy and what they can do, and we particularly need your organization to take a lead in creating a model that works. We could go into communities, and with the right incentives and with the right strategy, allow an entire community at one time to go through, rehab their houses, rechange the grid, put in solar panels, and do a complete change, and use that as a model throughout the state to help people start.

The thing is is that we have right now a number of green energy companies that are out there that are about ready to die on us, and that's because they can't get the order closed. And I have one client in particular that has a patented LED system that is out there for streetlights. This system is vapor enclosed, so it's almost non-destructible, you can drop it, it does not take a hit from anything, it goes 29 degrees below zero all the way up to 129 degrees, and it's 80-percent efficient in reducing costs of electricity. One hundred different presentations they have all over the country, and yet the people that are on committees and corporations at universities are not pulling the trigger, and it doesn't make sense. How when you can sit there

and have an 80-percent savings on your electric bill would you not do this? But people are fearful of change. And we need to start to create models that work.

The blueberry farmer from Grand Haven, wasn't that exciting to you? Didn't that just sit there and say, wow, I'm going to really look at solar energy again? Just as the folks that came up with the industrial wind towers made me sit back and say, wow, maybe wind isn't the way to go, or at least that type of wind tower energy. And we need you to take the lead. It's somebody at the state has got to start to push this.

It's great you want to have renewable energy, but you need to create models that work and get out there and beat the drums for these small companies that have, frankly, invested everything they've got to make this happen because that's what we said we wanted to do, but they don't have marketing money to do a statewide campaign that's going to show people and convince them this is the way to go. So that's what I would like to suggest to you. Thank you.

ED CLIFFORD: Hello. I'm Ed Clifford, I'm just a citizen, I have a couple of thoughts.

One thought is that the wind factories are out there are the wrong model. And I just want to emphasize that it's really not a farm, it's a factory.

And I always think of a city such as Gary, Indiana, which is no longer really a city anymore; if they a hundred years ago had put those steel mills inland, they would be a viable lakefront destination for the City of Chicago. And that's what the kind of thing you have to think about when you build something like a wind factory.

I think solar, individual solar is something to emphasize. And I think that's about it. Thank you.

ROBERT STEGMIER: Thank you for giving me this opportunity to speak. My name is Robert Stegmier, I'm a retired registered professional engineer in the State of Michigan, I live in Rockford.

I put solar on my house, my wife and I put solar on our house six years ago, that was $8.00 per kilowatt, but that's okay. I put it to fight against anymore pollution. I want to do my part to eliminate acid rain, mercury and all those things that comes from a coal-fired power plant. There is no such thing as clean coal. I don't think we'll ever see such a thing as clean coal.

I produced 37 -- we produce 37 -- the sun produces 37 1/2 percent of our electricity every year. That saves one and a half tons of carbon dioxide going into the air causing, you know, adding to global warming.

I believe global warming is the biggest issue we got.

I have three goals for the Governor, and I'm talking to the Governor, and you folks can carry it to him. Okay. One is put a moratorium on the fracking process, because that is, that energy, that oil and gas we may never have to use if we get going with our renewable energy. Polluting, I'm a member the Izaak Walton League, established in 1922, I've been a member since 1952; we're defenders of soil, air, woods, water and wildlife. We a year ago at convention put a call for a moratorium on fracking, water fracking. I'm also a member of Citizens for Responsible Renewable Management. They call for -- we're calling for a ban or moratorium, and we ask the Governor to do that or get that done.

My second goal for the Governor is to get 25-by-25 percent renewable energy commitment on the books, or 35-by-35. I get 35 percent of our electricity from the sun. And I think there was a mistake in that quote of one hour, all the energy; it's all of the energy that we now use for our automobiles, our diesel trucks, our electricity, all of our energy, one hour for a whole year.

And my third goal for the Governor is get those goals in place by July 4th this year.

STEVE BAKKAL: Thank you. We've got some

work to do, Chairman.

Our next three speakers are Chuck Tawney, Laura Roys, and Maggie Fitzpatrick.

