



Division of Energy

**Public Meeting Report #7
Electricity Generation**

Missouri Comprehensive State Energy Plan

Stakeholder Engagement

October 30, 2014

Kirksville, Missouri

Truman State University, Student Union

BACKGROUND

Under Governor Jay Nixon's Executive Order 14-06, the Division of Energy will gather public input to identify the policies and practices that will meet Missouri's need for clean, affordable and abundant energy in the future.

This meeting represented the last of seven public meetings held around the State of Missouri to collect public input and feedback into the Comprehensive Statewide Energy Plan (the Plan).

The Plan will recommend policies that encourage efficient use of energy in all sectors of the economy; spur job creation and economic growth; and promote development, security and affordability of diverse energy sources.

The objectives of the meeting included:

- 1) To convene individuals who were appointed to the Plan's Steering Committee and develop a culture for dialogue;
- 2) Discuss opportunities and issues around the topic of electricity generation;
- 3) To introduce the background and purpose of the Plan to the public; and
- 4) To gather public input and comments around different energy topics.

AGENDA

The meeting was structured in four parts:

- 1) Introduction and welcoming remarks from Lewis Mills, Director of the Division of Energy.
- 2) Short presentations from experts.
- 3) Discussion among Steering Committee members.
- 4) Public comment period.

Agenda Details

- 1:00 PM Welcome and Introductions
Lewis Mills, Director, Division of Energy
- 1:15 PM Missouri's Comprehensive State Energy Plan
Lewis Mills, Director, Division of Energy
- 1:20 PM Electric Generation Panel Discussion
Biomass – Nancy Heimann, President, Enginuity Worldwide
Solar – Rick Hunter, President, Missouri Solar Industries Association
Wind – Steve Gaw, The Wind Coalition
Coal – Cartan Sumner, Jr., Vice President Global Advocacy Operations,
Peabody Energy
Natural Gas – Warren Wood, Vice President of Legislative and Regulatory Affairs,
Ameren Missouri
Energy Efficiency – Julia Friedman, Senior Policy Manager, Midwest Energy
Efficiency Alliance (MEEA)
- 2:00 PM Steering Committee Discussion
Topic: Electric Generation
Facilitator: Bennett J. Johnson, III, Inova Energy Group team
- 3:30 PM Break
- 3:40 PM Public Comment Period
Facilitator: Bennett J. Johnson, III, Inova Energy Group team
- 5:00 PM Adjourn

ATTENDANCE

Steering Committee Members

First Name	Last Name	Affiliation
Josh	Campbell	Missouri Energy Initiative
Jim	Curran	Electrical Connection
Mike	Downing	Missouri Department of Economic Development
Steve	Gaw	The Wind Coalition
Barry	Hart	Association of Missouri Electric Cooperatives
Mark	Hill	Missouri Office of Administration
Peter	Hofherr	St. James Winery

First Name	Last Name	Affiliation
Tracy	Howe-Koch	Missouri Interfaith Power & Light
Ron	Lankford	Missouri Department of Elementary and Secondary Education
Lisa	Lemaster	Missouri Department of Transportation
Laura	Lesniewski	American Institute of Architects
Karen	Massey	Environmental Improvement & Energy Resources Authority
Warren	Wood	Ameren Missouri
Sara	Parker Pauley	Missouri Department of Natural Resources
Robert	Reed	University of Missouri-Columbia
David	Russell	Missouri Department of Higher Education
David	Shanks	The Boeing Company
Terry	Smith	Hampton Alternative Energy Products
Rebecca	Stanfield	Natural Resources Defense Council
Jim	Turner	Sierra Club-Missouri Chapter
Dawn	Warren	State Emergency Management Agency
Loyd	Wilson	Missouri Department of Agriculture

Public Attendance

A total of 124 members of the public attended the meeting.

MEETING PROGRESSION

Welcoming Remarks

Lewis Mills, Director of the Division of Energy for the Department of Economic Development, welcomed Steering Committee members and the public to the meeting, presented the agenda for the meeting and invited comments from the public during the public comment period.

Mr. Mills then provided background information on Executive Order 14-06 and an overview of the planning process for the Comprehensive Statewide Energy Plan, including the timeline for development, and details on the public input process.

Presentations

Six different speakers were invited to present to the Steering Committee and the public on topics related to energy. The PowerPoint slides and video of presentations made at the meeting are available for viewing at <http://energy.mo.gov/energy/about/comprehensive-state-energy-plan>.

