ENVIRONMENTAL QUALITY COUNCIL

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ENVIRONMENTAL QUALITY COUNCIL
ENERGY POLICY SUBCOMMITTEE
MINUTES

Date approved: *

January 13, 2004 Room 102, State Capitol Building

Please Note: These are summary minutes. Testimony and discussion are paraphrased and condensed. Exhibits for this meeting are available on request.

COMMITTEE MEMBERS PRESENT

SEN. DANIEL MCGEE, CHAIR
SEN. WALTER MCNUTT
SEN. GLENN ROUSH
SEN. KEN TOOLE
REP. NORMA BIXBY
MR. TOM EBZERY

STAFF PRESENT

TODD EVERTS, Legislative Environmental Analyst

AGENDA

Attachment 1
Visitors' List

* These minutes were completed after the interim recessed and were not approved by the subcommittee.

COMMITTEE ACTION

- Agreed to hold a work session to discuss in detail the advantages and disadvantages of promoting different types of alternative energy and other issues.

CALL TO ORDER AND ROLL CALL

Sen. Dan McGee called the EQC Energy Policy Subcommittee to order. The chairman noted the roll.

ADOPTION OF MINUTES

Sen. McGee moved that the minutes of the October 8, 2003 meeting be adopted. The motion carried by voice vote.

HYDROGEN FUEL PANEL DISCUSSION

Mr. Everts introduced the hydrogen fuel panel. The first panel member, Dr. Paul Williamson, Dean of the University of Montana, College of Technology, would be giving an overview on hydrogen basics and Montana hydrogen fuels development. Mr. Bob Evans of the National Renewable Energy Laboratory would be participating via telephone and discussing the national status of hydrogen fuels research and development. The last panelist would be Mr. Jeff Serfass, the President of the National Hydrogen Association. He would inform the subcommittee about what is happening regarding state and national policy development related to hydrogen.

- **Dr. Williamson, University of Montana, College of Technology**

Dr. Williamson noted he has traveled all over Montana and talked to between 2,500 and 3,000 people and has been impressed with the acceptance and excitement for hydrogen fuel development. He directed the subcommittee to his handout (Exhibit 1—not available) and noted that when he came to Montana two years ago to become Dean of the College of Technology, he started looking at ways that he could contribute in his job, and that search led him to look at hydrogen. He said he then realized that he couldn't separate issues with hydrogen from the Montana economy as a whole. They are inextricably tied together. Dr. Williamson said he believed that Montana's energy economy is out of step, out of touch and off course and the state is out of money. He added Montana doesn't have any apparent cohesive economic focus, direction or plan for expansion. The state has failed to attract businesses and create quality jobs. Montana lacks value added products. It continues to export raw materials to bolster other state's economies. Montana is facing extensive brain drain and youth exit because there are no jobs to support the youth who want to remain here. He remarked, in his opinion, the state is technologically and policy challenged. The College of Technology and the other colleges around

the state do not have the technology they need to train students. The colleges need more technology and the policies to support it. He believes much of what is happening is because minority voices are overshadowing the majority's will. Looking at it more broadly, he sees the whole infrastructure of Montana devolving: health services, education, community services, communications, transportation, energy transmission and some others. None are getting better, they are feeding off each other to stay alive.

Dr. Williamson continued, noting that looking at the whole U.S., he sees three major issues: security, energy and the environment. Montana holds a solution for itself and the nation. He believes that solution is alternative energy and hydrogen. Montana has unmatched economic and energy potential: renewable resources including wood, wind, solar, water, biomass and geothermal; and natural resources including coal, oil, gasoline, diesel, natural gas, propane, methane, ethanol, platinum, carbon and off-peak power.

Dr. Williamson added that the hydrogen economy is the common denominator for all this energy. If the state gets into a hydrogen economy, it will affect every person and influence every community in the state. It will create jobs in every locale.

How do the components of a hydrogen economy work together? Dr. Williamson remarked that all the state's energy resources feed into a hydrogen economy. That activity in turn creates good jobs and businesses ----> a positive cash flow -----> more opportunity and economic development.

He continued that the hydrogen economy is the most pervasive initiative of this age. Moving to a hydrogen economy would be an even greater accomplishment than walking on the moon because it will change all the sociological, petrochemical, economic and environmental standards in society.

He explained that in Montreal, hydrogen is discussed as the currency of the future. Hydrogen is the most plentiful, nonpolluting, inexhaustible element that exists on earth. It harnesses polluting fossil fuels, enhances national security, brings added value to Montana resources, attracts quality technical jobs, meets increased energy demands, requires no transmission lines, is safer than conventional fuels and can be transported by truck, rail and pipeline.

The earth's energy continuum. Dr. Williamson remarked that in the past, the first fuel source was hay, then wood, then coal. He added that as humans move into the future, they will move more into natural gas, alternative fuels and hydrogen. As the time continuum advances, pollution decreases. Hydrogen is an energy carrier, not an energy source and can be extracted from a lot of sources. The hydrogen is then saved and carried to someplace else where it is used.

He noted, for example, in a solar panel, an electrolyzer is used to separate water into hydrogen and oxygen. The hydrogen and oxygen are stored in separate places. These events occur while the energy is available. While the wind is blowing or the sun is shining the energy is stored in the form of hydrogen. When the energy is needed, the hydrogen is removed and run through the fuel cell which has a membrane that allows the passage of protons and blocks the passage of electrons. The electrons then have to travel all the way around the membrane, producing electricity. Dr. Williamson explained that a fuel cell facilitates a silent electromechanical process that separates hydrogen protons and electrons to produce electrical current. It is 2.2 to 3 times more efficient than an internal combustion engine and produces 16 times more megawatts of pollution free electricity than coal-fired methods.

Uses of hydrogen. Dr. Williamson said he believed that transportation would be a big use of hydrogen. General Motors has a hydrogen car that is more safe and economical than anything currently available. Hydrogen will also be an important factor in electrical production and distributed energy. Hydrogen refrigerators are being produced and can be run anywhere off of a fuel cell. Battery chargers are also available that, when charged, separate the hydrogen from the oxygen in the battery. Hydrogen is converted into electrical energy when in use, then when it's returned to the charger, it repeats the process. Since there are no components to wear out, there are no landfill problems. Within a couple years, all laptops will be converted to fuel cell batteries.

Demand for hydrogen. Dr. Williamson showed an illustration of Ford Motor Company's third generation hydrogen car. Currently in the United States, 9 million tons of hydrogen are produced, primarily in refineries that are extracting hydrogen from petroleum products. By the year 2020, the U.S. Department of Energy (DOE) wants to have half of all transportation electricity generated by hydrogen. That would require 40 million tons of hydrogen, which is 15.3 quadrillion cubic feet.

He added there are two things Montana can do really well with hydrogen. One is the state can become one of the world's biggest producers and suppliers of hydrogen. The other is Montana can have the best technologically trained work force in hydrogen technology. If the state has both those things, the rest will fall into place: good businesses, new jobs, new products and value added opportunities, etc.

Harnessing hydrogen. Dr. Williamson explained that there are several methods for producing hydrogen. In the fuel reforming process, hydrogen molecules are removed from petroleum products and the pollutants are left as waste. Under high pressure, coal and biomass may be converted to hydrogen. In the process of electrolysis discussed earlier, water is separated into hydrogen and oxygen.