CHUCK TAWNEY: Good afternoon. I'm Chuck Tawney, and I'm from Muskegon, Michigan. And those of you that know me on Facebook know that I posted an awful lot of pictures about Michigan, because this is a beautiful place, and I'd like to keep it that way.

In some ways it's appropriate that I'm dressed in black because I want to talk about two things, I want to talk about coal and I want to talk about natural gas.

Earlier it was shown that the costs of solar and wind are dropping. As a matter of fact, since 2005, the cost of solar has dropped 80 percent. Since 1990, wind in cost has dropped 90 percent. What was also mentioned by an earlier speaker is the fact that this past year, natural gas was about as cheap as we've ever seen it, $2.75 for a million Btu, but that may be the last time you see it at that price. As a matter of fact, projections are that by the end of 2014, natural gas will have gone up over a dollar per million Btu, and it's part of a trend. It's actually expected to hit $5.00-$6.00 within the next ten years. Coal, we all know that coal is somewhat expensive compared to what we have available,

including natural gas. Its price is going up because all the easily acquired coal is gone. The cost of mining coal is going up. Coincidently, so is the demand for coal, and that's going to continue for some time because of India and because of China.

Known coal reserves are an interesting thing. In the United States in 1975, we said we had about 400 years' worth of coal which we could depend upon. Today we say it's 240 years. We haven't used that much coal in that period of time; it's the fact that most of what we've regarded as reserves worldwide are too deep, too expensive.

So when we're talking about the status quo, I want you to keep in mind that while the cost of renewables is dropping, the cost of the status quo is going up today.

LAUFA ROYS: Hi. My name is Laura Roys, and I am a resident of Allegan County and a concerned citizen and mom. And I appreciate the opportunity to talk. I'm going to keep this short.

I have been affected -- the topic will be wind turbines. I'm directly affected by wind turbines, companies wanting to come into Allegan and putting up 400- to 500-foot tall structures. I got real educated real fast, and I also found, too, that money sure does

influence people, also township officials. With lease agreements, easements signed by officials making decisions on ordinances. I'm very disappointed about the money that follows the wind turbines and the fact that they are not efficient, they're not cost effective, and it takes a lot of subsidies to make it work.

I also want to say that the renewable energy standards, by forcing them to be at a higher rate in a shorter amount of time is not the answer. I think there's a lot of innovative people in this state, and I think that we do need to do more on an individual basis rather than trying to do it on a government or state level. I think it doesn't help putting the government in charge of pushing these kind of standards, especially when I read articles about wind turbines going off the road in Muskegon because they were so large and they came from a ship from Denmark, and I don't understand why not more of these parts weren't required to be made here in the United States.

So that's all I have to say. Thank you.

STEVE BAKKAL: Maggie Fitzpatrick. Looks like she left. Next three speakers, Jill Marcusse, Harvey Gendler and Dawn Goodwin.

JILL MARCUSSE: Hi. My name is Jill Marcusse, I live here in Grand Rapids.

My mouth is dry
For water untainted
By force or chemicals
Nitrates or undisclosed fracking agents.
For water that tastes of the ground
Not what we've poured into it, onto it,
Rammed through it.
I thirst for
Water huge as the Great Lakes
Powerful as an artesian well
Peaceful as a creek through cowslips.

In the energy arena, fracking is Michigan's most urgent issue. We need a moratorium on fracking. We can not ignore the dire environmental, economic and human health issues that are becoming known from other states that have been seriously compromised by fracking.

Clean energy does not contain a platform for using undisclosed carcinogenic chemicals and millions of gallons of water that then becomes contaminated. Water is Michigan's most valuable resource. It is our responsibility, our obligation to protect.

Our public lands are being leased to frackers. I find that outrageous. It must stop.

Our governor prides himself on being a

businessman. Fracking is not good business. It is short-sighted. What looks like quick, easy money will prove costly in the long run. Our agriculture and our recreational industry rely on uncontaminated water and land.

Pure Michigan, it must be more than a marketing slogan. Pure Michigan, it's our obligation, our responsibility.

