
Division of Energy

Public Meeting Report #2
Energy Security and Assurance and Energy Storage

Missouri Comprehensive State Energy Plan

Stakeholder Engagement
October 9, 2014
Fort Leonard Wood Missouri
Mahaffey Museum Complex

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 second 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 meeting topics centered on energy security and assurance and energy storage. 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 topics of Energy Security and Assurance and Energy Storage;
- 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
Dr. Rebecca Johnson, Deputy to the Commanding General
U.S. Army Maneuver Support Center of Excellence (MSCoE)
- 1:15 PM Maneuver Support Center of Excellence Command Overview
Mark Premont, Chief, Plans, Analysis and Integration Office (PAIO)
- 1:25 PM Missouri's Comprehensive State Energy Plan and
An Overview of Energy in Missouri
Brenda Wilbers, Program Director, Division of Energy
Lewis Mills, Director, Division of Energy
- 1:40 PM Energy Security - U.S. Army Perspective
Alan Simpson, Chief, Plans, Analysis, and Integration Office (PAIO)
- 1:50 PM Cyber Security
Thomas Rice, Technology Planning/Cyber Security, Ameren
- 2:00 PM Energy Storage
Angela Rolufs, Missouri S&T
- 2:10 PM Steering Committee Discussion
Topic: Energy Security and Assurance
Topic: Energy Storage
Facilitator: Bennett J. Johnson, III, Inova Energy Group team
- 3:40 PM Break
- 3:50 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
Steve	Ahrens	Missouri Propane Gas Association
Dustin	Allison	Office of Public Counsel
Elizabeth	Bax	Hawthorn Foundation
Brad	Beecher	Empire District Electric Co.
Mike	Blank	Peabody Energy
Josh	Campbell	Missouri Energy Initiative

First Name	Last Name	Affiliation
Jim	Curran	Electrical Connection
Steve	Damer	Leggett & Platt, Inc.
Joe	Driskill	Leonard Wood Institute
Steve	Gaw	The Wind Coalition
Bill	Gipson	Missouri Southern State University
Peter	Hofherr	St. James Winery
Tracy	Howe-Koch	Missouri Interfaith Power & Light
Frank	Kartmann	Missouri American Water Company
Robert	Kenney	Missouri Public Service Commission
Ron	Lankford	Missouri Department of Elementary and Secondary Education
Vicki	LaRose	Transportation Engineers Association
Lisa	Lemaster	Missouri Department of Transportation
Laura	Lesniewski	American Institute of Architects
Karen	Massey	Environmental Improvement & Energy Resources Authority
Ken	McClure	Missouri State University
Randy	Moore	EaglePicher
Sara	Parker Pauley	Missouri Department of Natural Resources
Scott	Ramshaw	Plumbers & Pipefitters Local 562
Robert	Reed	University of Missouri-Columbia
Angela	Rolufs	Missouri University of Science & Technology
David	Russell	Missouri Department of Higher Education
Terry	Smith	Hampton Alternative Energy Products
Jim	Turner	Sierra Club-Missouri Chapter
Dawn	Warren	State Emergency Management Agency
Loyd	Wilson	Missouri Department of Agriculture

Public Attendance

A total of 41 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.

Presentations

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

Title of Presentation: Maneuver Support Center of Excellence Command Overview

Speaker: Mark Premont, Chief, Plans, Analysis and Integration Office (PAIO)

Summary: Mr. Premont welcomed the meeting attendees and provided an overview of the operations at Fort Leonard Wood.

Title of Presentation: Missouri's Comprehensive State Energy Plan and An Overview of Energy in Missouri

Speaker: Brenda Wilbers, Program Director, Division of Energy, and Lewis Mills, Director, Division of Energy

Summary: Ms. Wilbers provided an overview of Missouri's energy profile, including quick facts and figures, statistics around fuels and sources of energy used, and perceived challenges. In addition, Director Mills 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.

Title of Presentation: Energy Security - U.S. Army Perspective

Speaker: Alan Simpson, Chief, Plans, Analysis, and Integration Office (PAIO)

Summary: Mr. Simpson provided insight into the importance of energy security from the perspective of the U.S. Army. He further elaborated on a number of energy-related initiatives ranging from energy efficiency and renewable energy to energy reliability and assurance.

Title of Presentation: Cyber Security

Speaker: Thomas Rice, Technology Planning/Cyber Security, Ameren

Summary: Mr. Rice provided an update on the many initiatives that Ameren has undertaken with regard to cyber security and how the utility is working to mitigate potential risk.

Title of Presentation: Energy Storage

Speaker: Angela Rolufs, Missouri S&T

Summary: Ms. Rolufs provided an overview of the many types of energy storage technologies and also provided an overview of the University's demonstration project.

