MISSOURI HOUSE OF REPRESENTATIVES

REPORT OF THE INTERIM COMMITTEE ON

ENERGY AND ENVIRONMENT

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MISSOURI HOUSE OF REPRESENTATIVES
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December, 2001

The Honorable James Kreider, Speaker
Missouri House of Representatives
State Capitol, Room 308
Jefferson City, Missouri 65101

Dear Mr. Speaker:

Pursuant to your charge, your Interim Committee on Energy and Environment gathered information from a variety of sources during the fall. The committee heard public testimony at hearings conducted in Jefferson City on October 11 and 12, 2001, in St. Robert on October 23, 2001, in St. Joseph on November 15, 2001, and in St. Louis on November 19 and 20, 2001. In conjunction with these hearings, the committee also visited Fort Leonard Wood and toured coal- and gas-fired power plants near Joplin, Weston, and Portage Des Sioux.

There was widespread interest and concern about several energy and environmental issues, including future supply and demand for electricity, energy conservation, use of ethanol, biodiesel, and other alternative fuels, potential impacts of deregulation of electricity markets, and air quality permits for Fort Leonard Wood. The committee expresses its gratitude to the Missouri Department of Natural Resources Energy Center, the Missouri Public Service Commission, the Missouri Office of the Public Counsel, and to all the utilities and other businesses, associations, and citizens who provided vital information and assistance. The committee is also grateful to the United States Army, the Empire District Electric Company, Kansas City Power and Light, and Ameren UE, who graciously provided thorough tours of their facilities. The committee has formulated several recommendations. Enclosed herein is our report.

Sincerely,

Maurice Lawson

Maurice Lawson, Chair

INTRODUCTION

Recently, the nation and the state have witnessed considerable volatility in prices for gasoline and natural gas. Concerns over the availability of certain fuels and electricity has also been discussed widely. Volatility in prices, uncertainties in some fuel and electricity supplies, and the recent crisis in California have focused the nation's attention on energy issues, and led to calls for a national energy policy. Selected environmental issues are also common topics for discussion among regulated businesses, the general public, and state and federal agencies.

In response to widespread interest in these topics, in September, 2001, the Honorable Jim Kreider, Speaker of the Missouri House of Representatives, appointed an interim committee to examine selected energy and environmental issues. Members of the committee were Representative Maurice Lawson, Chair (D-29, St. Joseph), Representative Frank Barnitz, Vice Chair (D-150, Lake Spring), Representative Lanie Black (R-161, Charleston), Representative Melba Curls (D-41, Kansas City), Representative Jeneé Lowe (D-44, Kansas City), Representative Gary Marble (R-130, Neosho), Representative Peter Myers (R-160, Sikeston), Representative Bill Ransdall (D-148, Waynesville), Representative Rex Rector (R-124, Harrisonville), Representative Neal St. Onge (R-88, Ballwin), and Representative Philip Willoughby (D-33, Gladstone). This report includes an analysis based on information received from state agencies, utilities and other businesses, citizens, associations, and other groups, and the committee's findings and recommendations.

TESTIMONY AND MAJOR ISSUES

The committee heard public testimony at hearings conducted in Jefferson City on October 11 and 12, 2001, in St. Robert on October 23, 2001, in St. Joseph on November 15, 2001, and in St. Louis on November 19 and 20, 2001. Testimony was received from state agencies, utilities, citizens, and other groups (see Appendix A).

The committee also toured training facilities at Fort Leonard Wood near St. Robert on October 22, 2001, the gas-fired State Line Combined Cycle Power Plant near Joplin and the coal-fired Iatan Power Plant near Weston on November 14, 2001, and the coal-fired Sioux Power Plant near Portage Des Sioux on November 20, 2001 (see Appendix B).

The following summary statistics and major issues emerged from the testimony and site visits:

Summary Energy Statistics for Missouri

The Department of Natural Resources Energy Center and several utilities provided summary energy statistics for the state. Missouri spends approximately $12 billion annually on energy, and, because 95% of all primary energy sources are imported, most of that money leaves the state's economy. Energy consumption can be divided among several sectors, including transportation (35%), residential (24%), industrial (22%), and commercial (19%). Consumption can also be divided among energy sources, including petroleum (42%), coal (37%), natural gas (15%), nuclear power (5%), and others (1%). Demand for energy is increasing faster than population growth; in the last decade, energy demand increased nearly 8%, while population increased only 3%.

Currently, the primary fuels included in Missouri's electrical generation capacity of nearly 17,000 megawatts include coal (65%), gas (15%), oil (7%), nuclear (7%), hydroelectric power (6%), and very small amounts from solar and wind generation. The proportion of generation capacity fueled by natural gas is increasing with time. Nationally, 88% of planned new generating capacity will use natural gas. Electric service in Missouri is provided mostly by investor-owned utilities (70%). Municipal utilities provide approximately 13% and rural electric cooperatives about 16% of Missouri's electric power.