He added Montana has the best coal reserves of any place in the U.S. If the coal can be used in a nonpolluting way, by extracting the hydrogen and leaving the pollutants behind, it's a win-win situation. The wise use of electrolysis has great opportunities in Montana. Once hydrogen is used in an internal combustion engine or fuel cell, the waste product is water. So the process begins and ends with water.

Hydrogen production economics. Dr. Williamson noted that right now Montana mines about 40 million tons of coal a year. The coal is sold for $6.23 a ton. Much of the value of the coal is enjoyed by other companies and other states. The sum value of the coal to the state is $250 million. That same amount of coal could be converted to 1.72 trillion cubic feet of hydrogen which would sell on the commercial market for $7.4 billion. He explained this figure does not include value added products from, for example, petroleum reforming or renewable generation. Byproducts from pollution control become value added byproducts that could also be sold. In addition, pollution reduction reduces greenhouse gases and benefits the world.

The state of Florida has already gotten $24 million from the Clean Coal Fund to make hydrogen from coal shipped from Illinois. Montana to date has gotten no clean coal money. Seventy percent of the hydrogen workers in Canada have a post secondary education. In Montana, the figure is 24%. Montana needs to make a massive effort to catch up. There are at least 20 states that are ahead of Montana, even though the state is the most qualified in the U.S.

Dr. Williamson stated that when the new Energy Policy Act of 2003 is passed, there will be opportunities for money and participation. But when he called around the state to see who was organized to participate, he found there was no one to implement it.

He added that Montana needs to become an energy friendly state to encourage energy production in an environmentally safe way; to find the best practices and adopt them.

Steps to create a successful, productive, viable hydrogen producing state:
1. Cohesive, inclusive, energy strategic planning.
2. Plan to fund projects.
3. Get in synch with federal policy.
4. State energy management.

The university is working on two $1 billion projects, one in the Colstrip area and one in the Miles City area to bring plants to convert coal into hydrogen. They are also working with a number of other groups, the Forest Products Biomass Project, the Legislature's Hydrogen Energy Plan, an alternative energy training center and a hydrogen powered college campus.

- **Questions from the Subcommittee**

Sen. Toole asked what waste products result from removing hydrogen from coal. Dr. Williamson answered about 90% is slag which is an excellent road building material. There are also trace elements that can be sequestered or put into a usable product, for example, sulfur for use in asphalt and other products. The biggest waste product is CO_2 gas. The purpose of promoting the FutureGen project in Miles City is to take advantage of this technology, but the university must attract the funding of the DOE. Montana is the only place in the nation to have the Porcupine Dole? an underground structure where the CO_2 can be put back into the earth and stored until it is used. Carbon dioxide can be used to feed algae beds which grow extraordinarily fast when fed CO_2. Released methane can be collected and the hydrogen can be extracted. The benefit is the byproducts are not being burned and put into the atmosphere.

Sen. Tooled asked, of the processes for removing hydrogen from coal or water, which is more energy intensive. Dr. Williamson answered that electrolysis is currently more energy intensive. He added that many of the petroleum companies are very interested in the hydrogen economy.

Sen. McGee asked how hydrogen is produced from coal. Dr. Williamson answered that the coal is put into a gasifier—a big vat under pressure and heat—that forces the hydrogen out of the coal, or specifically, out of the water that is in the coal.

- **Mr. Bob Evans, National Renewable Energy Laboratory (NREL)**

Mr. Evans noted he would be speaking about the national research and development agenda and directed the subcommittee to **Exhibit 2**. He remarked that in the State of the Union Address, the president challenged the nation to move to a hydrogen economy. Around the year 2015, he believed there would be a commercialization decision point linked to the availability of a fuel cell vehicle.

There are several elements that must be considered after production including delivery, storage and conversion. There is also the foundation that must support the hydrogen economy: codes and standards, new capabilities in hydrogen safety and education.

Mr. Evans continued that the DOE and this administration is focused on how the hydrogen economy can contribute to energy security. A variety of domestic resources including natural gas, coal and oil can be used in conjunction with water to produce hydrogen and carbon dioxide. If the carbon dioxide is sequestered it largely becomes a climate neutral proposition. Another source is nuclear energy—one can use either the heat that is generated through a series of chemical reactions to produce hydrogen from water or the electricity to perform electrolysis. Nuclear energy is carbon neutral, though there are certain life-cycle concerns that must be addressed.

Renewable hydrogen discussions at NREL focus on wind and solar. The electricity from these two sources can be used to perform electrolysis, or sunlight can be used directly to split water.

Mr. Evans continued that his particular focus is on converting biomass to hydrogen. Just like coal or natural gas, biomass can undergo a series of reactions with water to produce hydrogen and carbon dioxide. There are no climate implications with this process since the CO_2 generated was only fixed the previous year when the crops were grown.

Finding domestic energy resources for transportation is the main emphasis of the DOE program. If the country can replace imported oil with domestic sources it will change the dynamics of the nation's energy security.

Hydrogen also has an important role in the distributed generation of electricity. When hydrogen is produced and utilized in one area, some of the heat that might otherwise be lost may be captured, thereby increasing energy efficiency.

Mr. Evans explained that elements of the DOE hydrogen program include production, delivery, storage and fuel cells. All need to be validated. Storage is the number one challenge. Hydrogen has many desirable characteristics and some limitations, one of which is the difficulty of compression and storage. New technologies must be developed to store hydrogen so that it may be used, for example, in an automobile.

The challenges of fuel cells can be summed up in two phrases: the cost is too high and the reliability is too low. A fuel cell vehicle produced today probably costs in the range of $1 million. For stationary sources, reliability can be a problem. Integration of these elements is also an issue. For example, how would it be possible to integrate turning coal in Montana to hydrogen then powering cars in California?

There are also safety aspects. Hydrogen has a wider flamability than carbon fuel but it also has some advantages in terms of density and dispersion. Codes and standards are another significant issue. Codes are currently not in place to allow fuel cells in buildings.

Mr. Evans noted that production had been covered well by the previous speaker. He said he has some examples of hydrogen production in his materials. He referred to a project in which algae takes in sunlight and produces hydrogen and the process is rather environmentally benign. He added that this is a long term project since the challenges are huge. Another project uses a pyrolizer to produce hydrogen from agricultural residues through steam reforming—or the heating up of the off gases. Using wind turbines with an electrolyzer can be a major interim source of hydrogen, but Mr. Evans noted that this process is expensive. Hydrogen produced using natural gas is $6 to $7 a million BTU compared to an electrolyzer which is 3 to 4 times the cost.

The major challenge for hydrogen delivery is to attain the centralized delivery ability of fuels transported through pipelines. He added that the DOE is years from that. When the DOE speaks of the hydrogen economy they are seeing the onset of investment and infrastructure beginning in the year 2025 and continuing upwards towards the year 2040. This would probably be a trillion dollar investment. In the mean time, distributed generation is the midterm option where hydrogen is created onsite through the steam reforming of natural gas or natural gas is transported to a large filling station and converted to hydrogen and compressed.

Mr. Evans explained that storage is the number one challenge because of the density of the product and the difficulty of compression. A kilogram of hydrogen has about the same energy density as a gallon of gasoline. When one makes natural gas into hydrogen it can be done at very high efficiency in the order of a dollar a kilogram—not far off from the wholesale cost of gasoline. However, to further compress that to storage conditions can double the price.