Steering Committee Discussion

Bennett J. Johnson, III, with the Inova Energy Group team, facilitated the Steering Committee discussion around the topics of energy security and assurance and energy storage. A synopsis of comments made by the Steering Committee members follows:

- Discussion on propane availability in the residential and agricultural sector, and using the plan to look at supply of this fuel.

- Discussion around biomass used as a fuel and opportunities for cellulosic ethanol.
- The Plan should be sensitive to price and cost-effectiveness and ensure that all customer classes and income levels have an option to maintain a quality of life for the future.
- Ensuring that energy efficiency is incorporated in the Plan as a cost-effective resource.
- Exploration of other topics including combined heat and power, energy storage, microgrids and distributed generation. Lessons learned from natural disasters on the East Coast and the ability of these technologies to expand and compete with existing electric generation.
- Discussion about the central electric grid, reliability and resilience, the role of regional reliability councils and state-level emergency exercises, utility energy assurance and planning requirements and responses/recovery from ice storms and the tornado in Joplin.
- Energy assurance is an important issue because of Missouri weather. Rural communities may be more vulnerable because of isolation and livestock needs.
- The effect of electricity disruptions on water and sanitation.
- Missouri's energy resources including lead, coal and renewable energy and the consideration of external costs, economic impacts and environmental risks.
- High energy performance in buildings which reduces energy use and increases security. Requiring energy efficiency in buildings is the most cost-effective approach.

Public Comment Period

During the public comment period, a total of 13 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 9, 2014

Fort Leonard Wood, Missouri, Mahaffey Museum Complex

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	Affiliation	Comment
Frances	Babb		<p>I live in Clarkson Valley Missouri. There are about 20 people in this room right now at this public hearing, but back in 2008, 66% of the voters—which is a lot more than 20 people, spoke their mind when they checked the ballot box for Proposition C in Missouri. Missourians want clean energy, and they are willing to pay for it every month out of their electric bill. That is something to be heard by this group. There are all kinds of roadblocks standing in the way—its key being solar throughout the state. The first one was the utility rebates. The next one is the reduction in the value of the solar renewable energy credits. Thirdly, there are all kinds of homeowner association rules, which are to turn people from moving forward with their solar projects.</p> <p>Roadblocks are standing in the way of solar. \$2/watt rebate, reduction in value of solar energy credit, zoning laws in communities. I request that you address solar issues. I shouldn't have to sue my city or subdivision to capture solar. We need clean energy.</p>
Mike	Grimes	Commercial Energy Consultants	<p>I'm a commercial energy consultant; I'm all for the environment. We need energy—so we might as well get energy from clean sources. I'm President and CEO of Commercial Energy Consultants who worked with about 400 million kilowatts in the State of Illinois. There's no reason in this day that it can't be deregulated, it'll just take a little bit of initiative. As a matter of fact, I submit to you if we get a comprehensive energy policy and it doesn't include any deregulation—by definition it's not comprehensive...give that some thought. And you know, literally—we have a poster child running across the river. Illinois started being deregulated in 1997; Missouri at the same time voted it down. The price of fuel and the price of electricity in Illinois was probably one of the top at about 11-12 cents, and is down to 4 cents in 16 years. They have saved \$37 billion dollars over the last 16 years due to deregulation. Missouri on the other hand, voted it down because the price of burning coal was pretty cheap at that point. But since then it has increased by 50%.</p> <p>We can deregulate the state and save everybody in Missouri; not the large customers, but the small costumers, by deregulating electricity and natural gas. I'll give you one quick example of how it works. We have a large corporation over in Illinois that was with the supplier of energy. He</p>

First Name	Last Name	Affiliation	Comment
			<p>went for a re-bid, he got bid up 20%; wasn't like he had to take it. He came to us, we did a reverse auction, had the supplier that bid him up 20% keep the account down to 1%. It's all about competition.</p> <p>By the way, speaking to security and storage, if you bring 30 suppliers to the state—guess what? You don't have three utilities taking all the risk. You have 30 suppliers helping with that risk. So it's all just one big game. Why not just open the state up and help the consumer, and help the companies at all levels save money on electricity and natural gas?</p> <p>The state needs to be deregulated. Illinois deregulated in 1997. Price of electricity has dropped in IL due to deregulation. Missouri voted it down and it has increased by 50%. Everyone in Missouri could benefit by deregulating. It's all about competition. Help consumer and companies save money. Why pay more for the exact same power?</p>
Doyle	Childers	Independent Consultant	<p>Going back into the early 70's I was teaching courses on energy crisis for almost 8 years. And many were talking about things that were evident even at that time. Over 20 years I worked on the Economic Development Committee and the Natural Resources Committee (in the Missouri Legislature) and ended up being the Director of the Department of Natural Resources, which at that time was responsible for energy. And looking at all these issues, there are two or three things I'd like to bring up.</p> <p>One is that the fuel base in Missouri is very, very tenuous. We can look at coal. How big of a supply of coal do we have to supply us if there was a disruption of coal supply? And that is already a problem right now with all the usage of trains. And so it will be a bit of a challenge to our coal supply. We look at propane from out of state. We look at everything except maybe a bit of hydro. Back in the 70's we were still producing our own coal for a large part of our generation. The other thing I wanted to talk about was, up in north Missouri that most people are not aware of, that there is a large biogas project. It started operating a few weeks ago, but in June of next year, that operation will generate something over 17 million gallons of natural gas. It will eventually have somewhere from 45-50 million gallons of production. It's just a pattern for what could be produced in the State of Missouri with renewable fuels.</p> <p>Also I mentioned I do consulting with a number of different companies including the biogas company, including the company that was mentioned from the Department of Agriculture. But today most of the perception on what lead is, is about 50 years out of date. Today mining technology for lead is so efficient in the amount that is removed. It really isn't a problem like it was in the past. Why I'm enthusiastic about lead is that it really makes it possible to power the electric car industry in the State of Missouri. When you look at the infrastructure we have here for car manufacturing, and they are going to produce high quality batteries, which today now a lot of them are lithium, but we don't produce lithium in the State of Missouri; there's a report on it.</p>