HARVEY GENDLER: I guess you saved the best for last. It feels good to stand up. My name is Harvey Gendler, I'm a retired M.D. This is my take on fracking, and I'll try and keep it to what hasn't been said.

Is it worth risking our fresh water, air, and roads for an energy source that may last 20 to 30 years when renewable energy is clean and available now if we push its development? We won't need further natural gas development here in the USA for years with what we already have. Drilling wells isn't even profitable for domestic consumption. The gas companies want to export gas to Europe and China where they can get better pricing and make a quick buck.

Dr. Ingraffea, a retired geologic engineer, states that drilling is 98.5-percent safe. That means 1 1/2 accidents per 100 wells. This is taken

from industry records. If you drill thousands of wells, that represents a lot of accidents.

Aquifers are relatively shallow and highly interconnected. There is preliminary evidence that drilling has contaminated aquifers in the western states. Drilling puts a two- to four-mile defect in the earth's crust that will be there indefinitely. The hole and the plug have to stay reliably intact forever, and forever is a very long time.

We need to test well sites for, and cattle for toxins before, during and after drilling, and look for associated diseases. There is a large gap in our knowledge, and almost nothing being done to collect further data. When the industry says there is no evidence or cause and effect on the population, it is because there is little reliable data.

The same mentality that put tons of oil in the Gulf of Mexico and dumped tons of tar sand oil sludge into the Kalamazoo River is driving the gas industry. They should be asked to contribute to an environmental fund to clean up their many sites after the gas and oil gold rush is over.

I think we are heading for a huge global disaster, and fracking will hasten its arrival. We need a moratorium on fracking until current research can

provide data on the risks. We must demand renewable energy be developed as fast as possible. Thank you.

JOE BROWN: My name is Joe Brown, and I am the owner of Grand Rapids Compounding and Recycling Company. I am also the director of Conservative Christians for Cannabis Reform, and I'm here today to talk to you folks about hemp oil ethanol.

Let me see here. I'm going to be advocating today and lobbying for your support for industrial hemp legalization in our great state. Recently hemp legislation has reached the U.S. House under House Bill 525 and U.S. Senate Bill 359. This is a bipartisan bill that was introduced by a great republican and minority leader Mitch McConnell and Kentucky Senator Rand Paul.

For you that aren't informative about hemp, let me give you a few words here. There are 25,000 known uses for hemp, one just being biofuel. Henry Ford, the inventor of the Model T, rolled out his first 40,000 Model Ts off his assembly lines and made of hemp and ran on biodiesel hemp fuel that he grew in his own fields here in Michigan. He was an innovator and leader of our great state, and he knew the importance of renewable energy before the auto industry ever took off.

I'm here today to also inform you folks

hemp per acre would increase ROI, return on investment, for Michigan farmers almost by double from any comparative crop that we grow currently in the state. I'm basing this information on the ROI from 2012 comparing corn, biodiesel fuel per acre ratio to actual hemp per acre ratio that we know of in Canada at this time. I currently buy all of my hemp products from Canada, when they could be grown naturally as a resource here. It is a renewable energy source that's viable. This is a real industry, folks, this is bigger than the steel industry will ever be.

The reason that we came today, and I came to represent the Conservative Christians that I speak for in favor for this legislation in Michigan, we're trying to research the American farmer, the Michigan farmer. I mean what a great thing, we can grow hemp here, locally here in Michigan, help with the energy, renewable energy problems that we have. And the plant itself produces a reaction called phytoremediation, which is hemp, the hemp plant actually cleans the soil that our corn crops and our soy plants and all this have destroyed the soil, this process cleans that through hemp.

I'm sorry if I didn't speak too well today, this is my first time doing this, but you're going to see a lot of me and a lot of us around promoting hemp

in the state. We know our great governor can lead us in this legalization of hemp and this creating another industry in our state that we can all agree on, left and right. So thank you for your time. Thank you, gentlemen.

STEVE BAKKAL: Next three speakers, Charles Beale, Joe Ziolkowski, and Art Plefna.

Oops, did I call your name?