Title of Presentation: Enginuity Worldwide

Speaker: Nancy Heimann, President, Enginuity Worldwide

Summary: Ms. Heimann explained that Enginuity Worldwide is a commercial expert in materials/surface engineering, and they are dedicated to bringing biomass solutions for renewable energy that is both cost-effective and diverse. The main topic of Ms. Heimann's presentation was

how biomass is currently considered an agricultural product but needs to transition to an energy source.

Title of Presentation: Considerations in Determining the Role for Solar in Missouri's State Energy Plan

Speaker: Rick Hunter, President, Missouri Solar Industries Association

Summary: Mr. Hunter explained that Missouri as a state, contrary to popular belief, receives enough hours and days of sunshine to produce solar energy. Mr. Hunter acknowledged that while solar energy is not ideal for all applications, it does have a role in energy generation. In addition, he noted that solar was the fastest growing energy source in Missouri in 2013 and is a major economic force. Mr. Hunter then further discussed the vast benefits of solar.

Title of Presentation: Wind Energy and Missouri

Speaker: Steve Gaw, The Wind Coalition

Summary: Mr. Gaw discussed wind energy and its potential in Missouri. Mr. Gaw also elaborated on the significant job creation opportunities for wind energy industries in Missouri. He also mentioned that Missouri is currently behind other Midwestern states with regard to wind energy development and production. Mr. Gaw concluded by describing the many benefits of wind energy.

Title of Presentation: Advanced Energy - Missouri and 21st Century Coal

Speaker: Carter Sumner, Jr., Vice President Global Advocacy Operations, Peabody Energy

Summary: Mr. Sumner described the critical role that coal plays in terms of world-wide energy generation. Mr. Sumner described the widespread benefits of coal-produced energy including low electricity rates. He concluded by explaining how low cost energy positively impacts Missouri's competitiveness.

Title of Presentation: Natural Gas

Speaker: Warren Wood, Vice President of Legislative and Regulatory Affairs, Ameren Missouri

Summary: Mr. Wood explained that in the past natural gas was expensive, uncertain and risky. He further described how the United States is now one of the largest natural gas producers in the world with a large capacity for increased production. Mr. Wood discussed policies and regulations that need to be addressed as natural gas use for electrical generation is increasing.

Title of Presentation: Show Me Efficiency – Energy Efficiency in Missouri's State Energy Plan

Speaker: Julia Friedman, Senior Policy Manager, MEEA

Summary: Ms. Friedman discussed the reasons behind making investments in energy efficiency as well as trends regarding energy efficiency budgets, policies and codes throughout the Midwest. Ms. Friedman also discussed the relationship between the Clean Power Plan and energy efficiency.

Steering Committee Discussion

Bennett J. Johnson, III, with the Inova Energy Group team, facilitated the Steering Committee discussion around the topic of electricity generation. A synopsis of comments made by the Steering committee members follows:

- In light of the U.S. Environmental Protection Agency (EPA) proposed Clean Power Plan rule, thoughts were shared on Missouri's participation in regional compliance approaches and the need to establish communication lines between the utilities, Public Service Commissions, communities and the private sector. In addition, concerns were shared around EPA's building block 1 assumption on making power plants 6% more efficient and whether that is feasible. Observations were expressed regarding interstate lines and import/export of electricity and who gets to claim credit for clean energy that is generated in one state but used in another. Finally, concerns were shared from a utility perspective around the timeframe for meeting EPA's goals and potential costs associated with this aggressive timeframe. It was recommended that Missouri flip the ordering of the building block assumptions and maximize its use of building block 4 (energy efficiency) first, which would reduce the need for Missouri to rely as heavily on the more expensive building blocks to achieve compliance. It was noted that Missouri is one of only a few states without a building code; this would be the fastest and simplest way to get energy efficiency. It was also suggested to look beyond lighting with regard to energy efficiency. Pursuing building envelope improvements, operational efficiencies, and building and energy codes will produce significant savings. Industrial energy efficiency also provides for huge paybacks of up to \$5-8 per \$1 spent. ESCOs (energy services companies) can also assist in leveraging private dollars to fund efficiency projects.
- Conversation around nuclear energy, and options to look at small modular units. Insights were shared into high capital costs of these plants and also the fact that modular nuclear technology is still in the pilot stage and will likely not be deployed in the United States any time in the near future.
- Concerns from electric cooperatives around power reliability were raised.
- Thoughts around high penetration of solar energy and its impact on the grid: In Hawaii they have upwards of 30% penetration of solar (maybe closer to 50%) and with so many customers leaving the grid, utilities have an issue supporting the transmission and distribution systems. This is a problem in states like Hawaii with high solar energy penetration but not in Missouri where renewables have less than 1% penetration.
- Discussion around energy and transportation: There are opportunities available in the transportation sector as it relates to biofuels. Explore issues around traffic congestion and the carbon emissions that are generated from this sector. As transportation fuels move away from traditional sources, consideration must be given to the fact that transportation infrastructure is primarily currently funded through gasoline taxes. Opportunities for using right-of-ways for production of crops or for distributed generation were discussed.
- Clarification around issues and implications of using in-state versus out-of-state wind, and considerations of higher capacity factors that may exist in other states and costs of importing that resource into Missouri. Moving electricity between different Independent

