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Energy and Telecommunications Interim Committee

61st Montana Legislature

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DAWN FIELD, Secretary

October 26, 2009

To: ETIC members
From: Sonja Nowakowski, ETIC staff
Re: Energy Policy public comment

During the month of October, the ETIC accepted public comment on three of the nine energy policy issues outlined in Senate Bill 290. Those issues include:

- increasing the supply of low-cost electricity with coal-fired generation;
- promoting alternative energy systems; and
- reducing regulations that increase ratepayers' energy costs.

The ETIC asked the public to suggest specific changes in state law that are needed in these areas, as well as to provide their thoughts on potential findings and recommendations. The ETIC received more than 50 comments as of Monday, October 26. Many of the comments are quite detailed and very thorough. I hope you will all take a few moments to read through them. They are also available on the ETIC Website. You will receive copies of any additional comments that are received at the November meeting.

Over the next nine months, the committee will meet and discuss additional issues, as mandated by Senate Bill 290. As those additional issues appear on future ETIC agendas, the committee will put out a request for additional public comment. A complete schedule is available under the "Energy Policy" link on the committee's Web site.

Sonja Nowakowski
Research Analyst
Montana Legislative Services Division
Room 171E, State Capitol
PO Box 201704
Helena, MT 59620-1704
Phone: (406) 444-3078
Email: snowakowski@mt.gov

Cl0429 9299slxa.

Nowakowski, Sonja

From: James Meadow [jfmeadow@gmail.com]
Sent: Friday, September 25, 2009 12:50 PM
To: Nowakowski, Sonja
Subject: Energy Policy

I stand strongly opposed to an effort to increase our state's coal-fired energy generation. We now know far too much about the disastrous effects of coal-fired energy generation, and our state is uniquely poised to take advantage of plentiful wind power resources. We should cap coal-fired energy generation right where it is, and commit to supplementing any new energy needs with renewable energy sources. If this costs the state extra money, I will be more than happy to pay higher taxes/energy costs, and I feel that the majority of informed Montanans would feel the same way. The only reason we should be talking about coal right now is to decide just how much to REDUCE our use of it. Every ton of coal we dig from the ground and burn is a burden on future generations. If we want to protect our way of life long into the future, we need to put all of our effort into increasing renewable energy output for the state of Montana!

--
James Meadow
Land Resources and Environmental Sciences
Montana State University
(406) 370-7157
jfmeadow@gmail.com

Nowakowski, Sonja

From: george power [gepower@adelphia.net]
Sent: Thursday, October 01, 2009 12:05 PM
To: Nowakowski, Sonja
Subject: new bold ideas

Hello, I would like to bring to your attention ,that Montana could Be a leader in wind parks that have compressed air energy storage [C.
A. E. S.] . the large number of depleted natural gas wells close to transmission lines in windy areas is a start. example - 3 miles east of Havre you have 161 kV line , Clerk-7-32-17 depleted natural gas
well and class 4 wind. hope this is of some help George Power

Nowakowski, Sonja

From: JON MARY CARLSON [carlsonjonmary@msn.com]
Sent: Saturday, October 03, 2009 10:40 AM
To: Nowakowski, Sonja
Subject: electric rates

We are for lower rates. I.e. coal fire plants - yes! this carbon foot print stuff is over hyped. No to alternative enery systems - wind, solar that raise rates. Yes to reducing regulations of questionalbe value, that raise rates.

Jon and Mary Carlson
Big Sky

Nowakowski, Sonja

From: JoanHurdle [joanhurdle@bresnan.net]
Sent: Friday, October 09, 2009 9:29 AM
To: Nowakowski, Sonja
Subject: energy policy

(Also mailed you a hard copy of this including supporting documents)

From: League of Women Voters of Billings

To: Montana Interim Legislative Energy Commission:

We understanding that you are seeking input on the possibility of increasing electricity in Montana with coal fired generation, and promoting alternative energy systems. The League of Women Voters of the United States issued a report on August 7, 2008, indicating opposition to coal-fired power plants, as being too big a risk for too many people. The report may be found at lwv.org.

The Billings League of Women Voters urges you to reject the idea of coal-fired generation and instead consider conservation and all other measures and systems to reduce carbon output. Such measures, for example, might *include improved and expanded public transit throughout the state.*

Currently rural and urban transit funding cannot be combined in public transportation systems, according to Audrey Alums at DOT, so we urge you to make it possible to create *Regional Transportation Authorities* that could include urban areas in Montana.

In Indiana, for example, transit ridership has increased by more than 9% above 2007 levels, with 2.4 million fewer miles driven in 2008, saving 11,670,000 gallons of gasoline, and reducing pollution by 105,000 tons. Every vehicle mile equals one pound of carbon. (1VMT = 1lb.C)

Thank you for consideration of energy alternatives to coal generation.

Billings League of Women Voters Board of Directors

LEAGUE OF WOMEN VOTERS BILLINGS
P.O .Box 20297, Billings Montana, 59104

October 7, 2009

From: League of Women Voters of Billings
To: Montana Interim Legislative Energy Commission:

We understanding that you are seeking input on the possibility of increasing electricity in Montana with coal fired generation, and promoting alternative energy systems. The League of Women Voters of the United States issued a report on August 7, 2008, indicating opposition to coal-fired power plants, as being too big a risk for too many people. The report may be found at lwv.org.

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Thank you for consideration of energy alternatives to coal generation.

Billings League of Women Voters Board of Directors

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FOR IMMEDIATE RELEASE
Ceballos

August 7, 2008
202-263-1331

www.lwv.org
kceballos@lwv.org

Contact: Kelly

LEAGUE OPPOSES COAL-FIRED POWER PLANTS

Waiting for Congressional Action on Climate Change Would be Too Late, League Says

Washington, DC – The League of Women Voters today called for a moratorium on new construction of coal-fired electric power plants.

"Global warming is happening now," said national League President Mary G. Wilson. "If we wait for federal action from our congressional leaders, it will be too late. We must take immediate and aggressive action to halt climate change," she said. (Click **here** for a fact sheet on the League's stand.)

"Burning more coal is too big a risk for too many people," Wilson said. "Coal is the single largest source of global warming pollution in the U.S., with power plants responsible for 33 percent of CO_2 emissions. Because of this pollution, we already face increasingly severe heat waves and droughts, intensifying hurricanes and floods, disappearing glaciers and more wildfires. If left unchecked, the effects will be catastrophic to us and our planet," she said.

"We will be active in opposing the building of these plants," said Wilson. "Coal-fired electric power plants have a very long lifespan and contribute huge amounts of pollution to the atmosphere. Building these new plants would foreclose the possibility of preventing dangerous global warming."

"Today, there is no environmentally sound use of coal," Wilson said. "Many hope that CO_2 can be captured and stored underground," she observed, "but this technology has never been demonstrated on a commercial scale."

"Instead of coal, we must look to clean energy alternatives," according to Wilson. "California, which has been a leader in energy conservation and efficiency, has been able to keep per capita energy consumption essentially constant for three decades while enjoying a growing economy," she noted. "Wind and solar are also

ready to make large contributions to economic growth," she said.

The League carefully examined many facets of energy policy before taking its stand (click **here** for the League's FAQ). "We support strong action in Congress to stop global climate change, but the planet can't wait," Wilson concluded.

***

The League of Women Voters, a nonpartisan political organization, encourages informed and active participation in government, works to increase understanding of major public policy issues, and influences public policy through education and advocacy. Membership in the League is open to men and women of all ages.

League of Women Voters 1730 M Street, Suite 1000, Washington, DC 20036 202-429-1965 www.lwv.org

The United States Must Take Aggressive Action To Cut Its Greenhouse Gas Emissions To Stabilize Earth's Climate

The evidence is clear that human-induced climate change is underway.

The emission of carbon dioxide (CO_2) and other greenhouse gases—primarily by the burning of fossil fuels—has increased the blanket of heat-trapping gases in Earth's atmosphere. Global temperatures have risen approximately 0.8°C (1.4°F) above pre-industrial levels, and this small increase is already causing significant adverse effects. These effects—documented by the world's leading climate scientists and the Intergovernmental Panel on Climate Change (IPCC)—include rising sea levels, intensified storms, higher global temperatures, and severe droughts and floods that are already having adverse impacts on human health, food supplies, and ecosystems, as well as national economies.

The United States has made a commitment to stabilize the climate.

The United States Senate ratified the United Nations Framework Convention on Climate Change in 1992, joining over 180 nations in a commitment to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

Prompt action is required to slow the build-up of greenhouse gases.

According to the IPCC, global emissions must peak and begin declining ***before 2015***. There is strong scientific consensus that warming of more than ***2°C (3.6°F)*** above pre-industrial levels will lead to irreversible damage to our planet. The pre-industrial concentration of CO_2 in the atmosphere, expressed as CO_2-eq (CO_2 and other greenhouse gases and aerosols), was 280 parts per million (ppm). It was 375 ppm in 2005 and is increasing each year. We must start now to limit CO_2-eq below 450 ppm, adjusting the target periodically as

necessary, to reflect our understanding of the rapidly evolving science of climate change. Eventual stabilization
at even lower concentrations of CO_2-eq may be necessary.

The United States must adopt an aggressive trajectory for reducing its emissions.

The United States must stop the "Business as Usual" emissions of greenhouse gases and impose aggressive emission reductions starting in 2010. We support adoption by the U.S. of a firm, verifiable cap that reduces emissions at least 25% below 1990 levels by 2020 and 80-95% below 1990 levels by 2050. Even with these aggressive reductions in the U.S., the global decrease in emissions may lag, as shown in the graphic, resulting in dangerous warming. Furthermore, part of the emitted CO_2 remains and accumulates in the atmosphere; thus, the atmospheric concentration will continue to increase until the global rate of removal exceeds the rate of release.

We have the capacity, responsibility and economic imperative to lead this effort internationally.

The U.S. has met great challenges before—such as World War II and space exploration. Since we are responsible for much of the increase in atmospheric greenhouse gases, we need to accept responsibility for being the leader in solving the global climate challenge. Our efforts will transform our way of life by creating a new clean-energy economy and will allow the U.S. to maintain its technological leadership.

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Record-breaking transit ridership saved fuel equal to the amount consumed by 20,200 cars in Indiana

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- kpaul.mallasch

Submitted by kpaul.mallasch on Tue, 09/22/2009 - 10:28am. News State Environment

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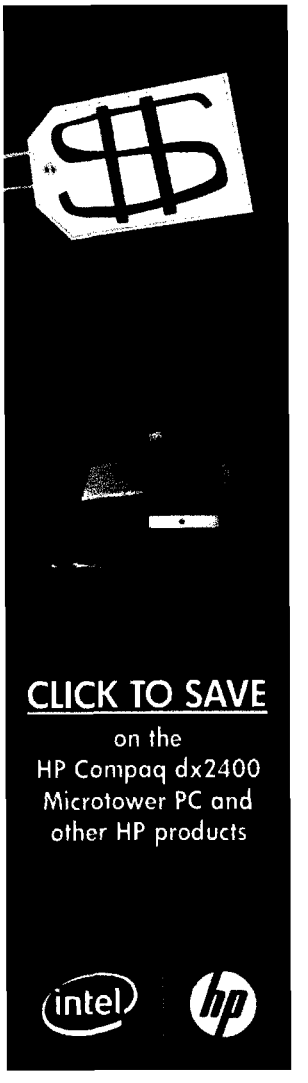
Indianapolis, IN - In 2008, people in Indiana saved 11,670,000 gallons of gasoline by riding transit in record numbers – the amount consumed by 20,200 cars in Indiana. Transportation is responsible for more than two-thirds of our dependence on oil, and about one-third of our carbon dioxide pollution Environment America outlined in their new report "Getting On Track: Record Transit Ridership Increases Energy Independence."



"People are voting with their feet by driving less and taking more public transportation," said Megan Severson of Environment America. "Congress should listen to these voters and invest more in public transportation, which will increase our energy independence and reduce global warming pollution," Severson added.

In Indiana, transit ridership increased by more than 9 percent above 2007 levels.

People in Indiana drove less, with 2.4 million fewer miles driven in 2008 than in the year before – a four percent decrease. People drove less due in part to volatile fuel prices and decreased economic activity, and many of these car trips were replaced by transit.

"More and more Indiana citizens want increased options for transportation. Not only does public transportation save working Hoosiers time and money, it helps to improve our environment," said State Representative Terri Austin, Chair of the Roads and Transportation Committee. "We have to find a way to increase public transportation options while ensuring that those industries which rely on moving people and goods over our public roads have safe, well-maintained thoroughfares," Austin added.

In 2008 increased national transit ridership saved more than 4 billion gallons of

gasoline, the equivalent of the fuel nearly 7.2million cars – almost as many passenger cars as are registered in Florida – consume in one year.

These figures do not take into account the other benefits of increased transit ridership – benefits that include reduced congestion, fewer hours stuck in traffic, reductions in smog and soot pollution or money saved by households regularly taking transit.

"Every additional dollar we spend on public transit makes us less dependent on oil, and reduces global warming pollution, smog, and asthma attacks," continued Severson.

In addition to fuel savings, public transportation reduced global warming pollution in Indiana by 105,000 tons in 2008.

In order to maximize public transportation potential to save energy and reduce pollution, Environment America is asking our local, state, and federal leaders to:

- Issue overarching goals for reducing oil dependence and pollution through transportation, which will guide better policy.
- Increase investment in cleaner public transportation, to include transit, high speed rail, and better walking and biking options.
- Level the playing field in terms of funding and approving transit projects, relative to road projects. Approval of transit and highway investments should be governed by an equivalent set of rules and matching ratios.
- Increase funding for transit maintenance and day-to-day operations, in addition to improving and expanding capacity. Federal, state and local funds should allow for greater flexibility in funding operations - new buses and trains are useless without drivers to drive them and mechanics to maintain them.

In the near term, Environment America is calling on Congress to incorporate the full provisions of CLEAN TEA (the Clean, Low Emissions, Affordable New Transportation Equity Act, S. 575), into the climate bill being debated now in the Senate. CLEAN TEA would direct 10 percent of climate bill allowances to clean transportation efforts that will save oil and reduce emissions.

"We hope Senators Lugar and Bayh will support this forward-thinking legislation to save oil and reduce pollution," Severson added.

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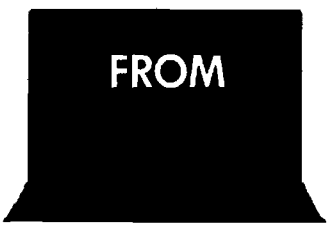

Similar links

- Indiana Urban Forest Council's 19th Annual Fall Conference Boasts Keynote Pepper Provenzano of TreeLink
- Explore Richmond/Wayne County, Indiana in a whole new way - with Geocaching!
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My Husband Laughed ... then he saw the checks [AD]

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Nowakowski, Sonja

From: Douglas Rhodes [sunworks2000@hotmail.com]
Sent: Tuesday, October 13, 2009 4:21 PM
To: Nowakowski, Sonja

Dear Sonja,

I am offering comments on the proposed changes introduced by the legislature.
Coal-We have plenty of coal, however the burning of coal pollutes. We need clean coal burning technology before we promote increased coal burning.
I dont believe sequestering carbon into the earth is a viable solution. This is an expensive short term idea that could contaminate our aquifers and eventually leak back into our atmosphere.
Alternative solutions are critical to our energy futures. Photovoltaic solar panels for electricity, solar hot water collectors, wind for electrical generation, methane from waste, clean burning technologies, and efficient machines that use less energy will all be critical to our energy futures.
The biggest energy savings in a difficult one for many...this is energy conservation...getting more for less. More insulation and energy efficient
heating and cooling systems are critical. Also, using less energy..turning off lights, efficient use of our heating and cooling equipment as well as the creative design of our buildings, facing the sun, passive energy techniques, etc.

Thank you for your time,

Douglas Rhodes, Architect
SunWorks Architecture
Whitefish, Montana

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Nowakowski, Sonja

From: Jeff Arcel [jarcel@centurytel.net]
Sent: Tuesday, October 13, 2009 11:10 PM
To: Nowakowski, Sonja
Subject: Promoting Renewable Energy

Greetings:

I understand from a recent article in the Whitefish Pilot that you are looking for comment on issues related to electricity rates and resources.