There are inherent limitations in compressing hydrogen in terms of cost. The other option is to find lower pressure storage options. NREL has been able to attain 7 weight percent hydrogen in small samples using a carbon nanotube. This is controversial and cutting edge science and is currently being validated.

One of the targets for fuel cells is automobile usage but it can also be used in home and business applications. There are other types of fuel cells that don't require hydrogen, for example, solid oxide fuel cells where the gasifier products from coal or biomass move directly into the fuel cell without purification. Those can be used for stationary sources.

There are many demonstration projects around the country where fuel cell vehicles provided by automotive manufacturers are matched up with infrastructure provided by energy companies. The results of these demonstration projects identify cost and performance issues not only for the fuel cell but for the overall system.

Codes and standards. Mr. Evans explained it is very important for the United States to harmonize their efforts with international standards so a car manufactured in the U.S. can eventually be sold in Europe or in Japan.

Hydrogen safety. New systems must be developed for detecting hydrogen leaks and they must be integrated with the use of automobiles. In general, it is important to design inherently safe systems.

- **Questions from the Subcommittee**

Sen. Toole asked if other countries were as committed as the U.S. to developing these resources. Mr. Evans answered that other countries were actually ahead of the United States in

nearly every aspect of this. Over the last ten years there has been a lot of effort in Europe, in Germany in particular. Canada has some of the leading companies in electrolyzers and in fuel cells. Japan is investing very heavily in fuel cell development. Toyota is probably one of the leaders in this regard.

- **Mr. Jeff Serfass, National Hydrogen Association**

Mr. Jeff Serfass, President of the National Hydrogen Association, spoke about national policy priorities related to hydrogen (**Exhibit 3**).

- **Questions from the Subcommittee**

Sen. Toole noted that Montana is far from markets. He wondered, given that the initial development of hydrogen would be through distributed energy, which by definition has the generation close to loads, what Montana's opportunity to participate might be. How long would it take before Montana could export energy to market centers, areas like Seattle, the Midwest or the West Coast?

Mr. Serfass replied that this is an important issue. Today, the majority of the cost of bulk hydrogen is in transportation. That leads some people to believe that local or distributed production of hydrogen may be a better way to go. Having said that, since the discussion is about using the major resources in the country, natural gas, coal and nuclear, the discussion is about central production, and most likely moving the hydrogen. For Montana to protect its role it needs to be a part of the discussion and working to bring the cost of central production down.

Dr. Williamson agreed that proximity to markets was an important issue. The hydrogen economy is a tomorrow business that requires planning today. There are a number of steps Montana will need to go through and the state should start the progression.

Mr. Ebzery asked Dr. Williamson what was going on with the FutureGen project or anything else site-specific to Montana.

Dr. Williamson answered that the university and other interested parties met to discuss the FutureGen project last May in Miles City. The project has not been funded by the DOE. All three of Montana's Congressional members are actively involved. Most recently, Sen. Burns met with Energy Secretary Spencer Abrahams. Last he heard from the Syntroleum Group, one of the companies that wished to participate in Montana, they are trying to find the funding at the DOE.

Mr. Ebzery wondered about the size of the project and whether it was a competitive endeavor like the super collider where other states were involved. He asked if Montana had a chance.

Dr. Williamson remarked that Montana has a small chance. It is the only state that submitted a request for information. The university was able to coalesce all the support in the state. It is a national competition amongst business and industry and location is a secondary matter. Montana has the best storage capability for CO_2 and some of the best coal in the country. It is a 10-year, billion dollar project to perform cutting edge technology converting coal to hydrogen that they were looking at for the Miles City area.

Sen. Roush directed a question to Mr. Serfass. He said he noticed on one of his slides he has listed DOE hydrogen procurements for tribal lands and wondered if there were active projects.

Mr. Evans fielded the question and stated there was a joint program between DOE and the U.S. Department of Agriculture looking at distributed generation from biomass gasification and perhaps other elements, including solar resources. NREL has a program on tribal energy and he could put the Senator in contact with Mr. Roger Taylor to answer his questions.

Dr. Williamson answered that on New Mexico tribal lands they have done a great deal with solar and wind for alternative energy generation The Northern Cheyenne in Montana have gotten a proposal funded from the DOE for the initial analysis for a wind turbine site that's up on a ridge above the reservation. They want to convert the solar energy into hydrogen. In the new federal energy bill there is a section on developing energy on tribal lands. Westinghouse Siemens is a huge supporter of tribal lands development and has been in the state several times working with the Northern Cheyenne.

Sen. Toole questioned whether hydrogen could be produced from sea water and if the salt was just another waste to deal with or if there were other issues. Dr. Williamson said it could. The salt did need to be removed just as in a coal bed methane operation when there is a high mineral content in the water. The salt would interfere with the equipment and would need to be removed before electrolysis.

Sen. Toole noted that two of the panelists had mentioned nuclear power as a way to bridge the future with hydrogen. He didn't understand this because he believed nuclear power was still very expensive and wondered what about it made it usable.

Mr. Serfass said, as a national association, they were working to become more familiar with this topic. The Idaho National Energy and Engineering Lab has an active program to develop reactors to produce hydrogen directly and that can produce either hydrogen or electricity. There is some cost analysis that advanced reactors may be an economic and useful way to go. But there is the public perception that must be considered for nuclear energy to become a viable option. Still it has a role at the table because it is environmentally clean.

Mr Serfass added that with today's technologies there are some utilities with nuclear plants that have inexpensive off-peak energy that provide a resource for production of hydrogen. Arizona Public Service in Phoenix is looking at renewable energy and solar for direct electrical use and also as a resource for producing hydrogen. They also own nuclear facilities and economically if that very cheap off-peak energy gets a greater value producing hydrogen it becomes a more profitable enterprise.

Mr. Serfass noted that there's a point that hasn't come up and that is that most people do view the development of hydrogen similar to the development 100 years ago of geologic? energy. There are different roles for electric utilities in this transition. Utilities have experience, capital and infrastructure that might be useful so they can be participants in the transition depending on the creativity of the managers.

Mr. Evans said it was important to realize that a lot of this is true for renewables as well. Nuclear and renewable energies both have uncertainties. There is a lot interest right now in wind, but there is a limit because of the problem with intermittency. The ability to take wind when it's blowing and use it to produce hydrogen even for stationary generation would do a lot to remove the problem of intermittency. So the combination of a hydrogen-electrical economy is an attractive concept that could suit the needs of Montana.

Mr. Toole asked for clarification. When people are talking about nuclear energy to produce hydrogen, are they talking about using it to produce electricity that is then used in electrolysis?

Mr. Evans remarked that there are also thermalcycles where one could utilize different chemical reactions that cascade in their energy demands where it eventually ends up splitting water and producing hydrogen and oxygen separately.

Sen. McGee asked Mr. Evans what policy aspects the Legislature should be considering when thinking about energy alternatives and strategies.

Mr. Evans answered that he agreed with the other two panelists that there are interim opportunities that can be addressed and there are infrastructure and long term capabilities that need to be developed that fall within the responsibility of the public sector, primarily education, but also employment—looking at what people do and how they might adapt to a new energy world. Agriculture is another—to evaluate what the role is of energy crops or the ability to produce wind energy in conjunction with traditional uses of prairie land. In regards to forest management, what can be done to integrate new technologies into fire management and forest thinning programs. Hydrogen is best thought of as an energy system. In the near term, it can play a niche role in all of these things.