System Operators' territories results in challenges and extra costs. Having DC lines that cross over these "seams" allows for electricity to be delivered over longer distances. Thoughts around the importance of the federal Production Tax Credit (PTC) on wind projects and production.

- Discussion around the possibility of using biomass in coal-fired operations. To reduce emissions, there is more potential and promise in pursuing 'carbon sequestration' above ground through fuel switching and co-firing with biomass rather than investing in experiential underground sequestration. There is a lot of research being done around ideal blend ratios and biomass use from different crops. Once policy objectives are established, resources can be developed and scaling challenges can be overcome. Utilizing land under wires and rights-of-way and public land could also be options to maximize yields.

Public Comment Period

During the public comment period a total of 16 individuals submitted verbal testimony to the Steering Committee and the Department of Economic Development. All comments were recorded and included in this report as Attachment 1.

ATTACHMENT 1 - Public Comments

October 30, 2014

Kirksville, Missouri, Truman State University, Student Union

The comments provided in this document do not represent a verbatim transcription of the comments received verbally and may incorporate some close paraphrasing on behalf of the record-keeper. Comments are not shown in the order in which they were received.

First Name	Last Name	Organization	Comment
Katherine	Macksville	Truman State University student; Kirksville resident	You are all leaders and I expect you to make smart decisions and I hope you listen to members of the public. As a physics major, I know it is not that hard to see that the earth is a finite resource and we need to be smart about it and see that long-term calculations need to be taken into consideration. It is not that hard to figure out that we need to make changes into the decades to come. And also please consider nuclear power because that is one of the best solutions to be clean and it is possible, even if it is a large upfront cost.
Michael	Kelrick	Truman State University professor	We have heard a lot of things today, and I want to thank the Steering Committee. It is a complex problem. I am trained as an ecologist so I'm speaking for my sense of appreciation of complexity. However, what I want to emphasize is that everything I've heard today in the discussions is representing various components of what I consider to be an epic phenomenon. We have been talking about human commerce but that is resting on a more fundamental commerce which is the rest of the atmosphere. I am a biologist and I have not heard anything said about any of the implications of any actions on the rest of the living systems. Here in Missouri we live in a largely rural environment where most of the economic activity is based on non-human species. I think it is foolish to not be considering the impacts of the energy plan and implications for the rest of the biosphere that we all depend on. What I would recommend is that at least in working group #4, that you give some thought around the impact that your decisions will have on the biosphere. I think the point is now made also by John Delurey. I was heartened to see that everybody is looking at the importance of renewables as one of the most benign options for the environment.