I strongly encourage our legislative representatives to consider introducing a Feed-In Tariff program for Montana to promote the use of renewable energy sources similar to the program recently enacted by Vermont.

http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=12551

http://www.leg.state.vt.us/docs/2010/bills/Passed/H-446.pdf

Fee-in tariffs have been proven to be the single most effective program to drive the increase in installation and use of renewable energy in over 50 states and countries around the world.

http://www.renewableenergyworld.com/rea/news/article/2009/09/feed-in-tariffs-go-global-policy-in-practice

I am thankful for your good efforts and I appreciate the opportunity to provide my humble input.

Best regards,

Jeff Arcel
Mother's Power, Inc.
406.250.7853

Nowakowski, Sonja

From: Elizabeth A.Taylor [montanabiz@gmail.com]
Sent: Wednesday, October 14, 2009 5:48 PM
To: Nowakowski, Sonja
Subject: Regarding Montana state energy policy

From: montanabiz@gmail.com

10-14-2009

To Whom it May Concern:

Montanans want energy development—but we want *clean* energy. The mining and burning of coal is a filthy way to generate electricity. Montana needs to move forward—toward a new energy economy. The state should encourage energy efficiency, conservation, and renewable energy. Montana should NOT promote energy generation that causes global warming; harms public health; undermines private property rights; pollutes water, air, and landscapes; and harms wildlife and its habitat.

Please work to create a State energy policy that moves Montana toward a clean energy future, not one based on tired old rhetoric that prolongs the devastating effects coal development.

Elizabeth A. Taylor
19215 Houle Creek Road
Frenchtown, Montana 59834
E-mail: montanabiz@gmail.com

Nowakowski, Sonja

From: molly montana [molly@mollymontana.com]
Sent: Wednesday, October 14, 2009 5:51 PM
To: Nowakowski, Sonja
Subject: clean energy

I would hope that our state could be a forerunner in promoting alternative energy. I am completely opposed to using coal to increase the supply electricity. If and when coal can be used in a safe and clean manner we can not consider it. If anything, we need to increae our regulations on clean energy. It's time we put alternatives into action.
Mollie Kieran
Libby, MT

Nowakowski, Sonja

From: wwranch@3rivers.net
Sent: Wednesday, October 14, 2009 11:43 PM
To: Nowakowski, Sonja
Cc: wwranch@3rivers.net
Subject: Clean Energy policy vital for Montana

Sonja,

Montana needs a clean energy policy that promotes renewable and sustainable energy, energy-efficiency and conservation that our Governor has encouraged. Members of Citizens for Clean Energy served on the Governor's Climate Change Advisory Committee (Ken Thornton and Dr.
Cheryl Reichert) and the work done for that committee is the basis of a sound policy that reduce climate change and focus on new energy, not tired policies that subsidize fossil-fuel extraction.

The state's energy policy needs to look FORWARD, not backwards. We need to truly embrace 25 x 25, and we appreciate the governor being one of the first to support that effort, but it also takes action and direction to fulfill that goal.

Many CCE members have appeared before state committees to promote clean and sustainable energy development and opposed unbridled dirty coal development at the last session and others.

I'm asking CCE members to send their comments (due by 21 Oct) but the bottom line is Clean Energy is a must for the 21st Century, not tired policies that take us to a dirty, toxic past.

Sincerely,

Richard D. Liebert
Chair, Citizens for Clean Energy, Inc.
cce-mt.org

ps - Big Oil and King Koal can take care of themselves, and they've had billions of subsidies and externalities, and time to get on with clean energy for the 21st Century.

Nowakowski, Sonja

From: Wade Sikorski [wds@midrivers.com]
Sent: Thursday, October 15, 2009 6:38 AM
To: Nowakowski, Sonja
Cc: Barrett, Evan; Teresa Erickson; mfix@rangeweb.net; 'Julia Page'; Anne Hedges
Subject: Legislation for climate crisis

Members of the Energy Committee,

My family owns a ranch in southeastern Montana. Over the last decade, I have noticed that steel fence posts are being driven into the ground by spring blizzards. I increasingly find myself jacking up steel posts up out of the ground when I make the rounds checking fences in the spring, where I never used to do that. It didn't used to be a problem. The wire would break, but the ground would be frozen and the steel posts would stay where they were. I take this as a sign of the climate crisis.

It isn't the only symptom. On another part of our ranch, we have a draw that is filled with trees. We discovered that they are all aging, near death, and no new trees are replacing them. We invited a government scientist in to try and figure out what was wrong. He had us fence in two test plots on the draw. One we grazed heavily, the other we didn't graze at all. Grazing didn't change anything. The scientist told us that he believes that the reason the trees are not reproducing is because of a change in the hydrological cycle due to global warming.

As it was with the steel posts, the warmer winters are melting snow throughout the winter. Snow does not accumulate on the ground the way that it used to, piling up deep in the draws where the trees are. Without the heavy snow to water the sprouts and to delay the grass, the trees are finding it too hard to compete against the grass in the draws.

As a result of global warming we are losing the small number of native trees that we have on our place

Some of the changes I have notice have serious economic consequences. On our ranch, we have a flood irrigation system of about 60 acres. When I was a child, the spring melt usually filled the system of dikes with runoff from top to bottom. Some years, we might have had 2 or 3 times as much water as we needed to flood all the dikes. One of my most vivid memories of my childhood was standing on a muddy dike in the middle of this project, water all around me like a sea. I was little more than 3 feet tall, and I would have been in over my head on either side if I fell in. I remember how tired I was, dragging 10 pounds of mud on each boot, and thinking how cold the water would be if I slipped and fell into the water.

Today, I don't have to worry about that anymore because the water doesn't come anymore. For most of the last decade, I could walk the lands between the dikes and not even get my shoes wet. Perhaps our annual precipitation has declined, but not by that much. What has happened is that our long cold winters, where the snow accumulated until spring and then melted in a rush, have changed. Now, the snow melts away throughout the winter. By spring, the ground has thawed and the water soaks in before it gets to our irrigation project.

This system, which worked really well throughout my childhood, is not flooding anymore. This is a considerable economic loss to my family. The swather windrows used to be too big for me to jump across. Now our yields are only a fraction of what they were.

Recently, I saw a study the other day that said that North Dakota could average 50 days a year with temperatures over 100 by the end of the century. Although most of

Montana might fair a little better, my end of Montana can expect to have North Dakota's weather. My personal rule of thumb, which is probably conservative, is that every day temperatures are over 100, our yields fall one bushel per acre, two if there is a breeze. We continuous crop using no till. Our yields now are between 20 and 30 bushels per acre. We can assume that half of those days over 100 will be during the growing season. So, if this forecast turns out to be true, and we lose 25 bushels per acre because of higher temperatures, we might not even be getting our seed wheat back by the end of the century.

Some people say that we need coal fired electricity because it is cheap. I say there is nothing more expensive than coal. The Montana legislature has a choice to make. Either it chooses to support "cheap" coal, or it chooses to support agriculture. It cannot do both. If we choose "cheap" coal, we are going to lose not only agriculture, but the timber industry and the tourism industry as well. "Cheap" coal is going to bankrupt the state.

James Hanson, one of the world's leading climate scientists has said that we need to keep carbon dioxide levels under 350 ppm to keep the Arctic Ocean's ice cover. We are now approaching 390 ppm. If we lose the Arctic ice cover, which reflects most of the energy which reaches it, and it is replaced by open water which absorbs most of the energy reaching it, the world's climate will be irrevocably changed. The huge amounts of carbon dioxide stored in the Siberian and Alaskan tundra will be released. The methane hydrates stored at the bottom of the ocean will bubble up, increasing the greenhouse effect.

If we do not dramatically change our energy policy soon, we will live on an entirely different planet, one that is not nearly as favorable to human life. We must move

quickly if we are going to save the economy of Montana. The Colstrip power plant is by far and away the largest source of carbon dioxide emissions in Montana. It must either safely sequester all of its emissions or be shut down. Absolutely no new coal plants must be built unless they safely sequester all emissions. Renewable energy must dramatically expanded until our carbon emissions are zero.

But not even that is enough to save the economy of Montana. We must find a way to take carbon out of the air, reducing the concentration of greenhouse gases until they are under 350 ppm again. I would suggest turning biomass into charcoal and plowing it into farmland across Montana. This is one of the cheapest ways to take carbon dioxide out of the air and it will have the added benefit of improving Montana's soil quality.

This is by far and away the most urgent issue facing Montana. The Montana legislature simply has to start doing the right thing, or our future is impossibly bleak.

Sincerely,

Wade Sikorski
1511 Hwy 7
Baker, MT 59313
406.775.6378

Nowakowski, Sonja

From: Linda Heyes [llheyeswyssc@yahoo.com]
Sent: Thursday, October 15, 2009 7:34 AM
To: Nowakowski, Sonja
Subject: State energy pol

Any State energy policy that is formulated in the future, needs to take into account maintaining a clean environment, both water and air. The technology for clean coal is not yet developed, the extraction methods for methane gas pollute the ground and water, any policy must recognize these facts and act accordingly.

Wind and solar need assistance to become mainstream, a policy should recognize that also.

thank you for this opportunity to comment.

Tom Heyes
320 Clarke St
Helena MT 59601
lakehost2004@yahoo.com

Nowakowski, Sonja

From: Cary Gubler [cgubler@kulr.com]
Sent: Thursday, October 15, 2009 9:31 AM
To: Nowakowski, Sonja
Subject: clean inexpensive energy?

Coal is not clean & its not inexpensive. Moving forward there is no place for coal if we want to leave our children with a clean & healthy earth.
Also, using natural gas to power electricity generating plants is INSANE. As a result, the public will be informed that because of the high demand for natural gas, the price per customer is going to go through the roof. I can't believe such an idea is even entertained let alone executed. Wind, solar and truly CLEAN energy are the way forward. Unless of course you just want to make a quick buck, don't give a damn about your granchildren and secretly wish that you could see how history looks back at the 20th & 21st centurys with jaded, detatched amusement...Sincerly, Cary B. Gubler

Nowakowski, Sonja

From: Henry Busey [hwbusey@bresnan.net]
Sent: Thursday, October 15, 2009 11:34 AM
To: Nowakowski, Sonja
Subject: LWVMT Energy Testimony for Nov. 9th

Attachments: Interim Energy testimony.doc

Interim Energy
:estimony.doc (...

Attached is testimony for the Energy and Telecommunications Interim Committee to receive at or before their Nov. 9th meeting.

The League appreciates the opportunity to share our thoughts with each member.

Sincerely,
Sara Busey, Action Chair
League of Women Voters of Montana

To: Energy and Telecommunications Interim Committee
From: League of Women Voters of Montana
Re: Revised State Energy Policy
Date: November 9, 2009

Dear Committee Members,

Montana must move toward a more sustainable energy future by encouraging the development and use of renewable energy sources and away from the burning of non-renewable coal.

To forward this goal, the League urges you to propose legislation to prohibit new coal-fired electric power plants in Montana until carbon sequestration is environmentally viable; and re-direct and increase incentives from "low-cost" coal to renewable energy in the production of electricity.

* Montanans have no need for more coal-fired power plants. Coal consumption has remained stable since the 1980's while the majority of coal burned in Montana produces electricity for export.
* Coal-fired power plants are responsible for 33% of the carbon dioxide (CO_2) emissions in the U.S, a major cause along with other greenhouse gases that contribute to global warming. Montana's five coal-fired power plants emitted 21.7 mil. tons of CO_2 in 2008, according to the EPA. Leading scientists predict global warming will cause increased heat waves, droughts, forest fires, beetle infestations, decreased agricultural yields and disappearing glaciers unless we stabilize the concentration of CO_2 at or below 450 parts per million. This means reducing U.S. emissions at least 80% below 2000 levels.
* The technology to capture CO_2 emissions is in its infancy. Carbon Capture and Storage (CCS) holds promise, but has not been demonstrated to be either cost-effective or environmentally safe on a commercial scale. According to a 2008 U.S. Department of Energy analysis, CCS will not have an impact before 2030.
* Coal-fired power plants have a long life. Those built today without the technology to capture CO_2 will be with us for decades.
* The cost of electricity from coal-fired power plants must include the cost to Montanans of negative health effects from air pollution, premature deaths, environmental degradation from mining, and damage caused by climate change, such as increased droughts, forest fires, heat waves, and decreased agricultural yields.
* A moratorium will give predictability to the coal industry and provide an opportunity to develop commercially cost-effective methods to generate non-polluting energy. Such a "time-out" will also give Congress time to enact climate change legislation.

The League strongly urges you to encourage development and use of alternative energy sources with increased tax incentives and loan programs.

* Montana has an abundance of renewable wind, solar, geothermal and biomass energy sources that can be developed to provide a diversity that increases our energy security.
* New clean industries and jobs can be created with incentives to replace any jobs lost in the coal industry.
* Redirecting subsides from coal producing to renewable energy industries would not negatively affect the state budget while growing new, long lasting jobs.
* Encouraging construction of additional power lines will help carry wind energy to urban areas.

* Requiring all utilities, co-operatives as well as large, for-profit companies, to develop renewable standards that include a minimum percentage of renewable energy will decrease CO_2 emissions and increase jobs for the long term.
* Increasing the percent of renewable energy required of utilities to carry in their portfolios from 15% to 20% by January 1, 2015 is necessary to move Montana into a new more sustainable economy based on renewable energy.
* Conducting a survey of Montana's alternative energy sources and cost-effectiveness similar to the California Black & Veatch Project would provide a basis for decision making. (see Sources below)

The League also urges the committee to encourage energy conservation in the revised energy policy. It is the simplest, least expensive and most effective method to bring immediate energy savings.

Thank you for the opportunity to comment.

Sincerely,

Gladys Hardin, LWVMT and Missoula LWV President
827 Woodford Street, Missoula, MT 59801
406-543-4096 ghardin@bresnan.net
Jan Young, LWVMT Vice President
Rita Blouke, Helena Co-President
Joy Bruck, Helena Co-President
Diane Johnson, Billings Co-President
Maxy Megrue, Billings Co-President
Sally Maison, Bozeman President
Camie Smith, Nominating Chair
Barbara Martin, Treasurer
Geneva Van Horn, Secretary
Sara Busey, Action Chair
Cathy Weeden, VOTER Editor

Sources:

"FAQ on a 10-year Moratorium on New Coal-fired Electric Power Plants," League of Women Voters U.S, 8/7/08.
www.lwv.org/AM/Template.cfm?Section=Home&section=Global_Climate_Change2&template=/CM/ContentDisplay.cfm&ContentFileID=2809
"Renewable Energy Transmission Initiative," Black & Veatch Project, California, April 2008
www.energy.ca.gov/2008publications/RETI-1000-2008-002/RETI-1000-2008-002-F.PDF

Nowakowski, Sonja

From: mikejudeh@aol.com
Sent: Thursday, October 15, 2009 12:53 PM
To: Nowakowski, Sonja
Subject: (no subject)

Dear Sonja; I am writing you concerning energy policy. First of all the talk of clean coal is something that hasn't been worked out yet, so it's a bogus statement now. What this country needs is to start developing some some serious energy alternatives. In Montana we have the capacity, especially on the hi-line, for wind energy. I know that over by Conrad they are doing some development and there is talk about some stuff over by Browning. We have some capacity for geothermal in certain areas and probably solar for most of the year. There is also the option of natural gas, which is a bunch cleaner than coal. I know that the former Montana Power, now PPL was invested heavily in coal around the Colstrip area, but they NEVER considered putting scrubbers on their emissions and if they did now they would of course want either the rate payers or taxpayers (actually the same people) to pay for their omissions. We need to start building for the future in this country instead of coddling to the corporations who want things to remain the way they are now. Sincerely, Mike Lulay

Nowakowski, Sonja

From: Alison Young [aliyoung17@yahoo.com]
Sent: Thursday, October 15, 2009 3:12 PM
To: Nowakowski, Sonja
Subject: Energy policy

I have just returned from a trip to Mongolia where coal is burned for electricity and by homeowners for heat. A pall of soot hangs in the air over the capital city of 1 million people and pollutes and smells up the air in Bayan-Olgii a city of 30,000 people. Please let's not have that happen in Montana!

I am asking the Energy Committee to create a State energy policy that moves Montana toward a clean energy future. We need to develop alternative energy systems with strong environmental regulations.

Thank you.
Alison Young
1025 Hodgson Rd.
Columbia Falls, MT 59912

Nowakowski, Sonja

From: Cheryl [creichert@bresnan.net]
Sent: Thursday, October 15, 2009 5:32 PM
To: Nowakowski, Sonja
Subject: Clean energy please!