In addition to being used to generate electricity, natural gas is used as the primary heating fuel in 60% of Missouri households. Utilities supply 83% of all residential and commercial natural gas, but 86% of industrial use bypasses utilities and is purchased directly. As noted above, use of natural gas for electrical generation, especially to meet peak demands, is increasing. This increased use is expected to place additional pressure on supplies and may affect prices. Missouri produces no natural gas; all is imported through pipelines.

Approximately 12% of Missouri households heat with propane. Overall, propane users are distributed across the residential (60%), industrial (30%), and commercial (10%) sectors.

Propane is a byproduct of crude oil and natural gas production and its price is therefore influenced by the prices of these commodities.

Unlike most primary fuels, petroleum use is not broadly distributed among different consumption sectors. Nearly 80% of petroleum consumed in the state is used for transportation.

Meeting Future Demands For Electricity

Representatives from several utilities noted that in many parts of the country, development of facilities for generating and distributing electricity has not kept pace with increases in demand. Most transmission systems are designed to handle local needs and are not well-suited for moving power around the country. The generation infrastructure is aging and demand is predicted to continue to grow at 2% per year. With current trends, Missouri will be faced with increasing reliance on power purchases from out-of-state suppliers. Increasing energy conservation and use of alternative energy sources is important, but will not be sufficient to fully offset the need for new generation and transmission facilities.

The utilities noted that fuel diversity is important in meeting the state's demand for electricity. Relying on a diverse mix of fuels reduces the risk of widespread interruptions in supply related to availability of a particular fuel, equipment failure, weather, or labor strikes, and allows options in meeting demand that can avoid price spikes and reduce costs. Ultimate fuel choice for any particular situation depends on construction and operating costs. Coal is well-suited for meeting base load requirements because, although capital cost of plant construction is relatively high, plants are designed for continuous operation, operating costs are low, and there is an abundant, stable supply of coal. Natural gas is well-suited for meeting peak demand because, although operating costs are higher than coal-fired plants, construction costs are lower and the plants are well-suited for short operating periods.

Most utilities predicted that base load demands will continue to be handled by coal-fired plants, nuclear plants, combined cycle gas-fired plants, and some power purchases. Ideal planning goals usually include a targeted reserve capacity of approximately 14%. Most of the nearly 5,000 megawatts planned to be added to the state's generating capacity by 2003 will be fueled by natural gas, increasing its proportion of the state's capacity. Utilities are developing cleaner coal technology and more efficient gas-fired generation.

Several witnesses from utilities noted that regulatory uncertainty makes new construction financially difficult for investor-owned utilities. With regard to construction of new coal-fired power plants, financing would be made easier if regulatory decisions involving rates were in place before the plant was constructed rather than the current practice of determining allowable rates after construction. The current practice creates too much uncertainty for investors for the 5- to 7-year plant construction period. These witnesses also supported streamlining the permitting process and creating incentives for construction of new generation facilities.

With regard to transmission, witnesses from utilities supported the federal plan to move to regional transmission organizations, and believed it will result in a more efficient, cost-effective transmission network. Current regulatory uncertainties have decreased interest in construction of new transmission facilities by investor-owned utilities.

Energy Conservation

The Missouri Department of Natural Resources Energy Center noted that increasing energy efficiency with better insulation, passive solar designs, and more efficient appliances, motors, and lighting can reduce the need for new energy sources and lessen energy expenditures currently leaving the state's economy. The environmental impacts of energy production are also reduced, as is our vulnerability to supply disruptions and price volatility. The Electric Power Research Institute estimates that 22 to 44% of U.S. electrical consumption could be saved with conservation measures, and that implementing these measures has the potential to displace the need for a significant number of power plants. Efficiency improvements are also cost effective, averaging 2 to 3 cents per kilowatt hour, while new power plant construction costs average 4 to 5 cents per kilowatt hour. There are also financial benefits related to reduced environmental impacts and reduced stresses on transmission and distribution systems. Among 34 states studied by the Alliance to Save Energy, Missouri ranked 5th in terms of potential for savings from increases in energy conservation. Large gains could be achieved from the implementation of a state energy policy that gives significant attention to improvements in energy conservation.

Other witnesses noted that reductions in demand associated with improvements in energy efficiency are also the only way to reduce CO_2 emissions. The practicality of energy conservation was demonstrated during the recent crisis in California.

With regard to increasing energy conservation in the transportation sector, a witness representing the automobile industry noted that any changes in the federal Corporate Average Fuel Economy (CAFE) standard are problematic. Many popular vehicle models would be eliminated, and Missouri assembly plants, which mostly make these larger vehicles, would be severely impacted. Hybrid gasoline-electric engines are a better alternative for significant reductions in fuel use and air pollution.

Alternative Energy Sources

Several witnesses noted the importance and practicality of alternative fuels for transportation. Witnesses from the Missouri Corn Growers Association stated that renewable fuels like ethanol are good for the environment, boost rural economies, keep energy dollars within the state, and reduce dependence on foreign energy sources. They also described groundwater pollution problems associated with use of MTBE as an oxygenate for reformulated gasoline, and noted that ethanol is a better oxygenate because it produces none of these environmental problems. Automobile manufacturers like General Motors are developing engines that can use fuels containing up to 85% ethanol. In Missouri, there are two ethanol plants

currently operating and three more planned, resulting in adequate production capacity to meet demand.