Sen. McGee referred the same question to Mr. Serfass and Dr. Williamson.

Mr. Serfass remarked that it is appropriate for the state Legislature to consider a few things. First, creating a university-based educational program and learning center to support a technology curriculum as well as research projects. Secondly, creating a focal point within state government to develop and implement hydrogen strategies within the state and to have adequate funding to leverage participation in federal initiatives.

Dr. Williamson agreed. He noted MSU has been conducting fuel cell research for 10 or 15 years and has become a national leader. He said he felt the state had a good perspective and good contacts to proceed.

Mr. Ebzery said HB 377 from the last session provided some bonding and apparently was tabled. He asked what actions the committee could take to facilitate a better response next session.

Dr. Williamson said HB 377 was a $30 million bonding bill to fund a hydrogen futures park in Missoula but also to serve as a basis to attract business. He said he gets about one call a week from interested businesses but at this point there is no way to facilitate their participation. He added that the bill didn't pass because it was an appropriations bill that would require money to put the bond together and to manage it over a series of years.

Mr. Ebzery asked if it would be possible to put together legislation with a smaller appropriation that the committee might assist with. Sen. McGee echoed that interest and said he would appreciate Dr. Williamson's proposals.

Dr. Williamson said that would be possible and thanked the subcommittee.

Rep. Bixby asked if any state department has been developing an energy policy. Mr. Everts said the simple answer is no.

Sen. McGee remarked that he understood that the role of the subcommittee was to discuss alternative energy issues to begin crafting state policy.

Sen. Toole asked if it was one of the charges of the EQC to develop an energy plan. Mr. Everts said the EQC has a discretionary statutory authority to pursue the development of state energy policy, but it is not a plan.

Rep. Bixby asked if there were any laws in place that discuss incentives for alternative energy. Mr. Everts answered there were tax incentives and different mechanisms, for example, through the Board of Investments, that provide opportunities for investment in alternative energy sources.

Dr. Williamson noted that there are existing projects. There are two fuel cells being installed in Montana, one in Glacier and one in Grandview.

ETHANOL PANEL DISCUSSION

Mr. Everts introduced the ethanol panel. Mr. Howard Haines, Montana Department of Environmental Quality (DEQ), would discuss ethanol basics and some of DEQ's ethanol projects; Mr. Todd Sneller, Nebraska Ethanol Board, would discuss national and state policy ethanol initiatives; Ms. Shirley Ball, Ethanol Producers and Consumers, would discuss ethanol distribution and production; and finally, Mr. Dexter Busby, Montana Refining, would talk about ethanol handling and emission issues.

▸ Mr. Howard Haines, Montana Department of Environmental Quality

Mr. Haines distributed copies of his Power Point presentation (**Exhibit 4**).

▸ Questions from the Subcommittee

Sen. Roush asked about past Montana ethanol producers. What is the status of the loans and grants attached to the failed facilities?

Mr. Haines answered that the loans were either paid back or collateralized. He wasn't sure what the Board of Investments did with AE Montana since he wasn't involved with that project. For Sage n' Cedar the state acquired some of the farm as payment. For Southwest Alcohol Producers there was enough collateral when the feedlot was sold that the state did get their money back from the alcohol plant.

Sen. Roush further asked if there was a pattern for why these facilities failed. Mr. Haines said a lack of market was not the problem. They all had some problems with technology becoming dated but they also each had unique operating conditions that caused them to fail. In some cases an investor wanted to pull out. In others the facility was too small or they were unable to realize their plan on a timely basis. All had things happen that were not anticipated and they did not have enough cash to overcome the issues.

Mr. Haines added that one of the things that has been learned is what constitutes a small plant. Many of the costs are the same for a facility that produces 50 million gallons a year as a facility that produces 30 million gallons a year. The same is true for environmental costs for those two plants. Mr. Haines continued that he thought some of the disillusionment was that the producers didn't realize they were operating a chemical plant as opposed to a fancy moonshine still.

- **Mr. Todd Sneller, Nebraska Ethanol Board**

Mr. Sneller spoke to the subcommittee by phone and asked Mr. Everts to distribute his Power Point presentation (**Exhibit 5**).

Mr. Sneller said it is important as a policy making body for the Legislature to determine if their objective is to increase the utilization of ethanol or the production of ethanol. He continued that he would talk about ways to increase production and that utilization would then take care of itself.

He noted as an aside that Mr. Haines addressed many of the reasons facilities fail, but he also wanted to note that their experience is that only about 10% of the plants proposed ever come to fruition.

- **Questions from the Subcommittee**

Sen. Toole asked about his slide titled "State and Local Benefits of Ethanol Production." Could Mr. Sneller explain the item "Excellent Addition to Electric Power Demand Base"? Mr. Sneller replied that they are the only public power state in the U.S. and they have a very active industrial recruitment effort by their power districts because this is the best customer they have. There's been a very strong demand for the power supplier. They operate the plants literally 365 days a year. The load factor doesn't vary much during the course of a year. So they become very good customers for the power providers in the state. As a result they have become very active in their own recruitment efforts to get plants to come to the state or to expand once they are here.

- **Ms. Shirley Ball, Executive Director of Ethanol Producers and Consumers**

Ms. Ball said she has been involved in promoting ethanol since the 1970s during the oil embargo. Their family was concerned at the time that they were not going to have the fuel necessary to harvest their crops. It was then she heard about ethanol and realized the U.S. could become energy independent.

Ms. Ball stated that the Ethanol Producers and Consumers (EPAC) is a national nonprofit organization in existence for 14 years whose purpose is to promote and provide information on ethanol fuel and its co-products. She noted she provided the subcommittee with a membership brochure that listed EPAC's board of directors (Exhibit 6—not available). The EPAC has members in 26 states and 3 foreign countries.

She continued that she has also provided the subcommittee with one of EPAC's newsletters, (Exhibit 7—not available) that has a chart of ethanol facilities. When she was on the Renewable

Energy Advisory Council (REAC), that Council approved some of the funds available for the projects Mr. Haines discussed. She continued that she realized now that they were remiss in some of their advice. At the time, a one million gallon facility was considered a good-sized plant, but they understand now that a project that size was not feasible. She thinks if the state had started with larger plants they would have been more competitive and had more success. The U.S. Department of Agriculture now considers a plant small with a 30 million gallon capacity.

Earlier challenges have possibly made people more cynical about starting plants or even about the fuel itself. As shown in the newsletter, there are currently no plants in Montana. Every state and province surrounding Montana has ethanol facilities. Nebraska and Minnesota are leaders. Ten years ago a law was passed in Minnesota that all fuel sold in the state must have a blend of ethanol. There were a couple plants in Minnesota then. It now has 14 or 15. They now have enough ethanol for exporting. Most of those plants are farmer-owned co-operatives.

Ms. Ball explained that in the Midwest, corn is the usual feedstock. Corn production could be increased in Montana but wood could also be used. The DOE has also been promoting cellulosic ethanol which can be made from grass, trees, corn stock or straw because the department thinks it will be a lower cost feedstock than grain.

She remarked that she's not sure how Montana will do in the cellulosic ethanol market since it's not known for having switch grass and most farmers return their straw to the soil. But trees can be used and Western Montana has an abundance of trees. She noted what she does see of value in Montana is that it has a lot of Conservation Reserve Program (CRP) land and some could be planted to an energy crop.