To members of the Interim Energy Committee of the Montana Legislature:

I am one of the folks who worked very hard to stop a coal fired power plant from being built in the middle of "the last best place". I know that I and many others like me would prefer to put our energies into building a new clean energy economy, rather than spending countless hours and volunteer efforts to stop a dirty coal plant.

I hope that the Legislature will take this opportunity to lead our State in a new direction that will not only guarantee our constitutional right to a clean and healthful environment, but also put us in a position to capitalize upon the growth industry of green energy.

Sincerely,

Cheryl M. Reichert

Cheryl M. Reichert, M.D. , Ph.D.
Pathology and Biological Chemistry
51 Prospect Drive
Great Falls, MT 59405

Nowakowski, Sonja

From: Sue Dickenson [suedickenson@yahoo.com]
Sent: Thursday, October 15, 2009 10:17 PM
To: Nowakowski, Sonja
Subject: Comments on energy for interim committee

Sonja---here are my comments. Would you let me know that you got them OK? Thanks. Sue D.

Comments to the Energy and Telecommunications Interim Committee

Concerning increasing the supply of low cost energy through coal-fired generation, I believe we need to move away from coal and that the concept of "low cost" is definitely a debatable issue. Existing coal-fired energy plants need incentives to retrofit so that they decrease the greenhouse gases, better control hazardous emissions, and do a much better job dealing with coal ash. We read the story about Tenn.and what happened when a holding pond collapsed. Though Coalstrip /PPL maintain their ponds do not present that kind of risk, it is public knowledge that they have had to settle with neighbors to the tune of millions of dollars for destroying their water supply, due to leakage from the ponds. That is public knowledge. Therefore "business as usual" concerning coal-fired generation is not low cost. Carbon sequestration ideas are important and may offer some stop gap solutions to our energy concerns, but that concept should not delay our moving forward aggressively to develop alternative energy sources and big time conservation and energy efficiency programs.

Promoting alternative energy systems is critical as we move forward in our energy future. Wind and solar can be decentralized, spreading out the economic development to many different areas of Montana. Same with biomass and thermal. Coal is highly centralized, tied to only a few locations where there is a massive coal mine. Jobs in the alternative energy field are growing and as we do more research and development, additional jobs open up. Jobs in coal country are declining because of technology and that is not likely to change any time soon. Alternative energy jobs can allow folks to live all over the state and not have to concentrate in a few communities. As we deal with energy needs now, as alternative energy sources are being developed, we can offer strong incentives to current generation to become more efficient and assist consumers with energy efficiency and conservation as a real way to keep consumer costs down. Note Cascade county which has begun major energy conservation projects and will see millions in savings over a short period of time. Conservation and efficiency just makes sense and is a very wise business decision which the private and public sectors have recognized.

Regulation, in my opinion, does not need to increase consumer energy costs. Regulation protects our health, our water sources, our communities from degradation. It saves our state millions of dollars in perpetuity to clean up the sites of those companies who spoiled their nests and then declared bankruptcy. I assume we are talking here about environmental regulation and perhaps renewable portfolio standards, because we all know there is no regulation as to what the electricity industry can charge us. Companies who deal with this regulation CHOOSE to pass on the costs to consumers. If we at the state level can offer strong incentives so industry does not choose to do that or offer consumers alternatives which help them reduce energy consumption, we can save ratepayers money. Increased energy cost is not inevitable with sensible regulation. The laws we currently have in place are sensible although not nearly as effective as they used to be.

In summation, alternative energy resource development and energy conservation/efficiency are the way to go---sensible, sustainable, responsible, cost effective, and what more and more of Montana citizens see as the preferable future.

Nowakowski, Sonja

From: John W. Ray [speechray@in-tch.com]
Sent: Friday, October 16, 2009 8:08 AM
To: Nowakowski, Sonja
Subject: Submission--Interim Energy Committee Consideration
Attachments: Coal Fired Power Plants, Clean Coal Technology and Carbon Sequestration.doc

Attached please find a document that I would like to have submitted to the Interim Energy Committee for their consideration as they help to develop an energy policy for Montana.
If for some reason you are unable to open the document, please contact me.

Dr. John W. Ray
915 West Galena St.
Butte, Montana 59701

speechray@in-tch.com

Coal Fired Power Plants, Clean Coal Technology and Carbon Sequestration

Submitted by:
Dr. John W. Ray
915 West Galena St.
Butte, Montana 59701

The most important environmental problem in the 21st century is coal, or you could say coal is the most important enemy. (Ottmar Edenhofer, Chief Economist at the Potsdam Institute for Climate Impact Research in Germany, *Reuters*. 9/29/06)

While the U.S. is admittedly addicted to oil, we are becoming increasingly addicted as much to coal. Internationally, increasing coal use is a key component of energy security for countries such as China.

Coal is and will continue to be increasingly attractive in that it is relatively cheap, plentiful and easy to ship. The search for energy security is now a defining feature of international relations and coal is a significant component of energy security. International terrorism makes coal attractive for developed countries in that it lessens reliance on Middle Eastern oil and increases national energy self-reliance. Developing countries, such as China, see in coal a means of securing national economic independence.

Coal **is** abundant in the United States. According to Jeff Goodell, we have around 270 billion tons of coal which could provide for anywhere between 200 and 500 years of use, depending upon consumption rates. (Jeff Goodell, *Big Coal: The Dirty Secret Behind American's Energy Future* (Houghton-Mifflin, 2006) More locally, forty percent of the coal used in America comes from the Powder River Basin and as a whole Montana has more coal than does Wyoming. Goodell argues that our current collective affection for coal-based energy is based on our collective amnesia of why we switched from coal in the first place: not because we ran out but because it was dirty and inefficient.

Given the increasing price of oil, the attempt is being made to rehabilitate coal and to portray it as a relatively cheap potential energy alternative, particularly coal liquification. Much of the recent impetus for coal development and use centers on so-called clean coal technologies, turning coal to liquid fuels, and carbon sequestration. Montana Governor Brian Schweitzer has enthusiastically embraced "clean" coal technology and turning coal to liquid fuels as the solution for not only Montana's energy needs but also the energy needs of the whole country.

This paper makes the argument that the policy that we as a state and as a nation should pursue is the maximum achievable decarbonization of energy supply. Our energy development trends should be toward the decarbonization of energy. If we want to

prevent a doubling of the carbon dioxide in our atmosphere we need to make sure that global carbon emissions from the burning of fossil fuel in the year 2050 does not exceed the burning levels of 1990 and by the end of the 21st Century should decrease to a third of what we are now emitting. "Whatever means may to some extent contribute to alleviating the global warming problem, most specialists view a partial decarbonization of energy use a necessity." (Koen Smekens and Bob van der Zwaan, Energy Research Centre of the Netherlands, Policy Studies Department, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 2)

More specifically this paper argues:

1. That the mining and transportation of coal present serious threats to human health and the environment. The mining and transportation of coal would continue even if clean coal technologies were in use and even if we pursued a policy of turning coal to liquid fuels. You first, no matter what the coal based energy production technology, have to mine and transport the coal.
2. Burning coal in traditional coal fired power plants is harmful to human health and the environment.
3. A coal to liquid fuels program has many unanswered technical and environmental questions and many potential risks. Cost efficiency is also a major issue.
4. A coal to liquid fuels program only makes environmental sense if it is connected to a program for carbon capture and sequestration. Without carbon capture and sequestration, a coal to liquid fuels program would be worse environmentally than traditional coal fired power plants while costing more.
5. There are significant potential technical and environmental problems with carbon capture and sequestration.
6. There are significant legal liability problems with carbon capture and sequestration.
7. There are significant regulatory gaps and problems with carbon capture and sequestration.
8. There are significant cost and financial problems with carbon capture and sequestration.
9. There are significant knowledge gaps about carbon capture and sequestration.
10. Renewable energy development is a preferable policy option both from the perspective of environmental protection but also from the perspective of cost.

Coal Fired Power Plants and Environmental Degradation.

From mining and transportation to burning, coal fired power plants are harmful to human health and the environment.

a. Mining and transportation—These include occupational risks, water, air, and soil pollution, surface disturbance, erosion, biodiversity loss, permanent changes to topography, altering solid and subsurface geological structure and subsidence. The transportation of coal strains our antiquated rail system, creates significant safety problems and increases the dominance of monopolistic railroads that can determine the supply and cost of coal and can lead to interrupted and unpredictable supply and power problems.

b. Burning—both long term (acid rain/global warming/climate change) and immediate health affects such as mercury contamination. "Coal-fired power plants also emit a large variety of other air pollutants including chromium, nickel, arsenic, dioxins, hexachlorobenzens, hydrochloric acid, hydrogen fluoride, cobalt, and radon gases. Some of these pollutants are carcinogens, some are persistent in the environment and capable of accumulating in the food chain, and all are toxic to plant, animal and/or human life."(Kim Perotta, "Beyond Coal: Power, Public Health and the Environment," *Ontario Public Health Association*, November 2002, p. 10) In the United States, coal is used to generate about half of our electricity and this electrical generation is responsible for 70% of the SO2 release, 25% of the NOx, 35% of the C02 and 25% of the air emissions of mercury. (*Ibid*, p. 12) The preparation of coal for burning through the process of "washing" also creates a toxic slurry waste which can contaminate ground, surface and drinking water.

c. Mercury Pollution-- Coal fired generators are the number one source of mercury pollution in Montana. For example, over 90% of the mercury in Montana's air comes from coal fired plants. (EPA—Toxics Release Inventory) Mercury is a powerful neurotoxin that also harms fetal development, promotes cardiac disease, and has been linked to autism and other learning disabilities. Burning coal in traditional coal fired plants leads to significant releases of mercury as well as other pollutants. Overall, coal fired power plants are the largest emitters of mercury in the United States.

d. Monetary Cost of Health/Environmental Harms from Burning Coal—The EPA estimates that about half of all Americans live in areas where air pollution exceeds health standards and a major source of this pollution is coal fired power plants. Goodell estimates that public health effects of coal fired power plants would add an average $13 per megawatt hour to the cost of electricity.

e. Environmental Justice—Given that economies of scale mandate the construction of centralized, large-scale power plants, burning coal raises environmental justice issues in that these plants are often located in poorer areas.

f. Opportunity Costs—Also, our reliance on coal to generate electricity means that we are not devoting the resources necessary to develop clean sources of energy such as wind and solar as well as conservation energy. Because coal is the cheapest way of generating electricity, we can expect the trend to continue and increase.

g. Ash disposal problems—The ash from coal fired electrical facilities contains significant amounts of arsenic, cadmium, chromium, lead and mercury—all of which are harmful to human health. The improper disposal of coal ash has contaminated ground and surface water at over 120 sites nationwide and three federal Superfund sites were created by the improper disposal of coal ash. "A large coal-fired power station produces up to 1 million tons of ash each year." ("Environmental Effects of Electricity Generation: Fossil Fuels," The Institution of Engineering and Technology, 2006, p. 7) This ash must be disposed of and contains high level of toxic materials which can leach or migrate into the natural environment.

h. Burning coal also contributes to global warming. Global warming and climate change as the result of human activity in no longer in doubt. About 25% of CO2 emissions, which cause global warming, come from burning coal. Currently planned coal fired power plants will add 570 billion tons of CO2 to the atmosphere. This figure of 570 billion tons, according to Goodell, is the equivalent of all CO2 released in the past 250 years. Thus, coal fired plants are also the major source of the major pollutant responsible for global warming—carbon dioxide. The United States has only 5% of the world's population but emits over 22% of the world's greenhouse gases. Montana is eight in the U.S. in carbon dioxide pollution. Few sensible people now doubt that global warming is occurring. Last year was the hottest year ever recorded and the last 20 years have been the hottest in the last millennium. Montana has seen the Glacier Park glaciers disappearing, forests fires increasing, spring melt off occurs two weeks earlier than 50 years ago, snowfall has decreased state wide, the number of frost free days has increased and Montana's lake temperatures are rising significantly. (Montana Climate Center)

Current coal technology used to generate electrical energy comes with a heavy environmental price. This technology is dirty, hazardous to health, mined in an unsafe manner, and leads to problems of coal fires, water pollution, and subsidence from abandoned coalmines. **The most polluting way to generate electricity is to burn coal.** Pollution occurs from the mining, transportation, burning and waste disposal of coal. Coal contains numerous harmful elements such as mercury that are released into the environment through the burning process. Other harmful contaminants such as nitrogen oxides and sulfur dioxide, which lead to respiratory diseases and harm vegetation, crops and water quality, are released by coal-fired power plants. (*New England Journal of Medicine* and *Journal of Pediatrics*) Renewable sources of energy such as solar and wind power do not have these environmental and health problems, yet, as a nation we still rely on coal-fired power plants for our electricity.

Rather than spend vast amounts of money on unneeded and polluting coal fired power plants, Montana should be investing in renewable energy sources such as wind, water, solar and conservation energy. Renewable and conservation energy can more than meet any future energy needs for Montana. Using coal to produce energy in Montana is unnecessary and harmful to human health and the environment.

Coal Liquification

There is no question that gasification and coal to liquids are better technologies than traditional coal fired power plants. But that does not mean that we should embrace the new technologies as panaceas for our energy problems. As long as we depend on carbon-based fuels for our energy, we will continue to have all of the health and environmental problems associated with non-renewable, fossil fuels. Using coal to make synfuels is not in and of itself environmental benign. Using coal to make synfuels "brings more long-term environmental concerns than long tem economic or security threats because tradeoffs have strong potential to be resolved by accepting increase environmental

damage in order to avoid economic or security risks." A.E. Farrell and A.R. Brandt, "Risks of Oil Transition," *Energy and Resources Group, University of California—Berkeley*, July 2006, p. 8) For example, according to the Princeton University Carbon Mitigation Initiative: "One synfuel facility in South Africa the size of what's being proposed for Montana releases more carbon dioxide into the air than any other single source in the world." (Reported in *Bozeman Daily Chronicle*, October 16, 2005)

Producing diesel fuel form coal emits nearly twice as much carbon as crude oil to diesel production and 15 times as much as biodiesel production, according to the U.S. Energy Administration, U.S. Department of Energy. The Natural Resources Defense Council has provided documentation that the production of a gallon of liquid fuel derived from coal produces our twice the amount of carbon dioxide as does the production of gasoline, diesel fuel, jet fuel and fuels from crude oil. "Making transportation fuel from coal through chemical transformation sends approximately twice as much CO_2 into the atmosphere as using standard crude oil." (Jeffrey Logan, Joanna Lewis, and Michael B. Cummings, "For China, the shift to climate friendly energy depends on international collaboration," *Boston Review*, Jan/Feb 2007)

A.E. Farrell and A. R. Brandt, conclude: "Crucially, the vast resource base of fossil fuel resources that could be turned into liquid fuels implies very large greenhouse gas emission even if carbon capture is used. For instance, using a quarter of the world's coal endowment as coal to liquids would increase atmospheric greenhouse gas concentration by approximately 300 parts per million. This would be larger than the effect from combusting all of the world's conventional petroleum, and would by itself more than double pre-industrial atmospheric concentrations of greenhouse gases. With carbon capture and sequestration the effect is still large, about 150 parts per million. (Put another way, using 1% of the global coal endowment as coal to liquids yields roughly a 10 parts per million increase in atmospheric greenhouse gas concentrations, perhaps half that if carbon capture sequestration is used." ("Risks of the Oil Transition, *Energy and Resources Group, University of California—Berkeley*, July 2006, p. 6) "Before deciding whether to invest scores—perhaps hundreds—of billions of dollars in a new industry like coal-to-liquids, we need a much more serious assessment of whether this I an industry that should proceed at all." (David Hawkins, Director of the Climate Center at the Natural Resources Defense Council.)

This South African coal to liquid fuels plant produces more than twice the sulfur dioxide emissions and four times the nitrous-oxide emissions of all the power plants and factories in Billings, Montana. According to Princeton University's Carbon Mitigation Initiative, the South African coal to liquid fuels plant releases around 7.7 million tons of carbon a year and it is the largest single producer of carbon in the world. If a 150,000-barrel per day plant were built in Montana, it would produce 30 million tons of carbon dioxide. (*Bozeman Daily Chronicle*, "Coal to Fuel Proposal Raises Environmental Concerns, October 16, 2005) In comparison, currently the largest coal burning power plant in the United States produces 20 million tons of carbon per year. "If you just switch to coal-based synfuels, you actually make the global warming problem so much worse."