In contrast, although the Petroleum Marketers and Convenience Store Association does not oppose the use of alternative fuels like ethanol, it does oppose all state and federal fuel mandates, including a state or regional ethanol mandate. The proliferation of fuel types that results from a patchwork of mandates restricts fuel supply, increases distribution problems, and increases fuel prices. An ethanol mandate would also impact highway funding because of tax reduction incentives currently in place for ethanol.

A witness from the Missouri Soybean Association noted that biodiesel fuel made from soybeans is non-toxic and does not require vehicle modifications. Increasing use of biodiesel would stabilize soybean prices, boost rural economies, reduce air pollution, and reduce dependence on foreign oil. Use of biodiesel in vehicle fleets in the state is increasing, primarily because of federal alternative fuel requirements.

With regard to use of alternative energy sources for the generation of electricity, Utilicorp is meeting some demand with a 110-megawatt wind farm in southwestern Kansas. The 170-turbine facility is owned by Florida Power and Light Company, and all the output is purchased by Utilicorp. Ameren UE has studied wind power potential within Missouri, but found that there are only two potential sites, and winds are poorest during the summer when peak generation needs are greatest. One witness suggested that providing for net metering for small electric generating systems that use alternative fuels may increase the development of these systems. Diversified, dispersed alternative energy sources are also less subject to terrorist attacks than large, centralized facilities.

Most witnesses agreed that the development of cost-effective alternative energy sources will take time and require financial incentives that should be available to individuals as well as businesses. One witness stated that the traditional energy sources of coal, oil, and gas have been subsidized in the past and that now is the time to subsidize alternative energy sources and improvements in energy conservation. The Missouri Corn Growers Association supports funding financial incentives for in-state ethanol production facilities. Existing laws requiring use of ethanol and other alternative fuels in state vehicles should also be properly enforced. The Missouri Soybean Association praised legislation passed last year that created incentives for using biodiesel in school buses and allowed the sale of federal energy credits for using biodiesel, and recommended establishing an incentive fund for the construction of production facilities and extending the new generation tax credit to include biodiesel production plants.

Deregulation of Electrical Utilities

The Missouri Public Service Commission described recent problems with high rates and unplanned outages in California following deregulation of retail electric markets. Price and supply problems were caused by a combination of market distortions, economic misunderstanding, inadequate preparation, and greed. Construction of in-state generation

capacity and transmission facilities had not kept pace with demand, and a drought in the Pacific Northwest reduced hydroelectric generation. Further, existing in-state generation relied heavily on natural gas, creating unusually high demand for gas and resulting in high fuel prices. Generators, however, also withheld electric power to increase prices and operators of gas pipelines increased charges to create unnaturally high prices for electricity. Threats of re-regulation tended to reduce prices. Construction of more generation and transmission facilities could have reduced impacts, but construction had been delayed because regulatory uncertainties created financial questions about returns on investments. Resulting economic impacts were severe for the state.

The Missouri Office of the Public Counsel supported continued regulation of electric utilities and discussed complications that can arise in moving from a regulated to a deregulated environment. Safeguards should be in place to ensure reasonable rates, reliability, and safety. Deregulation has not resulted in lower rates where it has been implemented, and cannot be expected to do so, especially in low-cost states like Missouri. Volatility in rates has also increased after deregulation. Transmission constraints and a small number of large wholesalers prevent the wholesale market from being truly competitive and make it ripe for manipulation. Restructuring should not occur unless there is an adequate transmission network, adequate generation capacity to ensure competition, and adequate safeguards to prevent abuse of market power by large operators. Better options than restructuring for meeting future demand include increasing generation capacity, increasing energy efficiency, and implementing demand response programs like real-time pricing and interruptible power arrangements.

Rural Air Quality at Fort Leonard Wood

Many witnesses raised concerns over the requirements of air quality permits associated with Military Police School Tactical Vehicle Training and Chemical School Smoke Obscurant Training at Fort Leonard Wood. The fort's original air permit to regulate smoke training was issued in 1995. A new permit was issued in 1999; it added regulation of tactical vehicle training and considered fog oil smoke and dust from vehicles as particulate air pollutants. The new permit also required use of model simulations to predict emissions. The model is very conservative in its dispersal assumptions and tends to over-predict environmental impacts. To meet permit requirements, training must be conducted during weather conditions that minimize the duration and effects of smoke, conditions that are directly opposite those required for realistic training. Activities are often severely curtailed even though two years of actual monitoring data show no deterioration of air quality. Most personnel do not receive adequate smoke training.

Many witnesses noted that the fort's training missions are vital to the nation's military preparedness, and that having these and other missions at the fort are vital to the local economy. All believed that the current air quality permit imposes unreasonable requirements and that the training does not create a threat to the environment. Continued impairment of current training missions could result in the fort not receiving additional training schools during the next round of military base closings in 2003. Several witnesses recommended that actual air quality monitoring data be used in place of model simulations to develop more reasonable permit

requirements.