DAWN GOODWIN: You did. Hi. My name is Dawn Goodwin, I'm from Norton Shores, Michigan, and I'm here with the West Michigan Jobs Group. I'm also here as a mom and as a citizen, and I just want to thank you for hosting this and giving a chance for all of us to speak, and everybody's tired and ready to go home.

I'm going to digress from question 7 momentarily, I got to stick up for Joe Six Pack first. As of about a month from now, we will be a right-to-work state. Regardless, we still have a fantastic skilled labor force, and they are ready, willing and able to fill any construction or manufacturing job that clean energy brings our way. I find it strange that anyone would submit our economic status quo as an argument for energy status quo, but that's basically what was done.

So I'll move on to my pet topic, which is public health. I'm happy that we heard so much about

public health today, I thought that would be an overlooked cost in this equation, but seems like everybody's on top of it. I listened to Mr. Shineldecker, and I'm sorry, I missed the other speaker's name, talk about their health problems and issues with wind turbines in their neighborhood. It's no fun to have any chronic condition, much less several. I guess I would just ask him to talk to the parents of dead children who are just as convinced as he is that refineries, pipelines, gas wells, and hydraulic fracturing are responsible for their kids' cancer. If you Google cancer clusters and Google the locations of refineries, pipelines and gas wells, you're probably looking at the same map with different labels. There are bigger problems out there than tinnitus.

I wish I brought my four year old daughter with me today; she's four, she's battled cancer her entire life. Childhood cancer continues to rise in incidence. I could talk to you for days about the cost of that, but I only have minutes, so leave it to your imagination.

Developing our renewable energy capabilities will reduce pollution, it will give Michigan clean air and healthier air and water; ultimately, a healthier public. These are paramount for public health.

We have federal laws to protect both, yet the EPA has little power to enforce those laws, and the fossil fuel industries have loopholed them to death. We need to invest in clean energy, not hydraulic fracturing, not tar sands pipelines, not so-called clean coal that isn't very clean at all.

We've got 21 percent of the world's surface fresh water; we are stewards of Lake Michigan, it's 84 percent of North America's water. We've got to protect it.

And I'll try to wrap up with this thought. Texas. Texas leads the country in wind energy production. Texas is the land of oil and gas, but they see the writing on the wall. They've got both fists in federal subsidies. There's no reason that Michigan can't get in on that, and we should be getting in on that.

We need to look forward, not backward. We need to look for our public health future and not worry about short-term gains; there's too much at stake. Thank you for your time.

STEVE BAKKAL: Charles Beale, I called your name. Joe Ziolkowski. Art Plefna.

Robert Allen, John Kuiper, Stephanie Mabie.

ROBERT ALLEN: Wow, had to rewrite this a

couple times. Good afternoon, my name is Robert Allen. I'm an adjunct professor at Grand Valley and Muskegon Community College. I have a degree of environmental studies and graduate work in fresh water biology and ecology.

I was on the Sierra Club senior citizen bus that went to the Forward on Climate Rally in Washington, D.C. last week, and the air coming into the bus was dirtier than the air going out.

For the last decade I have tried to reduce my energy use during the winter by insulating the walls, wrapping and re-siding the house, insulating the pipes, caulking and glazing the windows, closing off certain rooms, ceiling and doors and thresholds, covering the windows with a plastic film and redressing them, buying Energy Star appliances, turning down the thermostat, reducing the flow of water, and wearing layers of clothes inside; however, no matter what I do, the price of energy keeps going up and up every year. With the increased cost of fresh water fracking, tar sands, deforestation and mountaintop removal, the prices will continue to increase.

We are currently enduring the fifth largest mass extinction in the history of the planet. The only way of reducing energy bills is to leave the

carbon footprint behind and to move forward with cleaner alternative sources of power.

Right now I'm saving money so I can put some solar panels on my roof and a windmill in my yard, but the time is near. In 2009, FDR capital markets predicted that the cost of rooftop solar panels would drop from 32 cents a kilowatt hour to 15 cents by 2012. I think we're way beyond that already.