First Name	Last Name	Organization	Comment
George	Laur		The cost of coal emissions has an inherent health cost, disaster relief. It is impossible to make sound decisions for a Comprehensive Statewide Energy Plan when true costs are hidden in other sectors in the economy. The easiest way would be to put a price on carbon. The price we assign to it can't be too hard; REMI has completed carbon tax studies for California and Massachusetts to show how a carbon tax structure could be structured and not harm the economy. British Columbia has done this. It would protect consumers along the way by creating jobs and building environmentally sustainable communities. The easiest action to provide a solid foundation to the Plan is to ask Congress to pass a revenue-neutral carbon tax. I ask that the author of the REMI study present to the Steering Committee or consult with them. A well designed carbon tax nationally or in Missouri could definitely allow for compliance with the Clean Power Plan which would be good for the State. There are so many good ideas in this discussion but a good carbon tax would make all of these things possible.
Morris	McNabb	Truman State University alumni	Missouri's energy needs are very important and planning is a good thing. I don't want to offend anyone but your program schedule is somewhat backwards. I offer that the public comment time should have been first so that your people in attendance could hear various ideas before forming their own plans. Then, after the fact, hearing comments from the public, which is what you are doing. I very much hope they will not plan with high voltage electrical lines. There are significant downsides to this. By Ameren's own admission, the electromagnetic field will kill trees and may be harmful to animals. People too. Maybe people will be going to work morning and night under these wires, under the electromagnetic field with pacemakers and perhaps other devices. The electromagnetic field from 350,000 volts is very strong. Also property owners will pay a stiff price, by Ameren's own admission. Values will go down from 1 to 10% for the farms crossed. For easy math, taking 5% of 100 acres valued at \$2000 per acre gives a product of \$10,000. The Ameren example would, if allowed, result in a strip of land across Missouri 100 miles long which is of questionable nature, for man or beast. Please do not use high voltage power lines in your plans. Perhaps scattered generating facilities. These would be in less danger from terrorists too. Generate electricity near where it is to be used. Thank you.
Mike	Diel		I went to New York to be in the climate lobby with 40,000 other people, 25 hours on the bus and marching. I thought this was important enough because I am also scared of climate change; so many people don't think it is a problem at all. Something that worries me is that some people don't understand the situation of climate and weather. Whether a given day is hot or dry that is weather, and that has been stable. But the climate is changing and that is scary. I make an analogy between mood and personality. When personality changes it causes wild swings in your moods. A few years from now people will still be fighting with these issues.
Deborah	Games		I was disappointed to hear that Ameren is developing more megawatts in gas energy rather than in renewable energy. I wonder if the utilities return on equity is regulated, if it makes sense to incentivize utilities to be able to both please their shareholders and do what is best for the environment.

First Name	Last Name	Organization	Comment
Mike	Grimes	Commercial Energy Consultants	I represent 25 suppliers available in Illinois to reduce electricity and suppliers' rates. I have a chart: blue states allow for competitive suppliers, the gray states do not. Competitive suppliers bring generation from other sources and there is no cost to bring suppliers into the State and there is no cost to bring competition in and it is the true definition a 'negawatt' because it has zero cost. We talk about land use, and competitive suppliers use no land and they bring renewables. Competitive suppliers have 15-20% lower costs than states that are not competitive - which Missouri is. Nancy Heimann (president, Engenuity Worldwide) showed an example for suppliers. Illinois and Iowa had the lowest \$/kWh and those states allow competition. You talked about energy security and assurance and competitive suppliers spread the risk along existing suppliers and they also add to the abundant supply into the State. My personal opinion is that a Comprehensive Energy Plan should consider competition or you are literally missing the point. I suggest you allow competition into the State through deregulation.
Mr.	Wens		I installed my first solar system in Missouri in 2008, and 192 projects later, I have the satisfaction to keep doing that. I have come to appreciate the importance of our partners in the utility world and am also concerned about rapid change in our climate and the fact that in 25 years we need to get rid of greenhouse gas emissions. What I ask as a citizen of Missouri, is that I would like you all to go into working groups to think about long-term planning. Break the mold - like what Rick Hunter (president of Missouri Solar Industries Association) was saying before, you have solar on homes and on businesses but you also have opportunities for utilities to build large centralized facilities. I have been staring at measurement & verification results from commissioning at the O'Fallon solar plant. If you break off the generation part and allow people to build solar and not have these limitations of 100,000 watts and that they cannot overproduce, if we can figure it out, this would be valuable for people. I am also a member of a rural cooperative so I was glad to hear that my cooperative is thinking about community solar, and then in terms of little oil drops around the State we can see if it can happen. Maybe the role for the utilities to continue to deliver electricity, is to connect the different sources of generation to provide backup storage at the substation level.
Jay	Thompson		I hear you talking about using biomass as part of the use of coal (co-firing). My curiosity is if there is any initiative to go more renewable, something to insinuate that they want to go greener. I would think that it is simple that it is possible to move expenses. The more green they went the more costs are reduced. This makes sense to me.
Terry	Page		I came as a citizen. I am someone who moved to Missouri two years ago and I love the beauty and natural resources. We have world-class rivers, farmland, lakes and hunting. Right now some of this property is being jeopardized by the proposed Mark Twain transmission project, and I feel that this is a prime opportunity for Missouri to move in a direction of things like solar or small scale wind. People can put solar in their houses and I don't understand why we need to do these large projects that impact our environment but also people's lives. This would be a way to protect farms that people built over time.