The Air Conservation Commission has recently granted a six-month variance that allows vehicle training to proceed while a separate permit for dust associated with that training is developed. The commission also granted a one-year variance that allows for study of fog oil emissions. Fort Leonard Wood asked that road dust from vehicle training be exempted from permit requirements, and that the fog oil emissions study be continued for a second year to collect monitoring data that can be used to develop more accurate permit requirements that allow proper smoke training.

FINDINGS AND RECOMMENDATIONS

The committee recognizes the complexity of many of the energy and environmental issues discussed during our hearings and expresses its gratitude to the Missouri Department of Natural Resources Energy Center, the Missouri Public Service Commission, the Missouri Office of the Public Counsel, the United States Army, the Empire District Electric Company, Kansas City Power and Light, Ameren UE, and to all the other utilities, businesses, associations, and citizens who provided vital information and assistance. The committee recommends the following actions:

1. Federal and State Energy Policies

Reliable energy supplies are imperative for economic growth in Missouri. Increasing energy demands and concerns over the reliability of energy supplies point to the need for proper planning. The lack of a national energy policy makes the country vulnerable to economic insecurity and the demands of foreign energy sources. The federal government should be encouraged to develop a bipartisan national energy policy that specifically outlines future energy objectives. The state, in turn, should develop a state energy policy that follows guidelines enumerated in the federal energy policy and in the energy-related recommendations below.

2. Future Energy Demands

The development of facilities for generating and distributing electricity has not kept pace with increases in demand, which is predicted to continue to grow at 2% per year. Generation infrastructure is aging and most transmission systems are designed for local needs rather than for moving power around the country. With current trends, Missouri will be faced with increasing reliance on power purchases from out-of-state suppliers. Increasing energy conservation and use of alternative energy sources is important, but will not be sufficient to fully offset the need for new transmission networks and generation facilities that use traditional fuels. The state's future generation needs will be best met with a diverse mix of fuels. The state should develop and implement incentives to encourage the construction of new generation facilities that use a variety of fuels. Incentives to develop a more efficient, cost-effective transmission network should also be implemented.

3. Energy Conservation

Energy conservation measures, including improved insulation, passive solar designs, and more efficient appliances, motors, and lighting, have been shown to be cost effective and have the potential to displace some of the need for new energy sources. Energy conservation can also reduce energy expenditures, lessen the environmental impacts of energy production, and decrease our vulnerability to supply disruptions and price volatility. The development and implementation of energy conservation measures should be continued and encouraged when the measures can be accomplished in a cost-effective manner. The federal Corporate Average Fuel Economy (CAFE) standard for vehicles should not, however, be tightened beyond current criteria. Changes in this standard have the potential to severely affect the automotive industry in Missouri, with resulting widespread negative impacts on the state's economy.

4. Alternative Fuels

Alternative transportation fuels like ethanol and biodiesel have already demonstrated their potential to improve rural economies, keep energy dollars within the state, decrease our dependence on foreign energy sources, and reduce pollution. Other alternative energy sources may become viable in the future. Full development, production, and use of cost-effective alternative energy sources will take time and require financial incentives. The state should continue to explore and implement incentives for the development of alternative fuel sources, especially for those fuels made from in-state renewable sources.

5. Air Quality at Fort Leonard Wood

Recent national events have highlighted the country's need for a strong, well-trained military. Fort Leonard Wood's training missions are vital to the nation's military preparedness, and having these and other missions at the fort are vital to the economy of the region and the state. Current conditions imposed by the fort's air quality permit for Military Police School Tactical Vehicle Training and Chemical School Smoke Obscurant Training do not allow for adequate training. Proper training can be provided while reasonable environmental protection for the region is maintained. The Missouri Air Conservation Commission should develop appropriate modifications to the fort's air quality permit to allow personnel to receive the training needed to be fully prepared for their vital missions.

APPENDIX A

SUMMARY OF INDIVIDUAL TESTIMONY
(* = also submitted written materials)

I. JEFFERSON CITY, OCTOBER 11 AND 12, 2001

1. Tom Green -- Missouri Public Service Commission*

Mr. Green discussed recent problems with high rates and unplanned outages in California following deregulation of retail electric markets. Price and supply problems were caused by a combination of market distortions, economic misunderstanding, inadequate preparation, and greed. Construction of in-state generation capacity and transmission facilities had not kept pace with demand, and a drought in the Pacific Northwest reduced hydroelectric generation. Further, existing in-state generation relied heavily on natural gas, creating unusually high demand for gas and resulting in high fuel prices. Generators, however, also withheld electric power to increase prices and operators of gas pipelines increased charges to create unnaturally high prices for electricity. Threats of re-regulation tended to reduce prices. Construction of more generation and transmission facilities could have reduced impacts, but construction had been delayed because regulatory uncertainties created financial questions about returns on investments. Economic impacts were severe for the state.