(Stephen Pacala, Princeton University's Carbon Mitigation Initiative, "Coal to Fuel Proposal Raises Environmental Concerns, *Bozeman Daily Chronicle*, October 16, 2005

It is also mistaken to believe that synfuels are the way to achieve energy independence. Even if the United States was able to produce one million barrels of synfuel per day from coal, that would only be 5% of the United States' annual demand for oil." (*Bozeman Daily Chronicle*, October 16, 2005)

Synfuels do little to increase energy efficiency in the U.S. "Direct liquefaction is about 60% energy efficient, indirect techniques around 45%."(Peter Aldhous, "Energy: China's Burning Ambition, *Nature*, 435, 1152-1154 (30 June 2005)

Converting coal to liquid fuel also uses enormous amounts of water. In South Africa the Sasol coal to liquid fuel plant uses five barrels of water for every barrel of oil they manufacture. According to the U.S. Department of Energy, this amount of water needed to produce liquid fuels at the South African plant from coal is about a normal amount. In states such as Montana and Wyoming with limited water resources, such demand for water would be problematic indeed. Where would the water come from? What would be the water tradeoffs if such amounts of water were used? What would be the affect on agriculture? What would be the effect on recreation and fishing? What would be the economic losses incurred from the above?

Monetary Cost of Coal to Liquid Fuels Plant

"The startup cost for even a small coal to liquid fuels plant is from $1 billion to $1.5 billion." (Samuel Western, "Spinning Coal into Gasoline," *High Country News*, Vol. 38, No. 21, November 13, 2006, p. 1) Currently, the federal national Energy Policy Act of 2005 will provide 80% of the startup costs of a coal to liquid fuel plant but the act also limits total loans for synfules to only $2 billion. Currently, there are at least six coal to synfuel plants proposed in the United States, each one to cost about $4 billion. (*Ibid.* p. 2)

Investors would be reticent to invest in coal to liquid fuels given that the price of crude oil could drop to a level below 40 to 50 dollars a barrel in which event the cost of coal to liquid fuels would be cost prohibitive. Coal to liquid fuels have greater initial capital cost per unit of production relative to regular petroleum processing plants and are more expensive to operate than regular refineries. As a result coal to liquid projects "are financially risky to investors and may become uneconomical should oil prices fall, as they have in the past. Indeed, investment in coal to liquid fuels moves the global supply curve for liquid hydrocarbons out and will tend to cause world oil prices to fall. Adding the cost of environmental controls exacerbates the risk to investors." (A.E. Farrell and A.R. Brandt, "Risks of Oil Transition," *Energy and Resources Group, University of California—Berkeley*, July 2006, p. 7)

Carbon Sequestration

Relatively little attention has been paid so far to the detrimental environmental externalities that the ground sequestering of CO2 under could entail. Carbon sequestration externalities do matter and influence the nature of future world energy supply and consumption. (Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 1)

Unless carbon is sequestered, turning coal to liquid fuels and coal gasification will be more harmful to human health and the environment than is the traditional coal fired generation of power. All of the environmental and health benefits from so called "clean" coal technologies only occur if carbon is captured and sequestered. Turning coals to liquids and coal gasification only makes sense environmentally if the carbon released by the process is sequestered. Yet, there are significant unknowns and significant potential risks associated with carbon sequestration.

Long Term Monitoring Problems

Monitoring of sequestered carbon dioxide would have to be done for an exceeding long time, perhaps millions of years. The efficacy of such long term monitoring is not known and, at present, there is no universally accepted rubric for such monitoring.

"At the present time, there are no established protocols for the kind of monitoring that will be required, by whom, for how long and with what purpose. Geological storage of CO_2 may persist over many millions of years. The long duration of storage raises some questions about long-term monitoring." ("IPCC Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p. 241)

Risks of Long Term Storage of Carbon Dioxide are Unknown

"A number of important questions related to environmental hazards and safety risks of carbon sequestration remain. Uncertainties associated with negative sequestration impacts—that ideally ought to be addressed before carbon storage is employed on a large scale—abound, and their nature and extent are insufficiently understood." Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 3) The long-term storage of carbon dioxide is not without significant risks. Of particular concern are induced seismic activity and the potential for harmful effects of sudden large-scale releases of carbon dioxide into the atmosphere. Groundwater can also be displaced by the ground injection of CO2. "Local health, safety and environmental hazards arise from three distinct causes: Direct effects of elevated gas-phase carbon dioxide concentrations in the shallow subsurface and near-surface environment, effects of dissolved carbon dioxide on groundwater chemistry, and effects that arise from the displacement of fluids

by the injected carbon dioxide." ("IPCC Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p. 242)

Carbon dioxide can be released through terrestrial pores, fractures, faults and anthropomorphic pathways such as mine shafts and wells. C02 could also be released through mining activity in an area of carbon sequestration; "Mining or drilling in areas with CO2 storage sites may pose a long-term risk after site abandonment if institutional knowledge and precautions are not in place to avoid accidentally penetrating a storage formation." ("Intergovernmental Panel on Climate Change, Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p.247) The injection wells themselves can serve as underground escape conduits for carbon dioxide. (S.E. Gasda, et. al., "The potential for CO2 leakage from storage sites in geological media: analysis of well distribution in mature sedimentary basins," *Environmental Geology*, 46(6-7), 707-720) Numerous studies have shown that a sequestered carbon dioxide breakthrough lowers the pH of surrounding water dramatically.

Specific Carbon Capture and Sequestration Issues Include:

Health and Environmental Risk of Carbon Sequestration

"In terms of the health effects of human exposure to carbon dioxide, the Occupational Health and Safety Administration has specified the maximum average exposure of carbon dioxide over an eight-hour work day at 0.5%. Exposure, even over short periods of 1 to 5% carbon dioxide results in physiological effects (including increased breathing); loss of consciousness occurs above 10%; and most concentrations above 30% are lethal." (Sarah M. Forbes, National Energy Technology Laboratory, "Regulatory Barriers for Carbon Capture, Storage and Sequestration," November, 2002) Two historical examples exist of where the sudden and large scale release of carbon surface release caused significant impacts—Lake Nyos, near Cameroon, Africa which killed 1700 people and Mammoth Mountain, California which created a 100 acre tree kill zone.

CO2 contact with the water table and vadose zone can lead to contaminated drinking water through the CO2 causing interactive toxic releases from the mineral composing the zone. "The U.S. Environmental Protection Agency has witnessed problems with projects designed to replenish groundwater with rainfall wherein mineralized (fixed) contaminants were inadvertently mobilized in concentrations sufficient to cause undesirable contamination." ("Intergovernmental Panel on Climate Change, Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p. 243) "CO2 can adversely affect groundwater and ultimately drinking water in that dissolved CO2 forms carbonic acid, altering the pH of the solutions, which can mobile toxic materials upon contact. Groundwater pollution of nearby freshwater aquifers may result, if the containment of the aquifers into which carbon dioxide is injected is breached." (Koen

Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 4)

Induced Seismicity

As a result of underground carbon sequestration, structural changes could occur in geological formations, as modifications of the thermodynamic properties—and even dissolution-of underground geologic layers. (Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 4)

High-pressure sub-surface injection of CO2 can fracture rocks and cause movement of rock faults. "Induced fracturing and fault activation may pose two kinds of risks. First, brittle failure and associated microsesimicity induced by over pressuring can create or enhance fracture permeability, thus providing pathways for unwanted CO2 migration. Second, fault activation can, in principle, induce earthquakes large enough to cause damage." ("Intergovernmental Panel on Climate Change, Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p. 249. See also: J.H. Healy, et. al., "The Denver Earthquakes," *Science,* 161, 1968, 1301-1310.)

Overfilling of a carbon sequestration reservoir can create seismic difficulties. "Potential problems of overfilling a reservoir include ground heaving, induced seismicity, displacement of groundwater resources and damage to hydrocarbon reservoirs." (Sarah M. Forbes, *National Energy Technology Laboratory*, "Regulatory Barriers for Carbon Capture, Storage and Sequestration," November, 2002) Another problem of overfilling is contamination of drinking water by displaced brines and hydrocarbon damage. (Elizabeth J. Wilson, Humphrey Institute of Public Affairs, University of Minnesota, "Carbon Capture and Sequestration: Context and Considerations for Deployment," May 11, 2006)

The whole question of sequestration of CO2 is plagued by uncertainties such as whether or not sequestration will increase the likelihood of earthquakes and issues related to leakage. There is no question that CO2 sequestration will increase the cost of energy by 20% to 25% which means fewer dollars for research into renewable energy sources such as cellulose ethanol. What is mandated is a go-slow approach until these issues can be resolved. If we want to prevent pollution before it takes place and if we want to proceed with synfuel development while taking adequate precautions, we should not rush into carbon sequestration.

Long Term Liability Issues

"The liability regime governing geologic carbon sequestration will shape the technology's cost-effectiveness and overall attractiveness. Key cradle-to-grave issues affecting liability include choice of liability regime, mandates for corrective action in case of leakage or accident, the need for insurance, and determination of potentially responsible parties." (de Figueiredo, et al, "Towards a Long-Term Liability Framework

for Geologic Carbon Sequestration," *Presented at the Second Annual Conference on Carbon Sequestration*, May 2003)

Eleven areas of potential long term and short-term liability problems with regard to carbon sequestration exist:

A. In-situ risk liability—"The storage of carbon dioxide in the subsurface raises the issue of potential liability if there is loss of carbon dioxide containment and harm results to human health, the environment or property. If liability is fully borne by the private sector, the potential unbounded liability would make widespread deployment of carbon dioxide storage unlikely."(Mark de Figueiredo, et al, "The Liability of Carbon Dioxide Storage," *Laboratory for Energy and the Environment*, M.I.T., Cambridge, MA). In-situ risks include formation leaks to the surface, migration of carbon dioxide within the formation and seismic events.
B. Public liability issues
C. Liability related to "adjusting for uncertainty and for risks that carbon will be released sooner than the contractual period, either intentionally or by accident or neglect, and assignment of liability when this occurs."(K.S. Kavi Kumar, "Carbon Sequestration as Greenhouse Gas Mitigation Policy")
D. Liability under federal common law for nuisance. (See: *State of Connecticut et al v. American electric Power Companies, Inc. et al*)
E. Operational liability issues
F. Negligence (Firms which conduct carbon storage activities would be considered professionals.) "Under negligence law, professionals must exercise the skill and knowledge normally possessed by members of the profession; otherwise they may be found negligent." (American Law Institute: 1965, *Restatement, Second, Torts*, Section, 299A)
G. Strict Liability. "There is a parallel between the unknown risk of radon and unknown risks of carbon sequestration, such as in the case of unknown abandoned mines. Carbon sequestration could ostensibly be governed under a regime of strict liability, with carbon dioxide leakage viewed as a defect of the system." (de Figueiredo, et al, "Towards a Long-Term Liability Framework for Geologic Carbon Sequestration, *Presented at the Second Annual Conference on Carbon Sequestration*, May 2003)
H. Implied Warranty. The sale of a service may give rise to an implied warranty. [(*Rybarsyk v. R.I. Marketing*, 1988 U.S. Dist. LEXIS 18063 (1981) or (*Buckeye Union Fire Ins. Co. V Detroit Edison Co*, 1972) 38 Mich. App. 325 (1972) or (*Hoffman v. Misericordia Hospital of Philadelphia* 1970 439 Pa. 501 (1970)] "The applicability of implied warranties to carbon storage may ultimately come down to whether firms are deemed to be selling carbon dioxide to be stored (a 'good') or engaged in a 'service' to store carbon. Another concern is the pathway by which humans might be exposed to high concentrations of carbon dioxide." (M.A. DeFigueiredo, et al, "Framing the Long-Terms In situ Liability Issue for Geologic Carbon Storage in the United States," *Mitigation and Adaptation Strategies for Global Change*, (2005) 10, p. 651)
I. Product Liability issues—manufacturing defects, design defects, and failure to warn of possible danger.

J. Compensation to victims in the event that harm occurs from carbon sequestration and the firm which was responsible for the original injection of carbon and/or for the storage of carbon is no longer in business when the harms take place. "Those parties afflicted by the long-term risks could be hard pressed to find potential defendants or adequate compensation. Even if defendants could be identified, the injured parties may still have difficulty in showing specific causation, or that the defendant's carbon dioxide storage operation caused the particular injuries in question." (Mark de Figueiredo, et al, "The Liability of Carbon Dioxide Storage," *Laboratory for Energy and the Environment,* M.I.T., Cambridge, MA).

K. Contractual liability issues. "In the case of contractual liability on the issue of carbon permits, liability would be premised on there being a legally enforceable storage contract, breach of the contract because some quantity of carbon dioxide escaped from the geological formation, and damages proximately related to the beach such as a carbon permit's loss in value)." (Mark de Figueiredo, et al, "The Liability of Carbon Dioxide Storage," *Laboratory for Energy and the Environment*, M.I.T., Cambridge, MA).

Ways of addressing liability:

1. Liability cap. (Public not served.)
2. Government assumes the liability rather than private entities. (Taxpayers bear the burden.) "Having the public sector bear the financial responsibility for future leakage could affect the precautions taken by storage operators in the near term." (Mark de Figueiredo, et al, "The *Liability of Carbon Dioxide Storage*," Laboratory for Energy and the Environment, M.I.T., Cambridge, MA). If companies know that government will bail them out in the future, why should they be particularly careful now?
3. Firms address liability on their own. (Private entities bear the burden.) In which case they would be unlikely to act to develop carbon sequestration so as to accrue this liability burden

Subsurface Property Rights

*Property rights issues will arise if geologic sequestration becomes widesp*read. *As with oil and natural gas, surface and subsurface property rights will affect the regulation of geologic sequestration, the cost of transportation and storage of carbon dioxide and will be central in determining liability.* (Battelle, "The Midwest Regional Carbon Sequestration Partnerships: Phase I—Stand Alone Executive Summary," *DOE* Cooperative Agreement No. DE-FC26-03NT41981, December 2005.)

"Storage of CO2 in the subsurface raises several questions: Could rights to pore space be transferred to another party? Who owns CO2 stored in pore space? How can storage of CO2 in the pore space be managed so as to assure minimal damage to other property rights (e.g. mineral resources, water rights) sharing the same space? Rights to use subsurface pore space could be granted, separating them from ownership of the surface property." ("Intergovernmental Panel on Climate Change, Special Report on Carbon

Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005, p. 256) All of these liability questions would need to be answered prior to engaging in large-scale carbon sequestration.

Another subsurface liability issue could be "subsurface trespass." "Subsurface trespass would take place if the relevant property interests have not been acquired, and the stored carbon dioxide either wrongfully commingled with the native substances or took up storage space which could have been used by the rightful property owner." (Mark de Figueiredo, et al, "The Liability of Carbon Dioxide Storage," *Laboratory for Energy and the Environment*, M.I.T., Cambridge, MA).

Other potential property rights problems include: surface rights and easements, subsurface mineral rights, ownership of injected carbon dioxide, neighboring mineral leases and water rights. (Battelle, "The Midwest Regional Carbon Sequestration Partnerships: Phase I—Stand Alone Executive Summary, *DOE* Cooperative Agreement No. DE-FC26-03NT41981, December 2005.) Another unresolved issue is how the rule of capture and the correlative rights doctrine would or will apply.

Regulatory Issues

The success of carbon capture, storage and sequestration as a greenhouse gas mitigation strategy will be dependent on the regulatory framework used to govern it implementation. (Sarah M. Forbes, *National Energy Technology Laboratory*, "Regulatory Barriers for Carbon Capture, Storage, and Sequestration," November 2002, p. 1)
Unless there is a clear regulatory framework related to carbon sequestration, private entities, because of the cost and liability uncertainties, will be loathe engaging in large-scale carbon sequestration projects. Currently, there exists no comprehensive regulatory framework for carbon sequestration. Any comprehensive regulatory regime must address project siting, transportation, injection, acceptable storage facilities and receptacles, monitoring and accounting. So far these issues have not been addressed in any comprehensive fashion.