First Name	Last Name	Organization	Comment
John	Delurey	Sierra Club	I am passing around our Sierra Club's 4-page brief about the Clean Power Plan and the four possibilities to comply with it. I want to do a quick reminder of why we are doing this. This is a way to serve the people; it's what the Governor does and what all of the Steering Committee should be doing. People want renewable energy and want clean energy options and they are afraid and worried and they need us to take leadership in these issues. We may not know how but we know it needs to happen. The Clean Power Plan is entirely feasible even if the final rule is slightly different than what is proposed now. What we have already proposed in terms of coal retirements, this is easy but it is not enough. We need to do a lot more to avoid environmental damage and issues coming down the pipeline. Hopefully you can look at this document and understand we need to be doing more for energy efficiency and renewable energy. It says that if we did the ambitious switch to energy efficiency we'll have millions of savings and jobs in Missouri. These are good jobs that Missourians will want for themselves and their kids. What we are proposing from the public is not a revolution but it is a radical transition.
Johnnette	Shane	Trinity Episcopal Church	I am an Episcopal priest and appreciated what Chloe had to say. I think my generation is being shortsighted if we think we can leave to the next generation this world in the condition it is in. If we are willing to pay for it, it may mean less corporate profits and higher energy costs, but it feels to me that we have a moral responsibility to pay those costs.
Chloe	Jackson	Truman State University student	I am 20 years old and wanted to provide an honest voice for what people may be thinking but don't have a voice to say it. I sat in Governor's Jay Nixon's office last year lobbying for a clean energy future. Our world, our country is becoming increasingly polluted and dangerous to live in. Some people in power may not feel the impacts of climate change like our generation will. I want my children to be able to have a good life. I love my state but to hear that 82% of what we use is coal is really terrifying. I think we are really behind other states and other countries. Climate change cannot be refuted. Coal ash causes asthma and cancer, and natural gas and coal are not clean sources of energy. So we need clean energy in Missouri that stays local and will create jobs. People in my generation care about the environment and if we had the money that large corporations had then we'd be a lot faster at arriving at a solution. At future meetings like this I'd like to see more people that are poor, more people of color, more people that are representative of the State.
Anna	Matheney		I am also very afraid and climate change is a very scary and real global problem. This proposal for a Clean Power Plan offers a local solution to a global problem and I feel strongly that Missouri can be part of the solution. This proposal makes me proud to be a Missourian and I encourage further action and to consider our generation and our fears.

First Name	Last Name	Organization	Comment
Lizbeth	Worth	Truman State University student	I am a student at Truman State. I am in full support of clean energy in Missouri and we need to move off of coal dependency. Like Chloe said, Missouri is dependent on about 83% of coal and that is causing a lot of health and environmental issues. Approximately 100,000 Missourians suffer from asthma, myself included, and more suffer from cancer and it is killing our residents. In Labadie, Missouri, there is a coal plant that is one of the dirtiest in the US and Labadie has the second highest cancer rates in the US based on environmental causes according to the American Cancer Society. We could move more to cleaner coal but this is not actually solving the problem because even then coal ash is still an issue. So, what I would like you to do is consider people that are suffering from these conditions before you take the corporate side of things into consideration.
Julia	Jackscott		I am a citizen, concerned about Missouri energy policy. I am new to Missouri and I never thought moving into a traditional rural community, that people would be interested in solar and wind energy. But people come to me all the time asking about solar panels and this is something I am getting for my own home and word of mouth is spreading and there is ton of interest. But the more I think about it the more I realize that those solutions are really compatible with people from Missouri. People who are hardworking, want independence and energy resilience and want to have control over resources in their lives. I think this is something that needs to be addressed and is perhaps a more viable solution if there was education and people connecting with resources and information that is accessible. Maybe tying some of those things would create community-based resiliency instead of creating a more centralized solution that is more vulnerable to rate hikes and climate change events and the uncertainty of energy markets.