2. Martha Hogerty, Ryan Kind -- Missouri Office of the Public Counsel*

Ms. Hogerty and Mr. Kind supported continued regulation of electric utilities and discussed complications that can arise in moving from a regulated to a deregulated environment. Safeguards should be in place to ensure reasonable rates, reliability, and safety. Deregulation has not resulted in lower rates where it has been implemented, and cannot be expected to do so, especially in low-cost states like Missouri. Volatility in rates has also increased after deregulation. Transmission constraints and a small number of large wholesalers prevent the wholesale market from being truly competitive and make it ripe for manipulation. Restructuring should not occur unless there is an adequate transmission network, adequate generation capacity to ensure competition, and adequate safeguards to prevent abuse of market power by large operators. Better options than restructuring for meeting future demand include increasing generation capacity, increasing energy conservation, and implementing demand response programs like real-time pricing and interruptible power arrangements. Missouri has a particularly high potential for reducing demand by increasing energy conservation.

3. Brenda Wilbers -- Missouri Department of Natural Resources Energy Center*

Ms. Wilbers provided a summary of energy statistics for Missouri, including data on energy consumption, primary energy sources, prices, and potential benefits of increases in energy efficiency and use of renewable energy sources. Missouri spends approximately $12 billion annually on energy, and, because 95% of all primary energy sources are imported, most of that money leaves the state's economy.

4. Craig Nelson -- Ameren UE*

Mr. Nelson noted that in many parts of the country, development of facilities for generating and distributing electricity have not kept pace with increases in demand. Most transmission systems are designed to handle local needs and are not well-suited for moving power around the country. The generation infrastructure is aging and demand is predicted to continue to grow at 2% per year. With current trends, Missouri will be faced with increasing reliance on power purchases from out-of-state suppliers. Increasing energy conservation and use of alternative energy sources is important, but will not be sufficient to offset the need for new generation and transmission facilities. Regulatory uncertainty, however, makes new construction financially difficult for investor-owned utilities. Ameren UE supports streamlining the permitting process for new construction, encouraging the formation of regional transmission organizations at the federal level, and establishing better cost-recovery mechanisms and other incentives to encourage expansion of facilities within the state.

5. Burton Crawford -- Kansas City Power and Light

Mr. Crawford noted that Kansas City Power and Light currently has a 16% power reserve. In response to changes in the wholesale electricity market, the company has recently restructured to be comprised of subsidiaries that include a regulated utility, a generation company for the unregulated wholesale electricity market, and others. Federal plans are to establish regional transmission organizations, but regulatory uncertainties over this issue have decreased interest in construction of new transmission facilities.

6. Mike Palmer -- Empire District Electric Company*

Mr. Palmer discussed Empire District Electric Company's progress in enhancing security and constructing new, efficient, low-emission generation facilities. Recent rate determinations have allowed adjustments for fuel and purchased power and for the construction of new regulated generation facilities. Empire District supports streamlining the permitting process for new facilities and creating incentives for construction of new generation and transmission facilities.

7. Gary Marshall -- Missouri Corn Growers Association*

Mr. Marshall noted that recent high energy prices have increased costs for farmers. These costs can be offset somewhat by income from renewable fuels like ethanol. At the national level, MTBE is being phased out as an oxygenate for reformulated gasoline because it is a significant groundwater pollution threat. The capacity to produce ethanol from corn continues to increase and production should be able to met demand as a replacement for MTBE. The Missouri Corn Growers Association supports funding financial incentives for in-state ethanol production facilities. Existing laws requiring use of ethanol and other alternative fuels in state vehicles should also be properly enforced.

8. Tom Verry -- Missouri Soybean Association

Mr. Verry noted that biodiesel fuel made from soybeans is non-toxic and does not require vehicle modifications. Increasing use of biodiesel would stabilize soybean prices, boost rural economies, reduce air pollution, and reduce dependence on foreign oil. Use of biodiesel in vehicle fleets in the state is increasing, primarily because of federal alternative fuel requirements. Legislation passed last year that created incentives for using biodiesel in school buses and

allowed the sale of federal energy credits for using biodiesel has been helpful. Establishing an incentive fund for the construction of production facilities and extending the new generation tax credit to include biodiesel production plants would further aid the development of readily available, competitively priced biodiesel fuel.

9. Ed Wallace -- General Motors Corporation*

Mr. Wallace stated that General Motors supports the development of engines that can use alternative fuels like E-85. Hybrid gasoline-electric engines also have the potential for significant reductions in fuel use and air pollution. Federal changes in the Corporate Average Fuel Economy (CAFE) standard, however, are more problematic. Many popular vehicle models would be eliminated, and Missouri assembly plants, which mostly make these larger vehicles, would be severely impacted.

10. Steve Ahrens -- Missouri Propane Gas Association

Mr. Ahrens noted that propane is used for heating and appliances in residences, and is also used in agriculture, industry, and in some alternative fuel vehicles. Use of propane is not regulated as a utility, and prices and supplies in the state are currently in good condition. Households that use propane for heating are eligible for low-income assistance programs. The Missouri Propane Gas Association would like the current December 12th application deadline for these programs moved to an earlier date.