Deep Water Horizon was anchored in 5,000 feet of water. Lake Michigan is 925 feet deep, with an average depth of 279 feet. It's about 30 miles wide, and the view from the beach is only a few miles. If an oil rig can be stabilized in 5,000 feet of water, a windmill can be stabilized in 925 feet of water, out of sight from the beach.

The more solar panels and windmills that are sold, the more efficient and cheaper they will become, the more energy prices will go down, the cleaner the air will be, and I can have panels on my roof and a windmill in my yard, and Michigan can export this technology just like automobiles. Thank you.

JOHN KUIPER: Good afternoon, or I should say evening. Thank you for staying. And because so many of my points have been made by others, I will be very brief. My name is John Kuiper, I'm here on behalf of the

Micah Center, a Christian justice organization, and I also work as an energy analyst and hertz rater with DwellTech Solutions.

I'm here to support energy efficiency and a move toward renewables. I'd like to -- and so many of my points have been made, I'm just going to give the conclusions.

The coal which we import, all of it, and two-thirds of our natural gas are imported; what is also exported along with that is our dollars. Let's keep the dollars at home.

Home energy efficiency is not just a state program, it is usually a decision that's made by a homeowner to do something to his or her home. And I have spent a fair bit of my time around kitchen tables with people trying to help them make those decisions, and too often the decision is not to make that correction, and there are many houses that have not made those steps yet; the icicles around our community attest to that.

So what needs to be done? One thing that was mentioned was we need a more common language for whether or not a home is energy efficient, a miles per gallon sticker, if you will, for a home. And there was a gentleman here earlier who mentioned the Btus per square foot per heating degree measurement, that doesn't take a

hertz rater and a long -- you don't have to pay someone $500 to give you that rating, that's just a calculation.

We also -- we need to continue the utility rebate programs; it is a very strong tool in helping people reach their efficiency goals.

For Michigan families with limited incomes, investing in energy efficiency may not be an option, and I'm going to be more detailed here. Weatherization programs are making a dent, but there are many more improvements to be made. Of particular concern are low-income renters of single-family homes that are paying their own utilities. The property owner may not be interested in making the investments in efficiency. In many cases the tenant entered the lease without knowing how much it would cost to heat, to heat and cool the place. The energy measurement that I talked about, if they knew how much -- if they had a miles per gallon sticker on the place when they rented it or when they bought it, there would not be as many appeals for home energy assistance.

And some Michigan houses have no cheap remedy. Asbestos-laden boilers and pipes, historic homes with old wiring in the walls can't get insulated until the more expensive work is done first. Perhaps we need a superfund for historic homes in order to alleviate those

places.

So let's recognize the reality of global climate change, let's put efficiency first, let's set a standard of comparison so owners and buyers know they can do better. Let's continue and expand utility rebate programs. Let's find creative solutions to fund weatherization incentives for historic homes, rental housing, and those with environmental hazards. Let's move on a path toward renewables so we can have a real reason to boast about Pure Michigan. Thank you.

BRIAN KEELEY: Hello, everyone. My name is Brian Keeley. Thank you very much for staying, and thank you very much for hosting this event today.

I find that more interactive presentations end up, or at least helping me more when I'm up here on stage, as well as I'm sure many of you, especially if you're staying this long, are just as informed on a lot of the issues or more informed than myself. So I kind of want to do, get a sense of, from this room, a general survey on the topic of high-volume high-pressure hydraulic fracturing. I'm actually very surprised, very excited to hear a number of people speak about that.

I grew up in Rockford, Michigan, born and raised, moved out to Baltimore for school, got a chemical

and biomedical engineering degree, and was working in that technology in cancer research before moving back home actually to get involved in this very issue because of how much I learned in research on the topic and realized how big, important and harmful and dangerous it is, as well as the daunting task that lies ahead in preventing it from expanding and exploiting our wonderful resources in the State of Michigan.