Ms. Ball continued that the main agricultural crop in Montana is wheat and the return is similar to corn—a bushel of wheat produces about 2 1/2 gallons of ethanol and 20 pounds of high protein distiller's grain. Barley is another crop that can be used. The noted negatives of using wheat are that it is a human food, it costs more than corn and more bushels of corn than wheat can be grown on an acre. One advantage to consider is it could provide a higher value use for low-quality wheat.

Ms. Ball described the process for producing ethanol. She explained on their farm they grind the grain, wet it, add enzymes, then cook it at a constant temperature. In this process the starch is converted to sugar. Yeast is added and the mixture is allowed to ferment. A mash results where the sugar has been changed to alcohol. The alcohol must be distilled from the mash. For ethanol to be mixed with gasoline, it must be 200 proof (dry ethanol). The protein, fiber, minerals and vitamins are left in a condensed, nutritious form. For an ethanol plant to be successful, the producer must find a market for their distiller's grain. If a good quality grain is used, the distiller's grain could be used for human food.

Gasoline mixed with 10% ethanol is a fully warranted product for all automobile manufacturers and is currently available at 40 plus stations. The 10% blend of ethanol improves auto emissions by as much as 25%, increases octane by 2 1/2 to 3 points and eliminates the need for gas line antifreeze. In addition to the E-10 (10% blend), there are millions of cars that can run on an E-85 blend (85% ethanol and 15% gasoline). There are 2 stations in the state that carry E-85, but E-85 cars can run on other fuels.

There are two large ethanol projects in Montana in the planning stages. The ethanol facility in Great Falls will be using wheat and barley with a high protein gluten food as one of the co-products. Rocky Mountain Ethanol in Billings will be building their plant in Hardin. They will be using corn and barley. Mr. Haines mentioned several other projects and she would like to add the Fort Belknap project. The are discussing an integrated ethanol plant where they will be feeding the grains wet to livestock.

Ms. Ball mentioned a chart she had given to the Council on incentives (Exhibit 8—not available). In order for a plant to be competitive it requires incentives. The Montana incentive allows up to $3 million per plant and is based on 30 cent per gallon production. The money is reserved for two facilities. She remarked that it may be a hindrance to only have the money available to two operations and she believed the application process is too cumbersome. Another policy recommendation would be to require ethanol-blended fuel.

- **Questions from the Subcommittee**

Mr. Ebzery asked for clarification on her ideas about the existing incentives for ethanol facilities. Did she think the law should be repealed? Ms. Ball said she would like to have additional incentive money to fund more facilities.

Mr. Ebzery asked where the existing incentive money comes from and how an applicant like the Fort Belknap project becomes excluded.

Ms. Ball said an application must be submitted to the Montana Department of Transportation (DOT). The application must include a plan and the company must follow through on the plan. Once the facility is in production it receives 30 cents per gallon back. The $6 million comes from the gas tax via the Highway Transportation Fund.

Mr. Ebzery asked if she believed the state should mandate the use of ethanol if there were currently no ethanol facilities in Montana. Ms. Ball answered that it is easily transported from out-of-state, which is where Montana gets a lot of its other fuel. It could be trucked or moved by train into a terminal and blended there.

Mr. Ebzery asked how that would benefit Montana if it needed to be imported. Ms. Ball said a mandate would promote new facilities as it did in Minnesota. Mr. Ebzery asked how it would work if the mandate went into effect in a year or two. Ms. Ball replied that it could be promoted as being a United States based product and a move away from the country's dependence on foreign oil.

Sen. Toole asked for Ms. Ball to clarify Minnesota's program. Did they have a mandatory 10% ethanol fuel blend? Ms. Ball replied that she wasn't sure that is was 10%, but that over 99% of the fuel sold in Minnesota is an ethanol blend.

Sen. Toole asked if it's correct that the mandate is over the total supply and not per gallon, and Ms. Ball said that is correct.

Rep. Bixby asked what was cumbersome about the application for incentives. Ms. Ball said it takes a long time and if you're unable to follow the plan you can fall off the list. She said Mr. Haines may be more familiar with the specifics.

Mr. Haines offered that the DOT requires that a business plan be submitted with preliminary and permit information at least two years in advance of producing any ethanol or receiving any incentive. For the first two years the company must follow what is on their business plan and have broken ground within 24 months or they can fall off the list. After the ground is broken there is a period of 18 to 24 months, he's not sure which since it recently changed, or they can again fall off the list.

Sen. McGee asked what the purpose is of the deadlines. Mr. Haines said the purpose of having a rotating list is so if a company gets bogged down its allotment would not be held in reserve. The reason for the advance notice is so the DOT can enter this cost in their long term plans.

Mr. Ebzery asked what was going on with the Great Falls plant. Mr. Haines said they have secured all their air and water quality permits from the DEQ and they are the second plant on the list with the Montana Department of Revenue. They are currently trying to secure funding for 100,000 million gallons of ethanol, 38 million pounds per year high protein wheat gluten and 500 billion gallons per year of distiller's grains. The company is using a proprietary new process to produce wheat gluten and that may be one of the delays.

Sen. McGee asked if wheat gluten could be eaten by humans. Mr. Haines said yes, it is used in bakery products and frozen instant meals to keep bread products together.

Sen. McNutt asked what the projected cost was of the Great Falls plant. Mr. Haines said he estimated it was around $130 million.

Mr. Ebzery asked about the criteria for the list. Mr. Haines said the criteria were developed by the DOT and there were companies waiting to get on the list. Currently the number one plant is the Rocky Mountain facility in Huntley. He said they have permits for a coal-fired generation plant that will be their source of steam and energy but they do not have permits filed yet for the ethanol plant. If they haven't broken ground or filed permits by July 2005 they will fall off the list. That particular group has two applications filed. The one on the list and another on the waiting list under a different name.

Sen. Roush asked how many states are paying a state fuel tax. Mr. Haines said the state of Wyoming has a 9 cent per gallon fuel tax and from that a two cent incentive is given to any ethanol blend gasoline with an additional two cents if the ethanol was produced in Wyoming.

Rep. Bixby asked if the ethanol facility application process could be changed at the state level. Mr. Haines answered yes, it was based on state DOT rules.

- **Mr. Dexter Busby, Montana Refining Company**

Mr. Busy said he was there to discuss the handling of ethanol and gasohol downstream from the plants. Ethanol as used in gasoline blending is a hazardous and hygroscopic product, hygroscopic meaning it's dry and has an affinity for water, or becoming wet. It should be stored in tanks so it doesn't come in contact with water or air and cannot be transported in the product pipeline system because this system is considered, from an ethanol standpoint, wet. This excludes it from the 70,000 miles of product pipelines. He explained the residual moisture in te pipes would degrade the ethanol and cause it to become corrosive and in an ethanol gasoline blend would cause deterioration in the function of the automobiles that burn it. If there is more than a few hundred parts per million of water it can cause a complete phase separation to ethanol, water and gasoline. The other problem with pipeline transportation is that ethanol is a good solvent and other things that are laid down in the line will dissolve into the gasoline product. The third challenge is there is no ability to reprocess a contaminated product once it gets to the terminal.