Presently, carbon dioxide and other greenhouse gas emission are not subject to regulation under the Clean Air Act. The EPA has stated that the Clean Air Act "does not authorize regulation to address climate change." (David R. Hill, Deputy General Counsel for Energy Policy, *U.S. Department of Energy*, "United States of America—Current and Prospective National Laws on Carbon Capture and Sequestration," *U.S. Department of Energy*, July 12, 2004)

Overall there is little federal environmental law which is applicable to carbon dioxide emissions. Federal law also does not directly consider the permitting of carbon dioxide transportation or transportation facilities. (David R. Hill, Deputy General Counsel for Energy Policy, *U.S. Department of Energy*, "United States of America—Current and Prospective National Laws on Carbon Capture and Sequestration, U.S. Department of Energy, July 12, 2004) The only possible analog is the transportation of natural gas under

the Natural Gas Act. While there is extensive regulatory experience with underground injection control programs, federal law does not directly address how to regulate carbon dioxide injection and sequestration. Finally, federal law does not address post closure carbon dioxide issues. (David R. Hill, Deputy General Counsel for Energy Policy, U.S. Department of Energy, "United States of America—Current and Prospective National Laws on Carbon Capture and Sequestration, *U.S. Department of Energy*, July 12, 2004)

In all likelihood, the Underground Injection Control Program, which was created under the federal Safe Drinking Water Act of 1974, would provide the initial regulatory framework for carbon sequestration. However, this program was not developed to deal with issues related to carbon sequestration. "Because of its statutory mandate, the scope of the UIC regime is contamination of drinking water, and under its current application to carbon dioxide storage, the UIC Program gives more limited treatment, if any, to other harms to human health, the environment, and property." (Mark de Figueiredo, et al, "The Liability of Carbon Dioxide Storage," Laboratory for Energy and the Environment, M.I.T., Cambridge, MA). Under the UIC program, however, there is no federal requirement for monitoring the actual movement of fluids or gas within the injection zone nor are there monitoring requirements to check for leakage. (Battelle, "The Midwest Regional Carbon Sequestration Partnerships: Phase I—Stand Alone Executive Summary, *DOE* Cooperative Agreement No. DE-FC26-03NT41981, December 2005.)

One area where EPA regulation of carbon sequestration is particularly lacking is in regard to the issue of leakage to the surface. (Elizabeth J. Wilson, *Humphrey Institute of Public Affairs, University of Minnesota*, "Carbon Capture and Sequestration: Context and Considerations for Deployment," May 11, 2006)

Monetary Cost of Carbon Sequestration

Carbon Sequestration monetary costs potentially occur in several areas:

1. Drilling wells
2. Infrastructure
3. Project Management
4. Monitoring
5. Energy costs related to injecting the CO2
6. Energy costs related to the transportation of CO2.

Unknowns affecting the cost of carbon sequestration:

A. Fuel prices—the higher the cost of fuel the higher the cost of carbon sequestration.
B. Cost of capital
C. Cost of meeting future regulatory requirements.
D. Cost of long term monitoring.
E. Required carbon sequestration quality upgrades.

Cost of Carbon Capture

Carbon capture and sequestration is not cheap. "The cost of employing a full CCS system for electricity generation from a fossil-fired power plant is dominated by the cost of

capture. The application of capture technology would add about 1.8 to 3.4 US$ct kWh-1 to the cost of electricity from a pulverized coal power plan, 0.9 to 2.2 US$ct kWh-1 to the cost for electricity from an integrated gasification combined cycle coal power plant and 1.2 to 2.4 US$ct kWh-1 from a natural gas combined-cycle power plant. Transport and storage costs would add between –1 and 1 US$ct kWh-1 to this range for coal plants, and about half as much for gas plants. (The –1 figure would accrue only if there were offsetting revenues from enhanced oil recovery. Given the limited number of oil fields in this country that would profit by using carbon dioxide for enhanced oil recovery, there would be little frequency to this area of cost saving overall in the United States.) Typical costs for transportation and geological storage from coal plants would range from 0.05-0.6 US$ct kWh-1." ("Summary for Policymakers: A Special Report of Working Group III of the Intergovernmental Panel on Climate Change," *IPCC Special Report: Carbon Dioxide Capture and Storage*, September 2005, p. 341) Additional data comes from to U.S. Department of Energy: "Using present technology, estimates of sequestration costs are in the range of $100 to $300/ton of carbon emissions avoided."

Carbon capture and sequestration is also very cost intensive. It is estimated that CCS will increase the cost of energy anywhere from 40 to 80% compared to conventional power plants. "Capturing, transporting and sequestering carbon dioxide may increase competitive fossil energy production costs by a factor of two when for example about 80% of the carbon dioxide released is avoided." (Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 8)

Because research indicates that the number of old oil fields which could be used for enhanced oil recovery by injecting carbon dioxide is relatively small, using carbon for enhanced oil recovery will not be a significant solution to the cost problems associated with carbon capture and sequestration.

Knowledge Gaps about Carbon Sequestration

There are significant gaps in our knowledge about the short and long term effects and efficacy of carbon capture and sequestration. Before embarking on any large-scale carbon sequestration projects and before assuming that carbon sequestration is an effective solution to the carbon dioxide problem which surrounds the burning of coal, we must have answers to these following unknowns:

1. Current estimates regarding the amount of current storage capacity are inaccurate.
2. The kinetics of geochemical trapping and the long-term impact of CO2 on reservoir fluids and rocks are unknown.
3. The fundamental processes of CO2 absorption and CH4 desorption on coal drilling operations are poorly characterized.
4. The extent and likelihood of leakage from abandoned wells due to material and cement degradation is vague.
5. The impacts of sub-surface microbes are uncertain but potentially significant.

6. There is an absence of reliable modeling regarding long-term storage performance.
7. Little useful information exits to predict leakage probabilities or rates.
8. Protocols for achieving desirable storage duration and local safety do not exist.
9. There is a need for significant improvement in surface monitoring for leak detection.
10. There is a need for significant improvement in fracture detection.
11. Long term monitoring strategies and techniques are largely absent.
12. Post leak remediation techniques are poorly developed.
13. There is little knowledge as to regulatory cost compliance.
14. There is little knowledge as to how long term monitoring will affect cost.
15. The regulatory framework is poorly developed.
16. The legal liability framework is unclear with many potential liability pitfalls.
17. How to decommission storage facilities is unclear.
18. Little commercial experience.

(See: "Intergovernmental Panel on Climate Change, Special Report on Carbon Dioxide Capture and Storage," Edited by Bert Metz, et. al., *Intergovernmental Panel on Climate Change*, Cambridge University Press, 2005)

Renewable Energy and Energy Efficiency

Carbon storage is neither a sustainable nor a renewable energy option: 'true' renewables remain preferable over the longer run. The long-term deployment of renewables, however, might be negatively affected b the development carbon sequestration today." (Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 23)

Renewable energy offers the promise of very large amounts of sustainable and safe energy. It is widely dispersed around the globe and can be utilized with relatively little environmental impact and almost no greenhouse-gas emissions. Improvements in technology have brought the costs of. . . renewable energy sources down and internalizing many external costs has also tended to level the playing field."
(R. N. Schock, "Energy Technologies for the 21st Century—The Roles of Renewable Energy," *World Federal of Scientists International Seminars on Planetary Emergencies*, Erice, Italy, August 2005)

Rather than invest huge sums of money into an unknown and potentially/probably environmentally dangerous energy production technique which still depends on non-renewable coal, policy emphasis should be placed on renewable energy. One major problem is that the newly fashionable technologies have a lost opportunity cost because of continuing our addiction to fossil fuels that are non-renewable and inherently polluting. All out pursuit of new coal technologies means that we will be devoting proportionately fewer resources to clean energy production technologies and to energy conservation.

It is also important to remember that carbon capture uses in and of itself a great deal of energy. Not only does this energy use compromise the environmental benefits of carbon capture, in that usually fossil fuel energy is used to capture the carbon, but it also increases costs of operation and cost of development. Extra energy requirements range anywhere from a high of 40% to a low of 11% depending on the plant type. Most estimates place the amount at between a 22% and 25% increase in energy use in order to capture carbon. If one takes into account the energy costs to capture carbon, storage and transportation, carbon capture raises the cost of energy from a power plant between 30% and 60% overall. (*IPCC [Intergovernmental Panel on Climate Change*, Metz, et al, Cambridge University Press, "IPCC special report on Carbon Dioxide Capture and Storage," 2005)

The Department of Energy's National Renewable Energy Laboratory analysis conducted in 2006 concluded that the whole U.S. electricity demand could, at least technically, be met by renewable energy by the year 2020. The same analysis concluded that the energy potential for renewable energy is enormous—85 times the current energy use, according to the analysis. For example, solar would produce 55 times the current energy use and wind could provide 6 times the current energy use. (Elizabeth Brown, "Near Term Practical and Ultimate Technical Potential for Renewable Resources," January 2002, p. 4) A 2005 study at Stanford University concluded that wind power could, if properly developed, provide one and one-half times the world energy needs. Off Shore Wind energy has great potential also. (Christian Archer, and Mark Z. Jacobson, "Evaluation of global wind power," *Journal of Geophysical Research*, Vol. 110, June 30, 2005.) A 2005 analysis conducted by the U.S. Department of Energy concluded that approximately 70% of our electricity demand could be met with offshore wind power such as that in current use in Denmark. In terms of solar energy, Maya Chadahari, et al found that the United States could easily "accommodate about 1 million MW of PV by 2025, which would generate approximately 1.9 trillion kWh per year—almost half current U.S. electricity use." ("PV Grid Connected Market Potential Under a Cost Breakthrough scenario," September 2002, *The Energy Foundation and Navigant Consulting*, p. 33) Another study by Patrick Mazza of Climate Solutions and Eric Heitz of the Energy Foundation released in November 2005, found that renewable bio-fuels could significantly reduce our dependence on oil. ("The New Harvest: Biofuels and Windpower For Rural Revitalization and National Energy Security") For more detailed information on how renewable energy can meet United States energy needs see: *Sustainable Energy Coalition*, "How Renewable Energy Technologies can Eliminate Energy Imports, Phase Out Nuclear Power and Slash Greenhouse Gases, Washington D.C., January 2, 200; "Winning the Oil Endgame: Innovation for Profits, Jobs, and Security," Rocky Mountain Institute co-funded by the U.S. Department of Defense, September 20, 2004; Center for Resource Solutions, "Achieving a 33% Renewable Energy Target," funded by the *Energy Foundation at the request of the California Public Utilities Commission,* November 1, 2005 and a Report by the Energy Efficiency Task Force of the *Western Governors' Association* on September 15, 2005.

Cost of Renewables

The cost of renewable energy has decreased and is decreasing, thus making it a viable alternative to non-renewable energy production. Take wind power: "Wind power, for example, is at present becoming competitive at various localities. It can be reasonable expected that wind energy production costs continue to decrease over the coming years." (Koen Smekens and Bob van der Zwaan, "Environmental Externalities of Geological Carbon Sequestration: Effects on Energy Scenarios," *Nota Di Lavoro* 58:2004, p. 8) Also, renewable energy does not suffer from the price volatility which other, particularly non-renewable energy sources suffer. ("Taking Stock: Energy Challenges Facing the United States," *National Energy Policy Development Group*, National Energy Policy.2001)

In addition to promoting and developing renewable energy, promoting energy efficiency can help to solve the nation's energy problems. According to the Office of Technology Assessment, The Electric Power Research Institute and the Rocky Mountain Institute, energy efficiency improvements could reduce energy use anywhere from 33% to 45%. For example, a report by the Energy Efficiency Task Force of the Western Governors' Association, September 15, 2005, found that energy efficiency could reduce by over 20% electricity use in the western U.S.

Summary

We need to place the current political euphoria over coal as the source of national energy security into its proper environmental, historical, political, and economic context. As long as state and national resources are poured into an inherently problematic source of energy such as coal, we will not have the resources necessary to develop the only real hope for the future—renewable, non-fossil fuel based energy.

Montana currently produces twice the amount of energy needed for in state home and industrial use and Montana has the existing unused capacity to produce almost twice the energy it is now producing. Because Montana has an energy surplus not an energy shortage we do not need to develop polluting coal based energy generating projects. (2) Montana currently does not have the transmission infrastructure to transport large amounts of electrical energy and (3) The money made from exporting energy does not stay in the state but goes to international or out of state corporations. Few permanent jobs are created in Montana. All Montana is left with is the environmental degradation caused by these projects.

Nowakowski, Sonja

From: Ray Zee [rayzee@centurytel.net]
Sent: Thursday, October 15, 2009 9:25 AM
To: Nowakowski, Sonja
Subject: clean energy

Dear Energy Committee,

Please create a State energy policy that guarantees a clean environment for Montana's energy future.

Do you see and understand that the world is undergoing a major shift?
You are responsible for making the right decision at a critical time.

Only leaders will guide us to a bright and clean future. Followers will continue on this old path to destruction, global warming, ill health effects and pollution of our environment.

Please be strong. I know this cannot be easy in the current political environment. It will be interesting to see if you buckle to outside pressures or if you follow your heart, knowing how important this is to the earth at this very moment.

thank you!

Sincerely,

linda christensen
kalispell, Montana

Nowakowski, Sonja

From: Colleen Silan Mercer [colleen@silanmercer.com]
Sent: Friday, October 16, 2009 10:21 AM
To: Nowakowski, Sonja
Subject: I support MEIC

I want clean/green energy for Montana. Please launch our state to the forefront of energy production. Think of the jobs you will create! I would be proud for Montana to lead the nation as an efficient energy leader.

thank you,

Colleen Mercer
37 Ferguson Dr
GF, MT 59404

Nowakowski, Sonja

From: Bill McLaughlin [willers@centurytel.net]
Sent: Friday, October 16, 2009 10:27 AM
To: Nowakowski, Sonja
Subject: Montana Energy Policy

Dear Interim Energy Committee:

I am writing to urge you to work towards three primary goals: first, conservation of energy use in Montana; second, promotion of clean energy sources and their implementation, i.e., natural gas, wind, solar and geothermal; third, making sure that, until real solutions are found for cleaning up the dirty burning of coal for energy, that no additional coal generation facilities be licensed or allowed to begin construction and that existing facilities be held to ever more strict guidelines to reduce hazardous emissions.

Thank you for your consideration.

Bill McLaughlin
34819 Snowberry Lane
Polson, MT 59860
406-887-2145

Nowakowski, Sonja

From: jane jarrett [zubie40@hotmail.com]
Sent: Friday, October 16, 2009 12:05 PM
To: Nowakowski, Sonja
Subject: Energy future

Hi! I have lived in Montana for more than 30 years. Love the state and all outdoor living. I support energy regulations that keep our state clean and unharmful to wildlife/environment. Also all kinds of alternative energy such as solar, wind, and geothermal. I promote renewable energy systems, reduce regulations that increase individual energy costs, and increase low cost electricity generated by coal fire. Thank you. Jane Jarrett, PO Box 238, Livington, MT. 59047

Hotmail: Trusted email with powerful SPAM protection. Sign up now.

Nowakowski, Sonja

From: O'Connor Roy [rsoc2001@yahoo.com]
Sent: Friday, October 16, 2009 12:56 PM
To: Nowakowski, Sonja
Subject: Montana Energy Policy

Dear Ms Nowakowski, I wanted to make some comments on you upcoming Energy Policy meeting. Montana has enough coal fired power plants, which do produce energy and jobs, but at a substantial cost to our health and environment. We have much better options, that being conservation and renewable energy. Renewable energy in Montana is a growing field, providing cost effective energy and jobs, as well as providing much needed income to farmers, ranchers, and landowners. With support from legislation and additional transmission capabilities, this could and will be a growing industry in Mt. It does not promote global warming, mercury or particular contamination of land and air, or require bonds and land restoration.
Please don't let these valuable renewable resources go to waste, support their development and the future of our state.
Roy O'Connor
401 Valley of the Moon Rd
Clinton, Mt 59802

Nowakowski, Sonja

From: Pamela Ellis [pamellis50@yahoo.com]
Sent: Friday, October 16, 2009 1:30 PM
To: Nowakowski, Sonja
Subject: Montana Energy

I support promoting renewable energy systems. NW Energy is dragging their heels in setting prices for purchasing energy from small scale producers. As a result, our wind energy is untapped. Wind farms are established technology around the world; we can find a way to work with environmental concerns by siting wind farms in areas not heavily used by wildlife.