So with that, I'm still learning a lot, and one thing is going through the State of New York, which many of you are probably familiar, currently has a moratorium, as well as Pennsylvania, where we need to remember those who are currently being still devastated by the effects of hydraulic fracturing. Everything is very well documented and can be found online, but you do have to be careful on the sources and things that you look, as well as making sure you're checking on who's funding or if there's conflicts of interest in that research.

So for me and my research studies, first, if you guys don't mind by raising of hands helping me answer some of these questions to get a better demographic of those in this room, those who stayed this long, which looks maybe like a quarter of what was here earlier. But first and foremost, how many of you before

today had heard or knew of hydraulic fracturing? Fantastic, so looks like most of the room. I know that's definitely not a norm for a lot of the state or a lot of people that I've interacted with thus far in areas surrounding.

The next question is how many of you are aware of more than one potential harmful impact by hydraulic fracturing? So looks like another fair amount, number of that.

My other question of that, how many of you have spoken with local legislators or representatives in the state about hydraulic fracturing or raised questions to them? Okay. So a small number. That's one of the things that I'm hoping to be able to do is get people more aware, as well as to raise those questions to the legislature, because ultimately that's the only way we're going to be able to protect ourselves is by asking for that help from those that are able to do so.

The next is, how many of you have actually been to a well pad site? Very small number. So it also lets you know there are a few in northern Michigan, Casco County [sic] is a big one. Visiting those to learn more will give you a lot of information, as well as if you do trips through Pennsylvania, the injection wells in Ohio, or even further around the

country, that gives you a lot of information.

And those are just some of the questions that I have for today. I don't want to take anymore time. Thank you very much.

STEVE BAKKAL: Unfortunately we are running out of time, and we do have a number of speakers left. We have approximately time for four more speakers. For the rest of the speakers that requested to speak, I encourage you to go on the website and post your comments. We'll put your speaker cards there, if you want to on the website when you submit your comments, let us know you that came to the forum and submit your comments that way. I do apologize, we allotted for plenty of time, but this was probably twice as many speakers as we had in the last session in Lansing.

The next four speakers are Bill Krestakos, Sam Flanery, Kenneth Piers, and Dan Zimmer. If you guys can come up. Thank you.

SAM FLANERY: I'll make this very brief. I've got a presentation, a comment here that I'd like to submit. But basically I'm Sam Flanery, founder and owner of Building Science Academy. We're in Sparta, Michigan.

We have trained the majority of the contractors and companies in the State of Michigan on the energy auditing/energy efficiency change that Public Act

295 had an effect on their business. I've submitted a list of the contractors that are trade allies from every program. There's over 3,500 contractors that are currently supporting the EO program on the energy efficiency side.

I appreciate all the comments today relative to people's feelings and their opinions about the different varied topics. We must, however, come up with solutions. And I appreciate the opportunity today, but I also appreciate the energy optimization collaborative group, that we have an opportunity to provide input on finding solutions for these complex problems. We're a private company, for-profit company, and we committed to driving to Lansing once a month to participate in them programs, and we'll continue to do so with the EO collaborative to bring a private sector perspective of the things that are needed to do for energy efficiency.

There's a loading order in which we have to prioritize how we spend money, no different than in your budget at home. Right. Energy efficiency will actually fund renewable energy by reducing the Btu load on that building. We have to remember that loading order and remember that priority, because them were the first things we can do that will also, like I say, funding.

We were involved in the Michigan Saves program. We helped develop the standard for contractors, we helped design the programs, we had the contract to do quality assurance for the Michigan Saves installations, we did over 500 quality assurance audits on homes that had been fixed and insured that the homeowners were getting what they paid for. We have tremendous data from that.

We all have to be thinking about solutions, not problems. There's plenty of problems to go around, and we all have great concerns and we appreciate all of them concerns, but we have to find some solutions that we can all live with. We only have a limited amount of resources.