Mr. Busby explained that ethanol and gasoline must therefore be blended at pipeline terminals. The terminals receive their ethanol by truck or rail. It is expensive to get into the ethanol blending business. The company must first purchase a suitable tank with some type of vapor control to prevent the release of ethanol vapor emissions and to prevent water vapor from contacting the ethanol. The cost can range from 25 to 50 cents per gallon of the ethanol stored.

Most gasoline terminals are shipping rather than receiving terminals. They receive via pipeline and ship out on trucks. It is necessary to have rail or truck receiving facilities, rail being the more economical. Exxon has quoted the cost at $450,000 for those particular rail handling facilities.

Other necessary equipment adds to the cost including blending, metering and piping equipment. Even at Montana Refining Company's small facility the cost exceeds $100,000.

Mr. Busby continued that in Montana there are terminal blending facilities that do exist. They are in Missoula, Laurel and Glendive.

The handling of ethanol during transportation, terminal blending and storage is virtually emissions free barring a catastrophic wreck. But because ethanol blended in gasoline raises the vapor pressure of gasoline, there are significant losses in vehicle fueling, warm weather storage of vehicles, service stations and greater losses in truck unloading and service stations.

Mr. Busby added that when used as a fuel in older vehicles, ethanol blends reduce the emissions of CO_2 and particulates, but significantly increase the emissions of NOX (nitrogen oxides) and emission of VOCs (volatile organic compounds). In new vehicles with functioning emission control systems, there is very little change in emissions. The biggest change occurs in older vehicles and cold starting in winter.

Mr. Busby remarked that one of the problems that occurs in the environment is gasoline spills. Ethanol itself biodegrades quickly in the environment so it poses a very low risk in a spill. But ethanol in gasoline spills can make the gasoline constituents like benzene, toluene and xylene, which are considered carcinogenic, more soluble in ground water. As the ethanol dissolves in water it can take these much more toxic constituents into the water column with it. Because ethanol is easily biodegraded it is preferentially biodegraded in water. Therefore the ethanol in the gasoline spill will cause the oxygen in the ground water to be consumed very quickly, which causes significant delay of the biodegradation of the other more toxic products in gasoline. Ethanol blend spills into surface water can cause very localized but extreme fish kills.

- **Questions from the Subcommittee**

There were no questions from the subcommittee.

PUBLIC COMMENT

There was no public comment offered.

DISTRIBUTED WIND ENERGY PANEL DISCUSSION

Mr. Everts introduced the presenters for the distributed wind energy panel discussion. Mr. Dave Ryan, NorthWestern Energy, would discuss utility issues associated with distributed wind projects. Professor Gordon Britton from Montana State University and Director of the Wheeler Center would discuss Montana irrigators and distributed wind generation. Last is John Walden,

National Center for Appropriate Technology (NCAT) discussing Montana distributed wind products.

- **Mr. Dave Ryan, NorthWestern Energy**

Mr. Ryan began by saying that NorthWestern is a transmission and distribution utility and as such they don't own generation facilities and are indifferent to the source of power. Their main concern is that the costs associated with generation are attributed to the appropriate generators and to minimize cross-subsidization.

Mr. Ryan referenced a handout for the subcommittee (Exhibit 9—not available) that described distributed generation. He noted that historically, the generation, transmission and distribution of electric power has been on a bulk basis; a large generation plant feeding high-voltage transmission to lower voltage distributers. Therefore power distribution has been a one way street. The power supply goes from one central station to the end customer and not the other direction. Integrating small generators into the distribution system means that there is now power moving both directions.

He noted that the technologies exist to handle this but there are additional costs. In distributed wind in particular, the generators can be as small as 100 watts or large systems that could be described as central station power up to hundreds of megawatts. It's a gray area.

Mr. Ryan said usually when discussing distributed generation the reference is to a generator that is attached to some facility that has a load. Sometimes the facility load is greater than the generation and sometimes the generation is greater than the load. So sometimes the load goes backwards.

There are a few issues the utility has to deal with regarding distributed generation and the most important is safety. The utility does not want to have a system interconnected in an unsafe manner. It can cause damage to utility or customer facilities and can cause hazards to utility workers and customers.

Mr. Ryan continued that fundamentally there are two ways to interconnect small generation systems. The smallest generators are usually interconnected with static inverters. The utility requires static inverters to be UL[1] listed and to meet IEEE (Institute of Electrical and Electronics Engineers) and other relevant codes and standards. Large generators are inductive generators. In the case of a wind turbine, the wind turbine comes up to speed, a sensor indicates that the generator has reached the speed required to interconnect to the utility, it interlocks a switch and

[1] UL stands for Underwriters Laboratory and refers to an independent nonprofit organization that tests electrical components and equipment for potential hazards.

the turbine begins to generate. The turbine uses utility power to excite the generator. If it loses utility power, it doesn't have a field and disconnects. Inductive machines must meet frequency and voltage specifications, and in some cases, if it takes a significant amount of reactive power from the utility to excite the generator, the company requires the generator to have capacitors installed. This doesn't technically create a problem but it does raise the cost of the interconnection.

The utility has to meet rules on reliability. The Western Energy Coordinating Council and the National Energy Reliability Council require that the utility carries sufficient reserves to cover loss of generation. This becomes an issue if there is a lot of wind generation because the small generators do not carry reserves so they must come from the utility at some cost. The question remains, when the amount of distributed generation becomes large, how does the utility allocate those costs.

Mr. Ryan noted that the utility has to manage the power, whatever the load is, and it varies constantly. The utility schedules power onto the system to serve the loads it anticipates. This works well when the utility has a history of use and can forecast the loads. It becomes a problem when the utility tries to schedule power for the next hour and needs to determine how it should be managed within that hour. It uses load following contracts to carry the fluctuations of loads within that period. Bulk power cannot be stored so the utility is dealing with a product that is manufactured, shipped and consumed basically instantaneously.

If the utility has a large amount of distributed wind power the variation within the hour is likely to increase. It is difficult to anticipate the variation since the utility doesn't have a model and won't know what the impact will be until the wind generation is in because the studies they have done have shown that a certain wind machine will produce at different times depending on location.

Mr. Ryan added that another issue surrounding wind generation is lost revenue. A utility's concern is that the generator that causes the cost pays for the cost and it is not distributed across the customer base. There are also cost issues in the actual installations and NorthWestern makes a great effort to see that when a customer puts in a small generator, that any interconnection, system upgrade or metering costs are borne by that customer. The company is experiencing a learning curve. In small net metered systems—generally single phase residential systems with less than 10 kilowatts of generation— the interconnection costs and impact are very low. Depending on the location, 50 kilowatt generators can cause significant costs on the interconnection side that have so far been borne by the customer.

There are additional metering costs. A net metering customer who installs a system, has had it inspected by an electrical inspector and whose system has met all utility requirements, still needs to have the utility come out and change the meter since a standard meter will not allow

backward rotation. This can add costs depending on the location of the customer and the service route.

The additional cost for a one to two kilowatt system may be $50 to $150. For a large generator the additional cost may be from a couple thousand to $10 thousand. The company is working on standards that will make it easier to tell a customer who wants to install a system what their costs will be. Right now they are working on a case-by-case basis which adds time and frustration for the customer.

Mr. Ryan reiterated his point that utilities have always been designed for the power to move one direction, so when they start having current flowing the other direction, not only does the system need to change, but the billing system also has to change to accommodate customer credits.