II. ST. ROBERT, OCTOBER 23, 2001

1. Ken Miller -- Laclede Electric Cooperative

Mr. Miller noted that Fort Leonard Wood is a major economic factor in the region, and that any operational hindrances caused by inappropriate air emissions permitting procedures could have a significant impact on the local economy. Military personnel should also be afforded the opportunity for proper training.

2. Bradley Willard -- Willard Asphalt and Quarries

Mr. Willard noted that Fort Leonard Wood has become the site of additional missions as bases in other areas have closed. The fort has prospered because of its excellent long-term management, including concern over environmental matters. Current permits for both the fort and Mr. Willard's quarry are inappropriate because they assume full operation every day. There is also an inconsistency in that trucks traveling on dusty county roads do not require permits, but trucks with the quarry and trucks operating on the fort's roads are included in permit criteria.

3. Merle Jones -- Citizen

Mr. Jones stated that current air permit requirements do not allow proper smoke training, and that it is inappropriate to send personnel on real missions if they have not been trained to acceptable standards. Current training needs would not have a negative impact on the environment. Most of the emission sources in the permit are trucks operating on gravel roads, and the same traffic on county gravel roads is not regulated.

4. Randy Becht -- Citizen

Mr. Becht, who lives immediately east of Fort Leonard Wood, stated acreage within the fort provides adequate buffer zones between training areas and surrounding lands. Road dust and use of mineral oil in training are not environmental threats. The issue is not just local because it involves providing proper training for people charged with the protection of the entire country.

5. Norman Herren -- City of St. Roberts

Mr. Herren stated that smoke training on Fort Leonard Wood is not an environmental threat, and that proper training must be allowed.

6. Charlotte Wiggins -- Citizen

Ms. Wiggins noted that if proper training is not allowed at Fort Leonard Wood, the fort may not receive additional training schools during the next round of military base closings in 2003. The current permit is based on an overly strict interpretation of the minimal impacts of road dust and mineral oil smoke training. A better measure of actual impacts could be gained by switching from the use of air quality models to actual air quality monitoring results.

7. Tom Tinsley -- City of Waynesville

Mr. Tinsley noted that Fort Leonard Wood has an excellent record of working well with the community. The city has never had a complaint of dust from the fort, and proper training should be allowed to proceed.

8. Keith Pritchard -- Citizen

Mr. Pritchard lives near Fort Leonard Wood and noted that the fort has an excellent record of maintaining high environmental standards. Proper training is critical to the fort's mission, and should not be impeded by invalid concerns.

9. JoAnn Sumner -- Fort Leonard Wood Regional Commerce and Growth Association*

Ms. Sumner stated that the Regional Commerce and Growth Association supports changing Fort Leonard Wood's air permit to allow for proper training. More appropriate permit requirements will also allow the fort to obtain additional training missions as other bases around the nation are closed or realigned. Training missions are important for local creation of jobs and can be accomplished without harming the environment.

10. Dwayne Cartwright -- Intercounty Electric Cooperative Association

Mr. Cartwright noted that Fort Leonard Wood has a major economic impact on the area. Proper training should be allowed to proceed and will not have any significant environmental impact. Road dust is worse on many county roads.

11. Bill Sellers -- Citizen

Mr. Sellers stated that Fort Leonard Wood has been a good neighbor to the community and has a significant economic impact on the entire state. The environmental concerns over smoke training are not valid.

12. James Smith -- U.S. Army Fort Leonard Wood

Mr. Smith noted that the conditions delineated in Fort Leonard Wood's air permit are currently in litigation, and the latest changes are pending before the Air Conservation Commission. Appeals to the circuit court are possible.

13. William Laughlin -- Canyon Country Development LLC

Mr. Laughlin noted that the area has a dust problem along county roads, but has no significant impacts from Fort Leonard Wood. He is currently developing land bordering the fort, and air quality permit conditions could impact business development and expansion. Decisions should be based on actual monitoring data, not on air quality model simulations.

14. Virgil Flanigan -- University of Missouri - Rolla

Dr. Flanigan provided technical information on smoke training and discussed plans to replace the currently used smoke with a cheaper, locally produced, biodegradable soy-based product. This should reduce particulates, as will Fort Leonard Wood's plan to increase the use of biodiesel fuel in vehicles. He also discussed the shortcomings of the current air quality model used for the fort's air permit, and stated that field data are superior to model simulations.

15. Kent Ledbetter -- Citizen

Mr. Ledbetter noted the good environmental record of Fort Leonard Wood, and stated that there should be a careful evaluation to ensure that the current environmental assessment used in the fort's air quality permit is accurate and meaningful. Local gravel roads produce more dust than operations within the fort, and the limestone dust produced is not a significant health hazard.

16. Jack Fincher -- Citizen

Mr. Fincher stated that proper, realistic training at Fort Leonard Wood is critical to the nation. The training does not produce any significant environmental threat and should be allowed to continue.