These utility programs and Better Building -- Better Buildings program, the State of Michigan wasn't even going to go after the Better Buildings grant. I called the EPA, the DOE and a group of people out in Washington, D.C. that I know said we have to, as Michigan, apply for this grant. We then in turn received that grant of $30 million, and that leveraged five-to-one for efficiency investment. If you look at the investment over the four years from 2012 to 2015, it is a billion dollars for just the utilities. That's leveraged five to one, that's $5 billion worth of

total investment. Efficiency for every dollar spent, we get $3.55 return. So you take that $5 billion times 3.55, you have over $17 billion in Michigan put into over the next three years energy efficiency and solving our energy problems here. We must work together.

I appreciate the opportunity to talk in this forum, and I appreciate the efforts of Rob Ozar and everybody else at the Commission. We work tirelessly every month to work on solutions, and that's what I would recommend all of us do. We all can find the problems; let's find the solutions.

I'm going to submit this information in my formal testimony about the economic impact and the number of companies that will be impacted by the energy optimization program. We built a tremendous infrastructure of contractors, let's keep that infrastructure vibrant. Let's build on that infrastructure.

We were asked to testify at the Senate Technology and Energy Hearing, and I brought five different, or eight different companies from Michigan, manufacturers, distributors and contractors. We represented over 400 new jobs created as a direct result of energy optimization 295. This should not be something that needs to be sustained, we have to find things that

the straight market-driven things will sustain this type of an initiative, and I know we can do it working together. Thank you for the opportunity today.

DAN ZIMMER: Hi. I'm Dan Zimmer, I live in West Olive, a little town between Holland and Grand Haven. I would like to speak to the energy future.

I am owner of a 5.5 kW grid tied net metered solar system. Looking for safety and certainty after the 2008 financial collapse, my wife and I made a decision to invest in solar, and in May 2011 installed solar system. We also purchased a Chevy Volt. To date our system has produced 12,479 kilowatts and reduced carbon emissions by 21,213 pounds.

Pragmatists look beyond the world as it is. Looking beyond the current monolithic status quo, the energy future I see includes homes, farms, small businesses with solar. With progressive political will and policy that respects capitalism, the private ownership to the means of production. Policy that gives citizens a place at the energy production table. A future when citizens' participation is encouraged and embraced by policy, and viewed as a cornerstone to problem solving. A future when solar PV is as common as a boat, a swimming pool, a jet ski. Policy that recognizes solar PV can integrate and support the grid,

providing peak solar output when peak demand for air conditioning and commercial refrigeration are the greatest. Policy that considers and values the return on investment in solar, the carbon reduction, curbing global warming and providing alternative to the two current dominant power utility producers. Policy that provides liquidity for SRECs, solar renewable energy credits, as the architecture for SRECs in Michigan is nonexistent. My confidence that the sun will shine outweighs the trust I have in Washington or Lansing to secure a renewable, sustainable energy future. With the responsibility of changing the status quo comes the assured certainty of offending those who have worked so hard to preserve it.

The time for action is now, the future demands it of us.

JOHN QUACKENBUSH: Wow, I'd like to thank all the speakers that we had today. I'd like to thank all of you in the audience that are still here, it's been a marathon session, I appreciate you sticking it out. We did cover a lot of useful ground. I just want to remind you that the website is going to have the slides that were presented today, it's going to have the presentations that were made today, we're going to have transcripts in approximately ten days on the website; we captured everything that was said today. And you can

always submit written comments on the website beyond what was said today.

And I do apologize, we weren't able to get to everybody, but we do have five more public forums, you're welcome to come to any of those. The next one will be March 4 at Delta College in University Center, and of course you can always submit those written comments.

So thank you very much, and have a good night.

(Proceedings concluded at 5:49 p.m.)

- - -

C E R T I F I C A T E

I, Lori Anne Penn (CSR-1315), do hereby certify that I reported in stenotype the proceedings held at the Michigan Energy Public Forum, at Grand Valley State University, Loosemoore Auditorium, 401 Fulton Street West, Grand Rapids, Michigan, on Monday, February 25, 2013; and do further certify that the foregoing transcript constitutes a true and correct transcript of my stenotype notes.

_____

Lori Anne Penn, CSR-1315

33231 Grand River Avenue

Farmington, Michigan 48336

Dated: March 6, 2013