First Name	Last Name	Affiliation	Comment
			<p>We also have the largest recycling plant in the country—it's located in Missouri. All of these things go together to help support the generating system and infrastructure, which is a huge economic source in the State of Missouri. And also, by that reduction of electricity—we could actually have the jobs that support the issues that were brought up by the Public Counsel. In a way that could take care of those less fortunate members of society. Thank you.</p>
Mollie	Freebairn	Energy scientist	<p>I was able to download an earlier copy of e-GRID. Missouri power generation stations that are classified in coal, natural gas, nuclear, hydro, petroleum, wind, solar and bio as well. But, one of the issues that was of great concern was back in 2009 when the nuclear power plant was proposed—and I heard about it in the Sunday papers that the State Capitol had the widespread concern that we needed a nuclear power plant in order to keep the lights on.</p> <p>The nameplate capacity of all of our power plant supply is twice as much as what Missouri uses. So there's not a danger of Missouri running out of power generator capacity any time soon. But what you do see when you look at the percent of the usage of each of the plants is that they are very heavily relying on coal energy, and according on a source that I've seen recently—between 7 and 30% of our national jobs generation is all that is being used.</p> <p>Just by the fact that burning coal generates so many different types of toxins and pollutants, that it is truly a security issue in terms of global warming and the toxins to pollutants that are associated in many varieties— asthma, autism, heart disease, cancer and neurological diseases that we see throughout society. If you look at natural gas—as I mentioned, they are using natural gas to transition to renewables at a much higher rate.</p> <p>I have concerns about toxic materials from nuclear power plants. They don't have to be contained on site. They are not using them in a secure manner. And with global warming there is an increased frequency and intensity of a catastrophic event such as tornados. If a tornado event such as the Joplin tornado hit where a nuclear power plant is located, there is enough toxic radionuclides on site, that it could potentially spread and impact a 50- to 100- or over 100-mile radius around the plant.</p>
George	Laur		<p>I'm a group leader for the Citizens Climate Lobby of Columbia and Jefferson City. I recently saw an article from the New York Times concerning climate change.</p> <p>On June 21, 2014—former secretary of the U.S. Treasury in the New York Times article said the level of climate change imposes enormous risk for both our environment and the economy. You can do this by putting a price on carbon dioxide. http://www.nytimes.com/2014/06/22/opinion/sunday/lessons-for-climate-change-in-the-2008-recession.html?_r=0 On June 25, 2014 I lobbied Congress with Citizens Climate Lobby. Citizens and nearly 8,000 men—and we plan to double that in the next year. A number of businesses and corporations are supporting a carbon tax. The era of externalizing the cost from the issues, most costs are health implied. Without including the cost for carbon we'd be paying for it in other</p>