17. Emily Brown -- U.S. Army Fort Leonard Wood*

Ms. Brown explained how Fort Leonard Wood's current air permit does not allow for proper smoke training. It also has impacts on other training in that any training that generates any dust or smoke must be alternated with smoke training. Air quality monitors show no differences between training and non-training days, but the model used to develop permit conditions predicts differences. The model is extremely conservative in its dispersal assumptions and tends to over-predict impacts. The model also assumes maximum training occurs each day; in reality smaller exercises usually take place.

III. ST. JOSEPH, NOVEMBER 15, 2001

1. Joseph Bahr, Steven Murray -- Utilicorp United*

Mr. Bahr and Mr. Murray described Utilicorp's 20-year supply planning, which considers reliability, cost stability, and environmental responsibility. Current demands are met with owned generation (72%), purchase contracts (20%), and spot market purchases (8%). Future plans

include meeting most base load requirements with coal-fired plants and combined cycle gas-fired plants, and meeting peak demands with gas-fired combustion turbines. Planning goals also include a targeted reserve capacity of 14%. Current purchase contracts are set to expire in several years, resulting in a shortfall of capacity by 2005. Replacement power sources are being sought now. Some demand is being met by a 110-megawatt wind farm in southwestern Kansas. The 170-turbine facility is owned by Florida Power and Light Company; all the output is purchased by Utilicorp. With regard to transmission, Utilicorp supports the federal plan to move to regional transmission organizations, which will result in a more efficient, cost-effective transmission network.

2. Drue Duncan -- Ameren UE

Mr. Duncan stated that Ameren meets its base load demand with coal fired plants (70%), nuclear plants (26%), and hydroelectric generation (4%). Peak load demands are handled by gas-fired plants. The company has studied wind power potential within the state, but found that there are only two potential sites, and winds are poorest during the summer when peak generation needs are greatest. Base load demands will continue to be handled largely by coal-fired plants. The company is developing cleaner coal technology. The financing of new coal plant construction would be made easier if regulatory decisions involving rates were in place before the plant was constructed rather than the current practice of determining allowable rates after construction. The current practice creates too much uncertainty for investors for the 5- to 7-year plant construction period.

3. B. J. Bailey -- Missouri Corn Growers Association

Mr. Bailey described problems with groundwater pollution associated with use of MTBE as an oxygenate for reformulated gasoline. Ethanol is a better oxygenate because it produces none of these environmental problems, boosts rural economies, keeps energy dollars within the state, and reduces dependence on foreign energy sources. There are two ethanol plants currently operating in the state and three more planned, with adequate production capacity to meet demand. Incentives for ethanol production should continue to be funded so that development of this resource will continue.

IV. ST. LOUIS, NOVEMBER 19 - 20, 2001

1. Richard Voytas, Drue Duncan -- Ameren UE*

Mr. Voytas and Mr. Duncan discussed the importance of fuel diversity in meeting the state's demand for electricity. Fuel diversity reduces the risk of widespread interruptions in supply related to fuel availability, equipment failure, weather, or labor strikes, and allows options in meeting demand that can avoid price spikes and reduce costs. Currently, Missouri's electrical generation capacity of nearly 17,000 megawatts is fueled by coal (65%), gas (15%), oil (7%), nuclear (7%), and hydroelectric (6%). Ultimate fuel choice for any particular situation depends on construction and operating costs. Coal is well-suited for meeting base load requirements because, although capital cost of plant construction is relatively high, plants are designed for continuous operation, operating costs are low, and there is an abundant, stable supply of coal. Natural gas is well-suited for meeting peak demand because, although operating costs are higher

than coal-fired plants, construction costs are lower and the plants are well-suited for short operating periods. Most of the nearly 5,000 megawatts planned to be added to the state's generating capacity by 2003 will be fueled by natural gas, increasing its proportion of the state's capacity to 31%.

2. Ronald Leone -- Missouri Petroleum Marketers and Convenience Store Association*

Mr. Leone noted that the Petroleum Marketers and Convenience Store Association does not oppose the use of ethanol, but does oppose all state and federal fuel mandates, including a state or regional ethanol mandate. The proliferation of fuel types that results from a patchwork of mandates restricts fuel supply, increases distribution problems, and increases fuel prices. An ethanol mandate would also impact highway funding because of tax reduction incentives currently in place for ethanol.

3. Brenda Wilbers -- Missouri Department of Natural Resources Energy Center*

Ms. Wilbers noted that Missouri spends approximately $12 billion annually on energy, and, because 95% of our fuel is imported, most of that money leaves the state's economy. Increasing energy conservation with better insulation, passive solar designs, and more efficient appliances, motors, and lighting can reduce the need for new energy sources and keep money within the state. The environmental impacts of energy production are also reduced, as is our vulnerability to supply disruptions and price volatility. The Electric Power Research Institute estimates that 22 to 44% of U.S. electrical consumption could be saved with conservation measures; implementing these measures has the potential to displace the need for a significant number of power plants. Efficiency improvements are also cost effective, averaging 2 to 3 cents per kilowatt hour, while new power plant construction costs average 4 to 5 cents per kilowatt hour. There are also financial benefits related to reduced environmental impacts and reduced stresses on transmission and distribution systems. Among 34 states studied by the Alliance to Save Energy, Missouri ranked 5th in terms of potential for savings from increases in energy conservation. Large gains could be achieved from the implementation of a state energy policy that gives significant attention to improvements in energy conservation.