In larger wind situations when the machines switch on and off it can cause voltage flickering or variations. Correcting the flickering can add costs. A generator's television may be working fine but the neighbor's may be failing and currently the utility pays for that.

Mr. Ryan explained that currently only about 1/10 of a percent of their generation is distributed generation. So far there have been no significant problems on the system side. But there are two potential, opposite problems with an increase in distributed generation. Depending on how a utility designs a system to account for distributed energy, it may be oversized, underused and unnecessarily expensive or the system may be underdesigned and can have overloaded circuits.

- **Questions from the Subcommittee**

Sen. Toole asked if anyone was working on industry standards for interconnection issues to make these issues less difficult over time.

Mr. Ryan answered that there are IEEE standards in development now to cover interconnection for small generators. The Federal Energy Regulatory Commission is expected to come out with new rules for small generators (less than 20 megawatts) early this year to shorten up the time the utility has for interconnection. He added, as this new technology changes, he expects more of the processes to be formalized.

Sen. Toole asked if people who are net metering are accruing credits every month, or if it's netted annually. Mr. Ryan replied it is on an annual basis. The utility sees three cases. The first is when the customer has some backward rotation but generally the rotation is forward. When the meter read at the end of the month is greater than the meter read at the beginning of the month it is pretty straight forward—it's similar to a customer conserving energy, the consumption is just less than expected. The second case is where one month the meter read at

the end of the month is less than the meter read at the beginning of the month. This shows up in the records as an exception that must be manually checked. In the third case there is a credit in a month where the credit is not used up the next month, so the credit is carried forward for several months since the true up is over a year's time.

Sen. Toole asked if the true up is negotiated with a customer. Mr. Ryan answered that they can choose at the beginning of every quarter. For example, a wind plant may want to begin in October since there is more generation in the winter and they will start out the year with a credit. For a solar plant, the excess energy and credit is accrued in the summer and the customer may choose to begin their quarter then.

- **Professor Gordon Britton, Montana State University**

Professor Britton began by describing the university's wind energy project for irrigators. He said several years ago they discovered that they could buy decommissioned wind machines for almost nothing and bring them to Montana. At the same time they met someone in Wyoming who taught them how to reconfigure these machines to make them much more efficient. They submitted a grant proposal to David Ryan, under the Universal System Benefits (USB) program, for $100,000. Their idea was to retrofit 10 machines, sell them to local irrigators and subsidize the purchase price at $10,000 a machine. They had a very difficult time signing net metering agreements with the utility. There were a few successful installations but in the meantime, several irrigators lost interest. Dr. Helo, who bought the machines, went ahead and sold them to other interested parties.

The cost-effectiveness of the machines is pretty attractive. They are able to install them for $35,000 retrofitted minus the $10,000 rebate. A good wind machine should generate about 150,000 kilowatt hours a year. If the owner gets 3 cents a kilowatt hour, that totals $4,500. If they get a 1.7 cent federal production tax credit, that raises the benefit to 4.5 to 5 cents and the machines can be paid off in less than 5 years.

Professor Britton noted there are four machines being installed at Two Dot, another for irrigation at the Hutterite Colony in Martinsdale and a couple in other parts of the state. They are now trying to get more machines, but it's more difficult since others are now in the market for them for the same reasons.

The final cost for installation is around $500 per kilowatt which is less than half of what the industry standard is for machines. They are trying to do another round by finding more 65 kilowatt machines and retrofitting them for Montana farmers with irrigation facilities.

The issues that have arisen with this project are the following: difficulty signing net metering agreements with the utilities; difficulty signing transmission agreements, possibly due to lack of

staff; and if the new national energy bill revises the PURPA (Public Utility Regulatory Policies Act) rules these midrange alternative energy producers will not have an avenue to sell their power.

- **Questions from the Subcommittee**

Sen. Toole asked why these projects came in as QF (qualifying facility) power instead of as a net metering project. Professor Britton answered that the first projects were presented as net metering projects but there was such difficulty negotiating a contract that they abandoned that idea for the remaining machines. He continued that obviously there were not going to be any subsidies in the case of machines that are QFed and are not going to be used for local irrigation projects. He hopes to acquire 10 more machines and use whatever is left in the USB Fund to subsidize those.

Sen. McGee asked if the issue is whether or not the wind generation will be used for irrigation that determines whether it is a QF vs. net metered.

Professor Britton answered that it has to be used on the property to be a QF and for a machine of this size there has to be substantial demand, in this case in the form of these irrigation pumps. As the panel members know, conventional fuel prices are very volatile and farmers and ranchers are in a very small margin situation. So their intent was to protect them from unpredicted increases in the price of power they had to pay.

Sen. Toole said he thought that the QF price was better since it was borne out over a period of time. Professor Britton answered that a QF that can sell power to the utility at 3 cents ends up buying it back at 6 cents and would be financially better off with a net metering agreement.

- **Mr. John Waldon, National Center for Appropriate Technology**

Mr. Waldon introduced Mr. Dale Horton, Program Manager, who would be running the Power Point presentation (**Exhibit 10**).

- **Questions from the Subcommittee**

Mr. Ebzery remarked that Mr. Waldon explained there were no federal credits for wind energy. He thought there was a section 29 credit in the tax codes. Mr. Waldon answered that there was a production tax credit and there must be some tax burden to use it. Small wind machines are usually net metered so there is no actual cash flow.

Mr. Ebzery clarified that the credit then would be available for larger projects like NorthWestern might be interested in for their portfolio. Mr. Waldon said, yes, though the credit expired in September and must be renewed in the latest energy bill.

Sen. McGee asked if the wind generators were AC or DC.[2] Mr. Waldon explained that it varies. Most of them are what is called wild AC; the AC voltage fluctuates according to the wind speed. There are a few that do what is called DC rectification right there in the turbine, but that is becoming more unusual. Sen. McGee said they are then able to flow into the distribution network. Mr. Waldon said yes, they could through the static inverters.

PUBLIC COMMENT

There was no public comment offered.

UPDATE ON ENERGY AND TELECOMMUNICATIONS INTERIM COMMITTEE

Ms. Mary Vandenbosch, staff for the Energy and Telecommunications Interim Committee (ETIC), remarked that Mr. Everts was handing out the agenda for the next ETIC meeting (**Exhibit 11**) and a USB workbook (**Exhibit 12**).

Mr. Vandenbosch remarked that USB is a high priority for the committee. They have requested that a bill be drafted to extend the USB charge that is assessed on electricity consumers until 2009. It currently expires at the end of 2005. They are looking at the programs for both electricity and natural gas. The USB charge is assessed on customers to fund certain programs. The programs are different depending on whether it's electricity or natural gas. Some of the programs include energy conservation; bill assistance; low income weatherization; market transformation, which is a program to get energy efficient appliances out into the market; and renewable energy projects. They are not only looking at extending the charge, but are interested in assessing the programs for both electricity and natural gas. The workbook is being circulated for public comment and the deadline is February 23rd.

Ms. Vandenbosch continued that another major focus of the committee is transmission. Enhancement of transmission capacity, including the use of existing capacity, is critical if Montana wants to export power or have competitive markets. The ETIC heard presentations from two prospective regional transmission organizations at its last meeting. At the next meeting they have a fantastic lineup including Mark Lindberg from the Governor's Office and speakers from the Northwest Power and Conservation Council, the Bonneville Power Administration and the Public Service Commission (PSC). The speaker from the PSC will discuss the Midwest independent transmission system operator that serves the eastern part of the state.