First Name	Last Name	Affiliation	Comment
			ways. With this Plan, we need the most cost-effective option on the table as a mechanism for accounting for these costs. Ask the Environmental Protection Agency (EPA) for guidance in the administration, location, price and escalation rate. However, regardless of what EPA does, Missouri's energy laws are important.
Jeffrey	Owens	Missouri Solar Applications	<p>13 Years ago I arrived here to join the Army in response to the attacks of 9/11. Three years later in my second deployment in Bagdad—I realized cheap oil should not be a reason to go to war. I experienced a lot of intense solar energy in Iraq, which motivated me to ask—why in this day and age aren't we using more solar energy? Didn't we make a commitment during the Carter Administration to switch to clean energy? A station in Germany had solar resource equivalent to Alaska's solar energy resource. I observed how easy it was for a first class economy to change course. On considering re-enlistment, I sent a message all the way to George Bush in the White House which received no reply.</p> <p>So today I return to Fort Leonard Wood having left the war on terrorism, instead enlisted as a warrior in the clean energy revolution. After 40 years—our nation's addiction to fossil fuel remains not only the biggest threat to our energy security, but our lack of action has now made climate change the greatest threat to humanity. We need to aim our sights on zero greenhouse gas emissions. In the war on climate change, Missouri has two silver bullets ready to lock and load—wind and solar.</p> <p>The good news is that by 2050 solar arrays will be half of what they are now. Missouri's energy costs will be reduced by \$30 billion annually, 4% of the state G.D.P. will be saved in healthcare costs, and last but not least—the equivalent of 100,000 jobs will be created in the process. I must agree that a carbon tax would be the most efficient way to reduce carbon emissions. Include a cost for carbon in your Plan. Exxon Mobil, Walmart, and American Electric Power are three examples of corporations calling for a price—putting a price on carbon is their long-term financial system. Do not leave Missouri vulnerable to this free market correction. Take action now to eliminate our addictions to fossil fuels once and for all. Practice safe energy in the Show Me State—and be a leader in whatever way possible.</p>
Jerry	Plunkett	Advanced Military Equipment	<p>I've been working on doing some research and development and seeing it with materials. I know a lot about energy because I worked for mostly large companies. I'll give you the first Congressional testimony in 1972—on diversifying community research and development programs in the United States.</p> <p>The subject is so complicated you folks have signed on—or been invited to a lunch where you have to eat an elephant for lunch! It's not very easy to do—it is complicated because it's a big cobweb of facts. And here today for example—there's no one grid in the United States—there's</p>

First Name	Last Name	Affiliation	Comment
			<p>actually three. There's one on the East coast, one on the West, and one in Texas. Furthermore, there's not a distinction made which is absolutely critically important, between energy and heat.</p> <p>Now, the other thing I'll point out that there has not been nearly enough discussion here today on is cost—because I was all for, and I was mistaken I thought there was a prospect for wind, solar heat, and other renewable energy forms. However, if you look at the cost in the United States, I can tell you from that experience, we made money every year, we operated successful and those cost 60 million dollars—and it worked. And we wrangled in a lot of operating data that we protected for. At that time we were charging 12.6 cents per kilowatt-hour, and we did think—awesome! But coal people were charging about 2 or 3 cents per kilowatt-hour for electricity coming in from other places from the Pacific Northwest.</p> <p>Now I made a mistake because I thought there was more potential than there is—and I spent a lot of time and effort. Now, I'm going to go on to another topic. I just want to say the future is R&D. If you make mistakes in here you can put Missouri out of the competition in the United States. Thank you.</p>
Tom	Sager	Great Rivers Environmental Law Center	<p>I'm a retired professor of computer science at Missouri Science & Technology. I want to thank you all for serving on our committee and for opening up your big needs to the public. I'm requesting that Missouri promote the development and escalation of non-polluting renewable energy. Particularly solar and wind. These are the most secure of all generating technologies. Because of their small-distributed nature, a loss of any particular solar panel or wind turbine will have little effect on the electrical grid as a whole. Because of their non-polluting nature the catastrophic failure of the solar panel or wind turbine will be unlikely to cause any kind of significant pollution or damage to property. Solar and wind are amongst the fastest growing power generating technologies for this, and other reasons.</p> <p>Now in 2008, the people of Missouri passed 2 to 1 a proposition demanding the use of non-polluting renewable energies in Missouri...and so far we have failed them miserably. Proposition C is not being implemented as the voters passed it—and we need to do better! Much better!</p> <p>Now, let's talk about some other technologies. There's no security in nuclear technology. Any natural disasters could push radiation to a wide area. Three Mile Island bears witness. Nine years ago Ameren's Taum Sauk storage facility experienced catastrophic failure. Now I ask what if this had been Ameren's Callaway nuclear plant instead? We would have miles and miles of Missouri territory essentially uninhabitable. There is no security in our continued use of coal, oil and natural gas!</p> <p>It's well established; burning fossil fuel is a one single maker-contributor to the climate change issue. Now here in Missouri, we had a catastrophic drought in the summer of 2012 and a devastating tornado in Joplin in 2011. And Missouri has been very lucky so far! California is in a</p>

First Name	Last Name	Affiliation	Comment
			<p>three-year-long mega-drought, with no sign of it fading. Pakistan—almost every year experiences catastrophic floods! We are very lucky we are in Missouri! But no one can say what the future holds. Now, if we are going to have a comprehensive energy plan—we better learn how to get away from burning fossil fuels—and as a remark for the Army, you better learn some other way besides flying bombing runs over Iraq and Syria. Every bombing run over Iraq and Syria contributes to global warming, contributes to tornados, hurricanes, droughts and floods.</p>