4. Carla Klein -- Sierra Club

Ms. Klein stated that concerns over energy supply, energy costs, and the environment must be balanced. Improving energy conservation and use of alternative energy sources can play an very important role in meeting future needs and reducing environmental impacts. Improvements in energy efficiency are cost-effective with current technology and have the potential to reduce demand significantly. Reductions in demand are also the only way to reduce CO_2 emissions. The practicality of such measures was demonstrated during the recent crisis in California. The development of cost-effective alternative energy sources will take time and require financial incentives that should be available to individuals as well as businesses. Traditional energy sources of coal, oil, and gas have been subsidized in the past; now is the time to subsidize alternative energy sources and improvements in energy conservation. Providing for net metering for small electric generating systems that use alternative fuels may be an important incentive. Diversified, dispersed alternative energy sources are also less subject to terrorist attacks than large, centralized facilities.

APPENDIX B

SUMMARY OF SITE VISITS

I. FORT LEONARD WOOD, ST. ROBERT, OCTOBER 22, 2001

The committee was briefed on environmental issues at Fort Leonard Wood, with particular emphasis on air permit requirements. The committee also observed Military Police School Tactical Vehicle Training and Chemical School Smoke Obscurant Training.

Fort Leonard Wood's original air permit to regulate smoke training was issued in 1995. A new permit was issued in 1999. That permit added regulation of tactical vehicle training, and considered fog oil smoke and dust from vehicles as particulate air pollutants. The new permit also required use of model simulations to predict emissions. The model is very conservative in its dispersal assumptions and tends to over-predict environmental impacts. To meet permit requirements, training must be conducted during weather conditions that minimize the duration and effects of smoke, conditions that are directly opposite those required for realistic training. Activities are often severely curtailed even though two years of actual monitoring data show no deterioration of air quality. Most personnel do not receive adequate smoke training.

The Air Conservation Commission has recently granted a six-month variance that allows vehicle training to proceed while a separate permit for dust associated with that training is developed. The commission also granted a one-year variance that allows for study of fog oil emissions. Fort Leonard Wood asked that road dust from vehicle training be exempted from permit requirements, and that the fog oil emissions study be continued for a second year to collect monitoring data that can be used to develop more accurate permit requirements that allow proper smoke training.

II. STATE LINE POWER PLANT, JOPLIN, NOVEMBER 14, 2001

The committee toured this 500-megawatt, combined cycle, natural gas-fired power plant constructed and owned by Empire District Electric Company (60%) and Western Resources (40%). Construction of the first combustion turbine began in 1993, a second combustion turbine had been added by 1997, and combined cycle technology employing a steam turbine was completed in 2001. The combined cycle technology increased the plant's efficiency by 35%. The plant is designed for intermediate load operation of 4,000 to 6,000 hours per year. Coal and nuclear plants still carry the region's base load requirements.

When compared to coal-fired plants, natural gas plants have the advantages of relatively short construction times, lower capital costs, and fewer uncertainties with regard to required air emission controls. They have the disadvantages of higher operating costs and uncertainties with regard to future natural gas cost and supplies.

III. IATAN POWER PLANT, WESTON, NOVEMBER 14, 2001

The committee toured this 670-megawatt coal-fired power plant jointly owned by Kansas City Power and Light (70%), UtiliCorp United (18%), and Empire District Electric Company (12%). Construction began in 1975 and was completed in 1980. The plant burns approximately 2.4 million tons of low-sulfur Wyoming coal annually in its single-reheat boiler. High-, intermediate-, and low-pressure steam drive the plant's turbine. The plant is required to use low-sulfur coal and electrostatic precipitators, but, because of its construction date, is not required to employ scrubbers, selective catalytic reduction, or a bag house. On a new plant, these pollution control devices would add approximately $120 million in construction costs.

IV. SIOUX POWER PLANT, PORTAGE DES SIOUX, NOVEMBER 22, 2001

The committee toured this two-unit 960-megawatt coal-fired power plant owned and operated by Ameren UE. The plant was placed in service in 1967 - 1968. The plant burns approximately 10,000 tons of coal per day at full generating capacity, and maintains a 60 to 75 day supply of coal onsite. Both Wyoming and Illinois coal are used. Because of its high-temperature cyclone boiler, the plant is also permitted to burn shredded tires, and consumes nearly 3 million tires per year. These tires displace approximately 25,000 tons of coal. Ameren UE fossil fuel plants were awarded the 1998 Governor's Pollution Prevention Award for reducing NO_x emissions more than 50% below permit requirements. Strategies to achieve additional reductions are planned, including use of selective catalytic reduction or equivalent technology. If implemented, selective catalytic reduction would cost $55 million per unit to build and $5 million annually to maintain.