[2] Alternating current and direct current.

Another hot topic is the default supply of electricity. The ETIC will hear a report on NorthWestern's plans to procure electricity. NorthWestern missed a December 15 deadline to submit a default supply procurement plan to the PSC.

The ETIC will also host a panel discussion on the merits of authorizing the default supplier to rate base generation assets that are owned by the default supplier of electricity.

The ETIC continues to monitor the NorthWestern bankruptcy case. They sent a letter to Governor Martz, the Attorney General, the Montana Consumer Counsel and the Chairman of the PSC asking them how much it will cost, how they will participate and how they will co-operate to maximize efficiency and minimize counterproductive efforts. The executive branch came up with a plan and an example of a key area where they have achieved efficiency is by hiring a financial consultant that is serving the three entities involved.

The ETIC decided to add the topic of ring fencing to its work plan. Ring fencing refers to measures that insulate utilities from the impact of riskier activities undertaken by affiliates' holding companies and nonregulated affiliates. They have been receiving recommendations from the Governor's Task Force. So far the task force has forwarded three recommendations and they were items that the ETIC was already considering. Those were PSC authority to review transfers of utility property used to provide regulated utility services, inclusion of generation assets in the rate base of the default supplier of electricity and advance approval for what she just talked about. She added that there is extensive information on the website if anyone is interested.

FEDERAL ENERGY LEGISLATION

Mr. Everts said that the federal energy legislation effort has stalled out and they are waiting to see what happens this winter when Congress renews addressing this issue.

PUBLIC COMMENT

There was no public comment offered.

NEXT STEPS AND STAFF INSTRUCTIONS

Mr. Everts said he wanted to review what the subcommittee had accomplished so far and asked for direction for the remainder of the interim. He said the subcommittee stated 6 goals: 1 to 4 were to gather information on biodiesel, hydrogen fuels, ethanol and distributed wind energy; 5 was to monitor federal energy legislation; and, 6 was to gather information on fossil fuels as they relate to alternative energy sources. The subcommittee had accomplished five of its goals.

The remaining goal is gathering information on fossil fuels. Now that the information is mostly complete, he wondered if the subcommittee wanted more information, policy options, etc.

Sen. Toole said on the fossil fuels issue, he learned what he wanted to know today.

Mr. Ebzery said he thought Mr. Everts did a good job putting the panel together and it was very educational. There were two items he would like to pursue. The first is hydrogen development. He would like to find out what they are doing in other states and was surprised Montana is behind. He wondered if there were any policy fixes the subcommittee could promote.

Mr. Ebzery said his other concern was with the ranking formula for the incentive program for ethanol facilities. He wondered if it was acting as a disincentive for other facilities. He would like to look at the whole issue of the money that is being set aside.

Sen. Roush agreed that the presentations today were very educational. He would like to promote hydrogen fuels to make Montana more competitive. He also remembers the discussion for the $6 million ethanol incentive and at the time that was the most funding that could be put together. Also, he gets a lot of questions about wind energy because of the project in his area and he thinks it would be a good idea to get more information out to the public.

Sen. McNutt said they had discussed the failure of HB 377 in the last session for hydrogen fuel bonding and he asked Mr. Everts if he could find out why it failed and if the subcommittee could take another run at it. Also, he said he agreed that the Legislature could educate the public but believed the public may be apathetic.

Sen. Toole said he would like to followup on Sen. Roush's point. He noted it was not only Canada that has wind facilities, there are large scale wind utility projects in North Dakota, Wyoming, Idaho and California. Montana, for being the Saudi Arabia of wind, is not getting adequately involved. He believed that now is a difficult time for the utilities to be initiating big projects. The state is also behind in hydrogen production, but with wind, the technology is already available. It warrants some discussion among the subcommittee on what the state might do for wind development. If they were able to bond $30 million in wind development he was sure something would happen.

Sen. Toole also asked about the federal wind production tax credits and whether they were transferrable. There were venture capital development bills in the last session where investors could get tax credits and then there was a market for those tax credits. He doesn't get the sense that anything like that exists for wind development.

He also remembers a bill Sen. Black had on mandatory ethanol and he remembered it died and he would be interested in the reasons it failed.

Rep. Bixby said she is very interested in the hydrogen information and would like to move forward on that. She is interested in promoting ethanol, as long as it is done safely, making sure water quality is protected. Also it would be great for Montana to have an energy plan instead of piecemeal solutions.

Sen. McGee said he agreed about the state needing a plan and in order to develop a plan he believes they needed to begin with very specific policies in place clarifying where they want to go. He felt there was danger in jumping on the latest bandwagon. He said he felt a lot of enthusiasm for these alternative fuels, but as they found out today, they all have problematic details. He thought a working group could do these 9 things:

1. Examine the obstacles to these alternative energies and find out how can they be facilitated.
2. Gather more information on the efforts in Nebraska, Minnesota, South Dakota and Iowa.
3. Have a discussion about the hydrogen futures park legislation and why it failed.
4. Find out why there isn't a large wind component in this state.
5. Consider the use of the coal tax trust as a kind of financial security to facilitate or finance alternative energy production.
6. Find out the details about the Judith Gap Wind project.
7. Get more information on production tax credits.
8. Find out more about Sen. Black's failed bill on ethanol.
9. Inquire why there are only two entities in line for the $6 million ethanol incentive.

Sen. McGee continued that he would like an invitation to go out from staff to every entity that has provided information to the subcommittee so they can be at the meeting to answer questions or they can write additional responses. He asked if there was support for a working group meeting to discuss these issues. The subcommittee agreed their was.

Mr. Ebzery noted it may be worth discussing using the coal tax trust as an alternative fund for the ethanol incentive instead of tying up money that could be used for road building. Sen. McGee thought that was a good idea and he said he wasn't talking about a bust to the trust but about using it as a security for bonding.

Sen. Roush added he also served on the Economic Affairs Interim Committee and there would be a discussion on venture capital at the next meeting if the subcommittee was interested in the information.

Sen. McNutt explained that the Board of Investments does not have the authority to direct lend. There can be some leveraging by bonding through the Board and there's good strength there, but the cost of administering the bond and overseeing it for 10 to 30 years is what deterred the hydrogen park project.

Sen. Toole cautioned that when the subcommittee is talking about energy development and scale for export they should remember to factor in transportation out of Montana and the distance to markets.

Sen. McGee said since they are the Energy Policy Subcommittee and not the alternative energy policy subcommittee they should think in a broad way about where the state currently is and where is needs to go and to take some cogent policy recommendations to the EQC.

Mr. Everts answered that he would be glad to put together the information as requested. He added he would like to discuss the time line for the report which summarizes the information the subcommittee has heard and the subcommittee's recommendations. He said he would try to have some of the informational portions of the report completed before March. He said that was necessary since the subcommittee has to finish their activities by the May 13th EQC meeting since the EQC releases its activities, reports and recommendations for public comment in June. In July the subcommittee will then look at the public comments, then modify the report or recommendations and make a formal presentation to the EQC. Any formal legislation that develops from that will receive further public comment in August. Then in September the EQC will finalize and submit its recommendations to the Legislature. He noted that there are two meetings remaining, in March and May.

ADJOURN

There being no further business, the meeting adjourned.