Thomas Friedman's "Hot, Flat and Crowded" discusses the rationale for "Why we need a green revolution--and how it can renew America". The Chinese are taking him seriously. They have purchased "Floating Islands" from a Montana developer for cleaning up the Yangtze River; in Helena, the developer had to donate a $50,000 island as a demonstration project because funding wasn't available. More people may be employed with Floating Islands (or related) in China than Montana.

The Legislature should encourage low-cost integration approaches including demand-side management strategies, "smart-grid" technology, and compressed air storage. Clark Howard, a libertarian talk-show hosts, raves about the cost savings of "demand side management"--giving households the ability to see cost savings in energy costs when they use things like dryers, etc. at "off peak" (ie reduced rate) times. This reduces the costs to families and decreases the need for increased power plants.

Public health and environmental regulations should be strengthened not weakened. Government does have a responsibility to balance needs and we pay taxes for government to provide services that are not "profit" oriented (i.e. schools, fire and police servcies, etc.). I think all rate payers (not to mention stock holders) would prefer to turn-back the clock on Montana Power de-regulation.

Coal is NOT low-cost electricity. Mining coal destroys habitat, harms water quality and creates the largest waste stream in the United States. Each day coal mining uses 260 million gallons of water. Montana has lots of coal and not as much water. The purpose of the proposed federal cap-and-trade regulation is to include the true costs of burning coal. We lived in Oregon twenty years ago and the power company was provided zero interest, zero payment loans (due upon sale of the house) for upgrading the insulation and installing new windows in older homes. The rationale was that it was cheaper to decrease power usage than to build new power plants. The cost of loan was decreased by a percentage each year of home ownership. Our loan costs decreased to 0 over the time we owned the house; the power company paid for insulation and new windows. When we sold the home, the new owners had new windows installed by the power company under a similar plan as window construction had improved so dramatically. In Montana, NW Energy asks us if we'd like to contribute money to heat homes of people who cannot pay their power bills (ie do I want to keep NW Energy profitable?). It makes a lot more sense to contribute dollars to weatherize and reduce energy costs; that's a goal I could contribute to (though I don't trust NW Energy--see the settlement re retirement benefits).

Thank you,
Pam Ellis
2000 Outlook Drive
Billings, MT 59105
406 252 6399

Nowakowski, Sonja

From: Laurie Stevens Gilleon [laurie.bigsky@3riversdbs.net]
Sent: Friday, October 16, 2009 11:30 PM
To: Nowakowski, Sonja
Subject: we want clean energy

Hello. Montana needs to move forward--toward a new energy economy. It should encourage energy efficiency, conservation, and renewable energy.

Montana should NOT promote energy generation that causes global warming; harms public health; undermines private property rights; pollutes water, air, and landscapes; and harms wildlife and its habitat.

Please work to create a State energy policy that moves Montana toward a clean energy future, not one based on tired old rhetoric that prolongs the devastating effects coal development.

Thanks. Laurie Gilleon

Nowakowski, Sonja

From: Mary Vant Hull [mvanthull@montana.com]
Sent: Friday, October 16, 2009 7:40 PM
To: Nowakowski, Sonja
Subject: coal-fired plants

Dear Ms. Nowakowski,

I'm a member of the League of Women Voters, and like most people who've studied the issue know that there is no feasible way yet seen that will sequester or otherwise safely amedliorate the huge carbon impact that burning coal to produce energy for electricity can yet be done in a way that will slow down -- & eventually, stop -- the global warming that can already be seen in many places, especially at the North & South Poles where the huge glaciers & frozen ice shelves are melting much more rapidly than could have been predicted even 10 -- or 5 years ago.

Instead, we hope the Energy Committee will do the right thing and take steps to produce safe solar, wind, and -- most of all -- encourage serious energy conservation measures.

I'm sure you have sufficient facts for you to act responsibly -- although there are greedy energy companies that care more about their stockholders short-term profits rather than the welfare of the entire world and all its people.

Thank you. Sincerely, Mary B. Vant Hull, 416 E. Story, Bozeman MT 59715

Nowakowski, Sonja

From: Sandy Abraham [abrahams@billings.k12.mt.us]
Sent: Saturday, October 17, 2009 12:42 AM
To: Nowakowski, Sonja
Subject: Energy Committee/Public Comments

I am a citizen of the state of Montana and would like these comments to be passed along to the Energy Committee.

1. Promoting renewable energy systems

Absolutely, this is a great idea! Combined heat and power and distributed generation systems are clean, safe, reliable and efficient. They provide true energy self-reliance and keep Montana's energy dollars in Montana. Combined heat and power and distributed generation systems should be encouraged with an expanded loan program, a higher net-metering limit, and standardized interconnection agreements. Montana's Renewable Portfolio has generated job growth and new revenue in the state. The Legislature should extend the RPS so that Montana meets 20% of energy demand with renewable energy by 2020 and 25% by 2025. The Legislature should encourage low-cost integration approaches including demand-side management strategies, "smart-grid" technology, and compressed air storage. Montana should encourage wind farm siting that minimizes the impacts on wildlife by avoiding areas heavily used by wildlife.

2. Reducing regulations that increase ratepayers' energy costs

Public health and environmental regulations should be STRENGTHEN not weakened! There is no better example of how "decreased" regulation affects ratepayers than Montana's failed experiment with deregulation of the electric utility industry. Montanans enjoyed some of the lowest rates in the nation prior to deregulation. Now we face some of the highest in the region. Weakening regulations is not the solution. Strengthening regulations to protect public health, communities, and the environment from the dangers posed by irresponsible fossil fuel development is the best solution. Electricity rates should not be decreased on the backs of property owners near these plants or the health of those who live downwind or depend on the water. Some regulations, like the universal system benefit program, decrease consumption and actually decrease consumers' power bills. Strong regulation leads to good projects and good outcomes-both economically and environmentally.

3. Increasing the supply of low-cost electricity with coal-fired generation

Coal is NOT low-cost electricity! If coal producers were forced to pay the true costs of coal, coal would be one of the most expensive forms of power. Coal plants are responsible for 32% of the carbon dioxide emissions in the U.S., each year (in 2007 coal plants emitted about 2,130 million metric tons of CO2). Colstrip alone emits about 20 million tons of CO2 each year. Montana's coal plants are responsible for about 50% of the annual CO2 emissions statewide. Mining coal destroys habitat, harms water quality and creates the largest waste stream in the United States. Every day coal mining uses 260 million gallons of water. Burning coal for electricity generates over 120 tons of solid waste each year (three times as much as all municipal garbage). A 2007 E.P.A. report suggested that people living near some power plant landfills faced a cancer risk 2,000 times higher than federal health standards. An average coal plant uses 12 million gallons of water per hour. Coal plants are the largest source of mercury and sulfur dioxide air pollutants nationwide. They are the second largest source of nitrogen oxides, a major cause of smog. They emit huge volumes of fine particle pollution that can lodge deep in the lungs. they emit many toxic pollutants including chromium, lead, arsenic, and acid gases. Impending federal regulations for carbon dioxide, coal waste, hazardous air pollutants, and mining will increase the cost of coal to reflect its true cost on society.

Please send these comments along to the Energy Committee. Thank you.

Sandra Abraham
Billings, MT

Nowakowski, Sonja

From: S.Carlyle Smith [scarlyle@bresnan.net]
Sent: Saturday, October 17, 2009 7:27 AM
To: Nowakowski, Sonja
Subject: a clean energy future

Hello.
Montana needs to move forward--toward a new energy economy. It should encourage energy efficiency, conservation, and renewable energy.

Montana should NOT promote energy generation that causes global warming; harms public health; undermines private property rights; pollutes water, air, and landscapes; and harms wildlife and its habitat.

Please work to create a State energy policy that moves Montana toward a clean energy future, not one based on tired old rhetoric that prolongs the devastating effects coal development.

Thank you!
Steven Smith
1314 6th Ave N
Great Falls, MT 59401
406-788-0128

Nowakowski, Sonja

From: Kitty Wright [kittyw@mcn.net]
Sent: Saturday, October 17, 2009 9:26 AM
To: Nowakowski, Sonja
Cc: Kitty Wright
Subject: Clean Energy

It is my hope that Montana will become a leader in new energy promotion and not rely on coal development. This State should encourage energy renewal, efficiency and conservation to insure it remains "The Last Best Place" and that our Big Skies do not lead to visible and non-visible sky pollution.

Montana should NOT promote energy generation that causes global warming; harms public health; undermines private property rights; pollutes water, air, and landscapes; and harms wildlife and its habitat.

Please work to create a State energy policy that moves Montana toward a clean energy future, not one based on tired old rhetoric that prolongs the devastating effects of coal development.

Thank you!
Catherine (Kitty) D. Wright
Great Falls, Montana

Nowakowski, Sonja

From: Linda Schure [lhs@blackfoot.net]
Sent: Saturday, October 17, 2009 10:02 AM
To: Nowakowski, Sonja
Subject: Comments for Energy Committee

1. Increasing the supply of low-cost electricity with coal? Coal is NOT low cost electricity.

- If coal producers were forced to pay the true costs of coal, coal would be one of the most expensive forms of power.
- Coal plants are responsible for 32 percent of the carbon dioxide emissions in the U.S. each year (in 2007 coal plants emitted about 2,130 million metric tons of CO2). Colstrip alone emits about 20 million tons of CO2 each year. Montana's coal plants are responsible for about 50% of the annual CO2 emissions statewide.
- Mining coal destroys habitat, harms water quality and creates the largest waste stream in the United States. Each day coal mining uses 260 million gallons of water.
- Waste from coal plants is the 2nd largest waste stream in the United States. Burning coal for electricity generates over 120 million tons of solid waste each year (3 times as much as all municipal garbage). A 2007 E.P.A. report suggested that people living near some power plant landfills faced a cancer risk 2,000 times higher than federal health standards.
- An average coal plant uses 12 million gallons of water per hour.
- Coal plants are the largest source of mercury and sulfur dioxide air pollutants nationwide. They are the second largest source of nitrogen oxides, a major cause of smog. They emit huge volumes of fine particle pollution that can lodge deep in the lungs. They emit many toxic pollutants including chromium, lead, arsenic, and acid gases.
- Impending federal regulations for carbon dioxide, coal waste, hazardous air pollutants, and mining will increase the cost of coal to reflect its true cost on society.

2. Reducing regulations that increase rates? Public Health and environmental regulations should be strengthened not weakened.

- There is no better example of how "decreased" regulation affects ratepayers than Montana's failed experiment with deregulation of the electric utility industry. Montanans enjoyed some of the lowest rates in the nation prior to deregulation. Now we face some of the highest in the region.
- Weakening regulations is not the solution. Strengthening regulations to protect public health, communities and the environment from the dangers posed by irresponsible fossil fuel development is the best solution. Electricity rates should not be decreased on the backs of property owners near these plants or the health of those who live downwind or depend on the water.
- Some regulations, like the universal systems benefit program, decrease consumption and actually decrease consumers' power bills.
- Strong regulation leads to good projects and good outcomes—both economically and environmentally.

3. Promoting alternative energy systems? Finally a good idea!

- Combined heat and power (CHP) and distributed generation systems are clean, safe, reliable and efficient. They provide true energy self-reliance and keep Montana's energy dollars in Montana.
- CHP and distributed generation systems should be incentivized with an expanded loan program, a higher net-metering limit, and standardized interconnection agreements.

- Montana's Renewable Portfolio Standard (RPS) has generated job growth and new revenue in the state. The Legislature should extend the RPS so that Montana meets 20% of energy demand with renewable energy by 2020 and 25% by 2025.
- The Legislature should incentivize low-cost integration approaches including demand-side management strategies, "smart-grid" technology, and compressed air storage.
- Montana should encourage wind farm siting that minimizes the impacts on wildlife by avoiding areas heavily used by wildlife.

Thank you for this opportunit to comment.

Sincerely,

Linda Helding Schure

73124 Graywolf, P.O. Box 812, Arlee, MT 59821, lhs@blackfoot.net

Nowakowski, Sonja

From: SteveMcArthur@aol.com
Sent: Saturday, October 17, 2009 10:40 AM
To: Nowakowski, Sonja
Subject: WE need a longer term view!

Dear Sirs,
Please redirect all the support you are currently giving to Coal and redirect it to renewables until you have a proven way to sequester carbon! WE need real alternatives and not business as usual. Steve

Nowakowski, Sonja

From: Pamela Morris [pml@imt.net]
Sent: Saturday, October 17, 2009 12:20 PM
To: Nowakowski, Sonja
Subject: energy plan

For sensible, sustainable economic development, please lead the way in developing a practical long-range plan for energy conservationion and development of clean energy. Such a policy is crutial for Montana.

Thank you,
Pamela Morris
2321 Business 15
Conrad, MT 59425

Nowakowski, Sonja

From: Marcia Woolman [mwoolman@crosslink.net]
Sent: Saturday, October 17, 2009 12:41 PM
To: Nowakowski, Sonja
Subject: Energy pollution

Montana, the last best place. It MUST promote a green energy policy or fall into the air pollution trap that encases our eastern states. Montana to precious to ruin. Marcia Woolman, 114 hwy 212, Silver Gate, MT 59081

"Happiness is knowing when you have enough."

Nowakowski, Sonja

From: David Lehnherr [mtxdoc@earthlink.net]
Sent: Sunday, October 18, 2009 7:58 PM
To: Nowakowski, Sonja
Subject: Energy Committee Energy Policy

Dear Energy Committee:
Montana needs an energy policy dedicated to a smart and sustainable energy policy, that does not adversely affect the quality of life in Montana. Please support an energy policy that emphasizes renewable energy sources, promotes strong environmental protection and discourages continued dependency on fossil fuels.
Thank you.
David Lehnherr
Billings, MT

Nowakowski, Sonja

From: Doug Soehren [dsoehren@bresnan.net]
Sent: Sunday, October 18, 2009 9:05 PM
To: Nowakowski, Sonja
Subject: Energy Policy comments

Thank you Committee for asking for public comments on the following topics:

1. increasing the supply of low-cost electricity with coal-fired generation;
2. reducing regulations that increase ratepayers' energy costs; and
3. promoting alternative energy systems.

Please consider the comments on each topic below:

1. No, coal is NOT low cost electricity when health and environmental costs are considered.

- If coal producers were forced to pay the true costs of coal, coal would be one of the most expensive forms of power.
- Coal plants are responsible for 32 percent of the carbon dioxide emissions in the U.S. each year (in 2007 coal plants emitted about 2,130 million metric tons of CO2). Colstrip alone emits about 20 million tons of CO2 each year. Montana's coal plants are responsible for about 50% of the annual CO2 emissions statewide.
- Mining coal destroys habitat, harms water quality and creates the largest waste stream in the United States. Each day coal mining uses 260 million gallons of water.
- Waste from coal plants is the 2nd largest waste stream in the United States. Burning coal for electricity generates over 120 million tons of solid waste each year (3 times as much as all municipal garbage). A 2007 E.P.A. report suggested that people living near some power plant landfills faced a cancer risk 2,000 times higher than federal health standards.
- An average coal plant uses 12 million gallons of water per hour.
- Coal plants are the largest source of mercury and sulfur dioxide air pollutants nationwide. They are the second largest source of nitrogen oxides, a major cause of smog. They emit huge volumes of fine particle pollution that can lodge deep in the lungs. They emit many toxic pollutants including chromium, lead, arsenic, and acid gases.
- Impending federal regulations for carbon dioxide, coal waste, hazardous air pollutants, and mining will increase the cost of coal to reflect its true cost on society.

2. Public Health and environmental regulations should be strengthened not weakened.

- There is no better example of how "decreased" regulation affects ratepayers than Montana's failed experiment with deregulation of the electric utility industry. Montanans enjoyed some of the lowest rates in the nation prior to deregulation. Now we face some of the highest in the region.
- Weakening regulations is not the solution. Strengthening regulations to protect public health, communities and the environment from the dangers posed by irresponsible fossil fuel development is the best solution. Electricity rates should not be decreased on the backs of property owners near these plants or the health of those who live downwind or depend on the water.

- Some regulations, like the universal systems benefit program, decrease consumption and actually decrease consumers' power bills.
- Strong regulation leads to good projects and good outcomes—both economically and environmentally.

3. Promoting alternative energy systems is a good idea!

- Combined heat and power (CHP) and distributed generation systems are clean, safe, reliable and efficient. They provide true energy self-reliance and keep Montana's energy dollars in Montana.
- CHP and distributed generation systems should be incentivized with an expanded loan program, a higher net-metering limit, and standardized interconnection agreements.
- Montana's Renewable Portfolio Standard (RPS) has generated job growth and new revenue in the state. The Legislature should extend the RPS so that Montana meets 20% of energy demand with renewable energy by 2020 and 25% by 2025.
- The Legislature should incentivize low-cost integration approaches including demand-side management strategies, "smart-grid" technology, and compressed air storage.
- Montana should encourage wind farm siting that minimizes the impacts on wildlife by avoiding areas heavily used by wildlife.

Thank you for your consideration,

Douglas Soehren

Nowakowski, Sonja

From: GENO KREIS [aprila2112@msn.com]
Sent: Sunday, October 18, 2009 7:26 PM
To: Nowakowski, Sonja

To Whom It May Concern:

I'm writing to address three issues and share my comments as a Montana citizen. First, should Montana increase the supply of low-cost electricity with coal-fired generation? I STRONGLY say, "NO!!!!!" As a parent, I'm very concerned with the Mercury pollution that is a result of coal plants. Coal plants are not low-cost electricity. Many factors need to be considered. What are the medical costs that are a result of exposure to mercury, sulfur dioxide, chromium, lead, arsenic, hydrocarbons and nitrogen oxide? How many more children will get asthma or have their asthma aggravated? How many more cases of cancer? What will be the cost from CO2 emissions? Will Montana suffer longer and stronger droughts or shortage of water as a result? What will be the financial cost of the acid rain from the sulfur dioxide emissions? Obviously, there are many more considerations to the cost of coal-fired electricity. I think it's too expensive.

Second, reducing regulations that increase ratepayers' energy costs? NO!!!!! I think regulations have been too weak for too long. Regulations need to be strengthened to protect public health and the environment (which is linked to public health). It's been obvious since the 70's that we need to lower consumption and greenhouse gases.

Third, should we be promoting alternative energy systems? A big YES!!!! What a great way to tackle both the energy crisis and job crisis. Alternative energy is a new growing industry that will create new jobs. I feel Montanans missed an important opportunity with the last housing boom. Here in Bozeman, we have hundreds of new homes. None of which have solar hot water heaters. It costs about $2000 to install a solar hot water heater and the benefits are considerable considering the cost. Advantages of solar hot water are: emits no greenhouse gases, emits no airborne particles, and reduces power consumption. I don't think there has been enough education and incentives for the construction industry. Additionally, we should encourage combined heat and power and distributed generation systems. I'm also a huge fan of Montana's Renewable Portfolio Standard. The Legislature should extend the RPS.

Thank you for your time.

Best regards,
April Armstrong
115 N. Kennedy Street
Belgrade, MT 59714

Nowakowski, Sonja

From: Judy Cole [colemj@rangeweb.net]
Sent: Sunday, October 18, 2009 9:20 PM
To: Nowakowski, Sonja
Subject: Energy Policy

Legislative Services Division
Energy & Telecommunications Interim Committee

Because Montana has more coal than any other state, it seems logical to increase the supply of low-cost electricity with coal-fired generation plants. We should be using our natural resources to enrich the lives of all Montanans.

I am in favor of promoting alternative energy systems; however, to do this we must allow projects to continue once they have been permitted without interference from frivolous environmental lawsuits.

Montana is not "business friendly" to energy development companies. We have too many anti-development laws. The rate payers ultimately pay more for Montana-produced energy because of these ridiculous regulations. It is time to get on with responsible development of our natural resources.

Thank you,

Mack Cole

Gildford, Montana 59525
October 15, 2009

Leg. Services Division
Sonja Nowakowski
P.O.Box 201704
Helena, Montana 59620-1704
DeaR Ms. Nowakowski:

COMMENT ON STATE ENERGY POLICY

Thank you for the opportunity to comment on our states' energy policy. We are very happy that you have seen the need for it and are working to establish a policy.

Montana needs a policy that will give us reasonably priced electricity and at the same time protect the health of our people and the environment.

Coal is not the answer ! Not only is it dirty, it also contains many pollutants that are harmful to our health. The EPA this past year decided that CO2 is a pollutant. Montanas' coal plants emit about 50 percent of the annual CO2 emissions statewide.
Coal plants are the largest source of mercury and sulfur dioxide air pollutants nationwide.They also emit fine particulates (that lodge in the lung),and toxic pollutants like chromium , lead, arsenic and acid gases.

Coal ash is some of the most toxic stuff on the planet ! There are over 600 "ponds" of grimy, arsenic-filled waste products across the nation. There are no federal regulations to control these ponds,(we've seen with the heap leach cyanide ponds of the Zortman-Landusky gold mine how badly they work !). Even when it stays in the ponds, instead of breaking like in Tennessee, drinking water within a mile of a coal ash pond is far more likely to give you cancer than smoking a pack of cigarettes a day ! Or to put it another way- a 2007 EPA report suggests that people living near some power plant landfills face a cancer risk 2,000 times higher than federal health standards .
When you count the cost of cancer,asthma, and autism - all of which have been linked to these pollutants , -the price of coal is way too high !

We really need the energy policy to contain strict regulations, inspections of generating plants etc., and enforcement (with some teeth in it !). They shouldn't be given just a warning and have years to comply.

There are methods to generate electricity that are clean, provide jobs and revenue.One of these is wind generation. Wind would produce significantly greater local benefit since

each wind turbine pays royalties to the landowner where the turbine is sited as well as property taxes to local schools, county and state. We do need to examine the siting of the turbines to minimize impact on people and wildllife.

Combined heat and power (CHP) and distributed generation systems are clean, safe, reliable, and efficient. They would give Montana energy self-reliance and keep energy dollars in our state. I'm really sick of generating electricity here and sending it all out of state !

We need to expand Montanas' Renewable Portfolio Standard so that we meet 20 percent of energy demand with renewable energy by 2020 and 25 % by 2025 if not sooner .

The Legislature should push low cost approaches like demand- side management strategies, "smart grid" technology, compressed air storage and possible solar energy. We may need to study and make some adjustments to our distribution system so our power can move more efficiently and possibly more cost effectively.

Thanks again for the opportunity to comment !
Sincerely,
Mert & Vicki Freyholtz

Mert & Vicki Freyholtz
P.O. Box 211
Gildford, Mt. 59525

Comments from a solar installation business

Father Henry McMurrough, who served the Helmville Parish in the late seventies and drowned in the Big Blackfoot River in a canoeing accident, once told me to always remember that "Small is Beautiful." Coming from a man who was 6'4", it made an impression on me.

I think it is important to emphasize the importance of bottom-up over top down reform. The reason for this is because of the power of corporate lobbyists on the top. Their interests are in retaining the inertia of the systems that have brought great wealth to the companies they represent. We, the people, are much better served by bottom-up, grass-roots programs; which answer only to the common sensibility of the American People.

The American People know AGW (man caused climate change) is real.
The American People know our health care system is broken.
The American People want an economy that creates real, meaningful jobs.
The American People want to learn and implement energy conservation and efficiency.
The American People overwhelmingly support converting from fossil fuels to renewable energy.
Our government just isn't designed to let these things happen.

Our Retail store and solar installation business has been in operation for 16 years. We've installed one and a half megawatts of renewable energy. Well over a half a megawatt of that in solar PV. We have had a few different employees over the years, training them into the field, providing them with health care, and paid plenty of taxes into the general fund. None of our owners have degrees in engineering or even electrical licenses. We do have two NABCEP certified owners. They spend a lot of time on roofs. The work is hard but rewarding. Our mission statement is, "To build, from start to finish, renewable energy systems that work." We were inspired to start the business based on the notion that there were many catalogs out there selling equipment but little information to give an RE enthusiast the necessary information to get it all put together correctly.

My point is that, if we can be part of job creation, fight Global Warming, provide health care benefits, promote conservation, efficiency and renewable energy and actually enjoy what we do, then perhaps the powers that be should incentivize this type of business. Of all new energy, studies have shown solar PV to create by far the most new jobs.
Think of it like a huge field of wild flowers. Each flower is like our business and each one spreading the solar energy that nearby homes and businesses need to bloom and be productive. Talk about distributed generation. I think of our business as a test case. Can it work? Yes it can. Will you become a millionaire overnight? No you won't. Do you have to give it a great deal of commitment? Absolutely. Does it put meaning into your life? More than I ever imagined. It is the American Dream.

How do we incentivize the solar industry in a way that is fair to all Americans?

There are 114 million households in America. Two trillion dollars would put a 2KW, grid-tied solar system on just about every one of them. That would provide about half of the power for an average home after efficiency has been done.
These solar systems could be added to the grid without any additional power lines to speak of. This would create an additional 228 thousand megawatts of distributed generation which would mean we could eliminate that amount in coal and nuclear production. The transmission lines used for the shut down coal plants could probably be usable for wind if there is wind in the area. Perhaps we could look at these numbers in terms of just the northwest.

This all sounds real good, but we still haven't figured out how to incentivize this activity and America, so far, has it all wrong! We have a long history of offering tax incentives for solar, based on the nameplate value of the system. These incentives have missed the mark because they are discriminatory in that you need a tax burden to be interested in or to profit from the incentive; and the systems aren't based on production which encourages all manner of fly-by-night installation and shoddy materials causing safety issues, unfair competition, and giving solar a bad name overall as clients tell friends how their poorly designed and poorly installed system doesn't work.

Enter the FEED-IN-TARIFF:
If you hear about something working well somewhere else in the world, it makes good sense to go there and study the model. I recently wrote to Secretary of Energy, Steven Chu, to ask that he send an envoy to Germany to study the Feed-in-tariff model there so we can begin to figure out how we can incorporate it into our energy program. I received a very polite reply from an office person of some engineering degree level who said we can't do a feed-in-tariff because we're not set up for it.
My gut reaction was, "Isn't that why we elected you guys was so you could {set it up} so to speak". Anyway, back to grass-roots level in a hurry.

The feed-in-tariff is production based so it would require a separate meter to measure the power being delivered by the solar or wind system back to the utility. The owner of the system would then get paid more for their "green power" than they have to pay for the usual fossil fuel or nuclear they would otherwise be using. All of the ratepayers share in the cost of the "green" power purchased. In Germany this has been implemented nationwide and yet rates have only increased about $4.00 per month per customer.

Until very recently, Germany has been purchasing about half of the solar panels produced in the world each year. Other countries are following the German example, Italy, France and Spain. Surprisingly, Germany started this program at a grass roots level and once it proved itself to be a

good program in the outlying provinces it was adopted nationwide. They are still paying 43cents a kilowatt on twenty-year contracts for PV. We could live with that!

Gainsville Florida has a feed-in-tariff, the first in the U.S.
Now Vermont, Hawaii and just yesterday California have jumped on board.
These programs vary in how they are operated but nevertheless, there is strong evidence that they are fairer than tax credits and they get better results. There is a strong incentive for the installer to do a good job because his system will be judged on production. There is a strong incentive for the customer, (owner of the system) to make sure the system is producing what the installer claimed it would because, if it doesn't, he won't get a check for his power.

Ontario's incentive rates vary from 10cents a kilowatt to 80cents depending on the type of energy. Solar is usually rated the highest while wind, because of its' need for transmission and its' random production, gets a lower incentive rate.

Enough can never be said about conservation and efficiency. This means that there does need to be some allowance for smartening up the grid. I just don't see the need for big new transmission from large centralized power plants of any kind as long as we have the on-site potential of solar PV.

In summation:

#1 Conservation and efficiency are the cheapest and most accessible energy resources available.

#2 Don't get carried away on new power lines. Smart substations? Yes. Power lines to nowhere? NO! very expensive, wasteful, time consuming, political stuff.

#3 Implementing the Feed-In-Tariff from the bottom up is absolutely urgent if we are going to get solar off of the ground in the U.S. and beat AGW.

Nowakowski, Sonja

From: Cathy Weeden [cweeden@bresnan.net]
Sent: Monday, October 19, 2009 2:33 PM
To: Nowakowski, Sonja
Subject: MT's energy policy

To the Energy and Telecommunications Interim Committee:

Climate change is the gravest threat we are faced with. Other threats may be more immediate and they may be awful, but this one will change life as we know it, and it is inexorably heading toward us like a runaway train. We know what warmer temperatures are doing to our pine forests--beetle kill and more intense fires are one result, and, now, in Colorado, 25% of the aspen has died in the past 8 years due to Sudden Aspen Decline (SAD). SAD, which is spreading north, is also due to our warming climate, foresters believe. However, more disruptive to us will be changes in areas where agriculture is possible and coastal flooding.

Please assign the importance to this threat that it warrants.

Some of the actions we can take in Montana to lessen our production of climate-warming gases are to

- put a moratorium on new coal-fired power plants, to be lifted only when carbon sequestration is proven to work,
- change our emphasis from "low-cost" coal to renewable energy, like solar, wind, and geothermal, and
- create programs that encourage energy conservation by businesses, governments, and individuals.

Over half of the electricity produced in Montana is sent outside the state, so we are already producing plenty of electricity for Montana. Emphasizing renewable energy sources will create new industries which will provide new jobs for Montanans. And energy conservation is the simplest, quickest, most effective and least expensive way to cut greenhouse gas emissions.

Best wishes in your efforts to devise a forward looking energy policy for Montana.

Sincerely yours,
Catherine Weeden
2155 Lomas Dr.
Bozeman, MT 59715

Nowakowski, Sonja

From: Jeff Monheim [jeffmonheim@bresnan.net]
Sent: Monday, October 19, 2009 2:42 PM
To: Nowakowski, Sonja
Subject: Clean Energy for Montana

Dear Sonia,

At this point in time, Montana stands at a crucial juncture. She can continue to promote dirty, polluting coal burning simply because "it is there", or she can become a true leader in the development of self- sustaining energy production. Given the abundance of wind, water and biomass resources within her boundaries, we owe it to future generations to break away from our dependence on coal.

Thank you,
Jeff Monheim

Nowakowski, Sonja

From: Starshine [dr.starshine@gmail.com]
Sent: Monday, October 19, 2009 6:43 PM
To: Nowakowski, Sonja
Subject: Energy

Sonya,
Montana MUST develop clean energy. With all our wind, water and sunshine we should be able to supply Montana with CLEAN energy. THERE IS NO SUCH THING AS CLEAN COAL ENERGY.
I have Chronic Obstructive Pulmonary Disease and need clean air to LIVE.

Starshine
453-8989
dr.starshine@gmail.com

Nowakowski, Sonja

From: Pamela Morris [pml@imt.net]
Sent: Tuesday, October 20, 2009 8:54 AM
To: Nowakowski, Sonja
Subject: energy committtee suggestion

To MT Energy Committee:

Please create a plan that allows the public to have some control and responibility re. energy use: access to real-time knowledge through our meters and to actual costs of production, with incentives to conserve.
Also, regarding carbon-based sources, consider costs: of reclaimation (coal fields, of health (clean air), and of Montana' reputation (tourism and development). Keeping Montana's superior clean air and encouraging development of our vast wind, solar, and geo-thermal potential is crutial.

Below is a note on a forward-looking coop. An energy policy that supports such coop efforts would be much appreciated.

Thank you,
Pamela Morris

Respond to the editor
<mailto:energybizinsider@energycentral.com?subject=Unorthodox Thinkers> .
Elizabeth McGowan

At age 70, Bluebonnet could choose to settle in as a stodgy, creaky electric cooperative intent on clinging to its heydays of the past. Not quite.

Indeed, the deft decision-makers at the Bastrop, Texas co-op are arguably ahead of the utility pack in pursuit of their version of the smart grid. CEO Mark Rose elaborates on his unique vision for the progressive co-op in a compact and eloquent document titled "The Sustainable Grid." Defining characteristics cover everything from lowering the co-op's carbon footprint to embracing the latest technology.

Perhaps the most unorthodox of Rose's ideas -- and one that is generally antithetical to the traditional utility industry -- is the insistence on inviting Bluebonnet's 65,000 members to the "electricity table." The nimble co-op is on the verge of granting access to real-time meter data via a Web portal so customers can use computers or smart phones to shape their energy load independently or in response to the utility's request.

The co-op's latest member survey indicates that an overwhelming majority of customers are receptive to participating in demand response events and allowing Bluebonnet to communicate directly with their thermostats.

"Here is our viewpoint," said Rose, who is also the co-op's general manager.
"We're not going to survive in the central station mentality. Customer control is the future of our industry. As a distribution utility, we have only one thing to fear -- not keeping up with the technology."

If Bluebonnet receives the federal stimulus funding it is counting on, this Web 2.0 concept could be operating in the first half of 2010. Otherwise, execution will take somewhat longer. But the co-op has already laid the groundwork by purchasing and installing the latest gadgetry for supervisory control and data acquisition, geographic information, automatic vehicle location, outage management and automatic meter reading.

Next on the list are advanced metering infrastructure, meter data management, home energy displays, smart thermostats and home automated networks. Managers are in the midst of

selecting the most appropriate architecture.

Incorporating Web 2.0 two-way communications tools will help customers understand their electricity use and charges -- instead of being left to decipher a mysterious, month-old bill or attempting to read their own meter.
The essence of the technology is that consumers can chime in at any time to check on how much energy they are using in much the same way they can do from their computers when they see how many cell phone minutes they have used. They would then be able to take action to save electricity.

"We're taking our utility customer into the 21st century," Rose said, adding that the digitally adept among them are already poised to storm the gates.
"As members become empowered with information, they will want more.
Eventually, they will not settle for not having this information."

"This is not a pilot project," he said. "We want to go as far as we can as fast as we can. We have a lot of confidence in this technology. We've seen how it helps the bottom line."

Merely providing customers with an infinite amount of meter information isn't enough, Rose explained. Narrowing the scope to what's relevant and allowing interaction on a real-time basis is the linchpin.

Giving members an anywhere-anytime, Internet-based ability to control how and when they use their appliances, respond to price signals or peak load emergency situations to save money and conserve energy, and sell their own distributed energy back to the utility, allows them to become meaningful players on the grid, Rose said.

"We realize this is a very forward-looking goal," Rose said. "I'm very excited about it. We think it is the distribution grid of the future. We don't sell kilowatts, we sell the service of bringing electricity to your house."

Of course the skeptics contend that consumers are disinterested in getting involved with their utilities on such a detailed level. But the progressive thinkers believe otherwise, saying that not only will get they participate in energy saving programs but also that such involvement is the key to the industry's future.

More information is available from Energy Central:

*   Intelligent Utility Smart Grid Topics Sector
<http://www.energycentral.com/intelligentutility>
*
*
*   Transforming the Electric Industry - Great River Energy Discusses Coop
Progress, Intelligent Utility, Jan/Feb 2009
<http://energycentral.fileburst.com/iuonline/2009-1-jan-feb/big_pic_transfor
ming.pdf>

PUBLIC SERVICE COMMISSION
STATE OF MONTANA

Greg Jergeson, Chair
Ken Toole, Vice-Chair
Gail Gutsche, Commissioner
Brad Molnar, Commissioner
John Vincent, Commissioner

1701 Prospect Avenue
PO Box 202601
Helena, MT 59620-2601
Voice: 406.444.6199
Fax #: 406.444.7618
http://www.psc.mt.gov
E-Mail: psc@mt.gov

To: Energy & Telecommunications Interim Committee

From: Public Service Commission

Date: October 20, 2009

Re: Comments on energy policy issues – Round 2

The Public Service Commission (PSC) submits the following comments on the three specific energy policy issues identified by the Energy & Telecommunications Interim Committee (ETIC) in its September 25, 2009 request for comments.

Issue 1: Increasing the supply of low-cost electricity with coal-fired generation.

Given current construction costs, and the uncertainty surrounding federal carbon mitigation legislation, imminent federal regulation of coal combustion waste, and impending federal regulation of hazardous air pollutants from coal-fired power plants, it is not possible, at least for the foreseeable future, to increase the supply of electricity generated by coal at a low cost.

Because of the cost uncertainties related to coal-fired generation, utilities nationwide are not including it as a preferred resource in their supply procurement planning. None of the three preferred supply resource portfolios in NorthWestern Energy's 2007 electricity supply resource procurement plan submitted to the PSC included coal-fired generation. The prospect of NorthWestern adding its own new coal-fired generation to its electricity resource mix is highly unlikely because § 69-8-421(8), MCA, prohibits the PSC from approving in advance the utility's acquisition of new coal-fired generation unless the plant captures and sequesters at least 50% of its carbon dioxide emissions. The PSC is not aware of the current availability of carbon capture technology that will curtail CO2 emissions to that extent.

Examples abound of proposed coal plants that have been abandoned by their promoters, such as the Highwood Generating Station coal plant near Great Falls. The future of the proposed Big Stone II coal plant in South Dakota is in doubt since the utility leading the development, Otter Tail Power, announced its withdrawal from the project. Montana-Dakota Utilities Co. is one of

the four remaining utilities participating in the Big Stone II project that will now have to try to find new participants if that plant is to move forward.

Recommendation: Increasing regulated utilities' use of coal as a generation resource should only occur if coal-fired generation is cost effective and lower in total costs than other supply resource alternatives. Existing Montana laws and PSC rules require regulated utilities to conduct integrated resource planning (IRP) in which the full range of cost-effective electricity supply resources are thoroughly considered. The costs, risks and benefits of all resource alternatives are evaluated by the utility as it develops its plan for acquiring the optimal resources to meet its needs at the lowest long-term total cost.

Issue 2: Promoting alternative energy systems.

The term "alternative energy system" is defined at § 15-32-102, MCA, as "the generation system or equipment used to convert energy sources into usable sources" using: fuel cells that do not require hydrocarbon fuel; geothermal systems; low-emission wood or biomass; wind; photovoltaics; geothermal; small hydropower plants under 1 megawatt; and other nonfossil forms of energy generation.

Existing Montana laws already promote alternative energy systems. The Montana Renewable Power Production and Rural Economic Development Act requires public utilities and competitive electricity suppliers to obtain increasing percentages of their electricity supply needs from renewable resources. Federal and state laws also require utilities to purchase electricity from "qualifying facilities," many of which are small power producers that use renewable resources to generate electricity. State law provides net metering requirements for utilities. The Legislature has established a loan program and tax credit for alternative energy systems.

Recommendation: Existing state laws promote alternative energy systems to some extent. The PSC recommends that the ETIC adopt an energy policy that vigorously promotes alternative energy systems.

Issue 3: Reducing regulations that increase ratepayers' energy costs.

Regulations that contribute to administrative and compliance costs may have the potential to increase ratepayers' energy costs. Conversely, it is well documented that "electricity deregulation," specifically separating generation assets from the regulatory authority of State public utility commissions, has substantially increased ratepayers' energy costs in Montana, Texas, California, Illinois, and elsewhere.

Recommendation: House Bill 25, passed by the 2007 session, has started the process to extract NorthWestern Energy customers from the misfortune of "deregulation." The legislature should uphold the provisions of HB 25.

Thank you for the opportunity to comment.

Nowakowski, Sonja

From: Chris @ the Oasis [info@OasisMontana.com]
Sent: Tuesday, October 20, 2009 12:06 PM
To: Nowakowski, Sonja
Subject: State's Energy Policy Review

Hello:

I am writing to you, concerned about the future direction of Montana's energy policies. First off, I suppose I do have my own ax to grind--I am the owner/president of a business that sells solar electric power systems, used for remote homes, grid-tie power, solar water pumping for livestock and for RV and marine use. I can assure you that Montanans and Americans in general want access to clean, green power.

Right now, the words 'clean coal' are a misnomer--there is no such thing. Even the scrubbers used to keep the air cleaner from coal-fired power plants end up putting that pollution into our water table. Electricity generated by coal is NOT cheap, once even a few 'externalities" are factored in.....acid rain, fouled salmon runs, air & water pollution, high water demand, and related health risks from mercury and other pollutant's contamination are only a few of the problems associated with coal plants. There are cheaper and cleaner alternatives that will work now. If coal producers were forced to pay ALL the costs of using coal, it would be among the most costly forms of power. And as we learn about more and more of these 'externalities', the real cost of coal produced electricity will rise--as it should.

We should not make it easier for polluters to pollute. There are very few fish in the entire continental USA who are free of pollutants that are produced by coal-fired utilities--which means that our waters are also suspect. Regulations should be strengthened to protect public health and the environment, not weakened so a corporation can make a dirty buck.

Montana's RPS has generated jobs and a new economic climate in our state. We need to keep that ball rolling for the betterment of our state and its citizens. We are tied for second in the amount of wind power that can be harvested (Texas being first, I believe, and we are tied with Kansas)--clean electricity that other western states will also pay for! It's time we went back to having some of the cheapest power in the country--and clean power at that.

Thanks for listening.

Chris Daum

Oasis Montana Inc.
406-777-4309
406-777-0830 fax
www.oasismontana.com

www.grid-tie.com

www.PVsolarpumps.com

www.eco-fridge.com

www.LPappliances.com

Nowakowski, Sonja

From: Joe Brenneman [jbrenneman@flathead.mt.gov]
Sent: Tuesday, October 20, 2009 12:09 PM
To: Nowakowski, Sonja
Cc: Elaine Nelson
Subject: Energy Policy
Attachments: l-legislature.doc

Sonja,

Please find attached my comments regarding the considerations of Senate Bill 290.

Thank you for the chance to comment.

Joe

Joseph D. Brenneman
Flathead County Commissioner
800 South Main
Kalispell, MT 59901
406-758-5508
406-314-0075

Note: Montana has a very broad public records law. Most written communications to or from county commissioners are public records available to the public and media upon request. Your e-mail communication may be subject to public disclosure.

Legislative Services Division
Attn: Sonja Nowakowski
P. O. Box 201704
Helena, Montana 59620-1704

RE: Senate Bill 290 - State Energy Policy

Dear Members of the Committee:

Thank you for the opportunity to comment on the review of the current state energy policy as mandated by Senate Bill 290. We are fortunate in Flathead County to be served by Flathead Electric Cooperative (FEC), a member-owned utility that has successfully overcome monumental challenges. It is imperative that any changes to the energy policy give first priority to the needs of cooperatives like FEC; and local control must not in any way be compromised.

I strongly support renewable and alternative energy systems. FEC is very diligently pursuing both, as evidenced by their partnering with Flathead County in the landfill gas-to-energy facility recently completed as well as their exploration of geothermal potential. The state energy policy must promote such endeavors. However, it must not penalize proactive enterprises like FEC with regulations that require redundant studies or reports at the cost of both increased rates and diversion from getting the real work done.

It is important that a new state energy policy provide strong incentives for the production of power and electricity via biomass generation facilities. Such facilities would offer a tremendous renewable source of energy as well as provide an important forest management tool.

I realize that these comments are quite general in nature, but I would be happy to provide more specific details if desired. It is impossible to overemphasize the importance of your task in leading us into the future with a safe and sound state energy policy.

Sincerely,

Joe Brenneman
Flathead County Commissioner
MACo Energy Committee Member

Nowakowski, Sonja

From: KaedingL@aol.com
Sent: Tuesday, October 20, 2009 2:15 PM
To: Nowakowski, Sonja
Cc: KaedingL@aol.com; matt@northernplains.org
Subject: Comments on Revising State Energy Policy
Attachments: ETIC-Comments20Oct09-FNL.doc

Dear Ms Nowakowski:

Please accept the attached comments from Northern Plains Resource Council for the Energy and Telecommunications Interim Committee's consideration in their deliberations on revising Montana's Energy Policy.

Thank you.

Beth Kaeding, Chair

NORTHERN PLAINS
RESOURCE COUNCIL

Legislative Services Division
Attn: Sonja Nowakowski
P.O. Box 201704
Helena, MT 59620-1704

October 20, 2009

Re: Comments on Revising State Energy Policy

Dear Energy and Telecommunications Interim Committee:

Thank you for the opportunity to provide comments concerning the Energy and Telecommunications Committee's (ETIC) proposal to review and revise state energy policy. Northern Plains Resource Council (Northern Plains) is a grassroots conservation and agricultural organization that organizes Montana citizens to protect our water quality, family farms and ranches, and unique quality of life. We support the ETIC's efforts to develop a comprehensive state energy policy that we hope will yield a coherent energy policy that stresses energy efficiency, conservation, and renewable energy. Montana's energy policy should aim to provide affordable and reliable energy for consumers while minimizing the impacts to our air and water resources, protecting private property rights, and preserving the quality of life we enjoy in Montana.

With regard to the three agenda issues for the November meeting, Northern Plains has serious concerns about the assumptions behind two of the items. We believe that the idea that electric rates can be made affordable by reducing regulations and increasing the use of coal is short-sighted and ill-founded. However, we fully support efforts to promote alternative energy systems. Renewable energy systems can provide a source of clean energy and at the same time provide broad prosperity to rural Montana communities.

Increasing the supply of low-cost electricity with coal-fired generation

While coal-fired electrical generation has historically provided affordable power, the true cost of coal is tremendous and is paid for in ways other than electric rates. The direct and indirect costs of producing coal to the land, surface waters, aquifers, abundant wildlife, soils and vegetation, air, ranching operations, and communities are significant, but, to date, generally not accounted for in electric rates. These costs are paid indirectly by all Montanan's in the degradation of the natural environment, in the destruction of productive agricultural operations when ranches are stripmined, and in increased health costs (such as asthma) from smokestack pollution. If coal producers were forced to pay the true costs of coal, coal would be one of the most expensive forms of power available to us.

220 S. 27th Street, Suite A, Billings, MT 59101
Tel: 406.248.1154 Fax: 406.248.2110 Email: info@northernplains.org www.northernplains.org

Any discussion of coal must also begin with the economic realities of today's market. In recent years, multiple proposed coal projects have been cancelled across the United States because of market uncertainty, lack of financing, and imminent regulations that aim to account for the true cost of coal. PacifiCorp cancelled plans for two new coal plants in Wyoming, stating "Coal projects are no longer viable because of the uncertain political climate regarding carbon dioxide emissions" ("PacifiCorp Cancels Wyoming Power Projects", *Wyoming Tribune-Eagle*, Dec. 11, 2007). Also in 2007, eight proposed coal plants in Texas were abandoned during the purchase of Texas utility, TXU. "Within TXU, the controversial plan to build a raft of coal plants had become so damaging to its stock price that its board had been privately weighing a plan to scrap part of the project" ("A Buyout Deal That Has Many Shades of Green", *New York Times*, Feb. 26, 2007).

Increased regulation, such as more stringent pollution controls on new coal-fired facilities, can increase the cost of coal power. However, without adequate pollution control regulations, those costs do not disappear, they are simply externalized. When coal mines and coal plants are allowed to operate without adequate regard to the impacts these industries have on air, land, and water, landowners (specifically) and members of the public (generally) bear the burden of these projects in the form of diminished property values, reduced agricultural productivity, and increased health care costs. We can no longer ignore the true cost of coal.

Just this week, the National Research Council, a branch of the National Academies, released a report on the hidden costs of energy. The report, which was requested by Congress in 2005, can be seen at http://www.nationalacademies.org/morenews/20091019.html and estimates the financial impact that energy development has on human health, agriculture, property, and recreation. It is important to note that the study did not account for costs due to climate change. The report finds that energy development was responsible for an estimated $120 billion in damages in 2005, and half of those costs ($62 billion) are attributable to coal-fired power plants. That translates to a hidden cost of 3.2 cents per kilowatt-hour for electricity generated from coal.

Coal plants are the largest source of both mercury and sulfur dioxide emissions in the United States. Coal plants are the second largest emitter of nitrogen oxides, a major source of smog. Coal plants are also a source of fine particulate pollution that can damage the lungs. And, coal plants emit numerous other toxic pollutants including chromium, lead, and arsenic. These emissions present serious health risks to the public and result in increased health care costs, which become the burden of employers, citizens, and taxpayers.

The coal industry is responsible for one-third of all carbon-dioxide emissions in the United States each year, while Montana coal plants account for 50% of Montana's emissions. Climate change is responsible for a host of costs including crop loss, increased fire danger, and property damage from natural disasters. That is why governments around the world are becoming increasingly serious about policies to address carbon-dioxide emissions.

Regardless of any technological solutions to address emissions from coal facilities, the fact remains that coal mining poses a serious threat to our land and water. Many of our members are farmers and ranchers who have experienced, first hand, the impacts of coal development. Because of the disproportionate power afforded mineral owners in a split-estate situation, landowners often see their property rights undermined, the value of their property diminished, and the viability of their agricultural operations compromised. Furthermore, mining operations

on and around farms and ranches can jeopardize water quality and water rights. Mining can alter hydrogeology, draining aquifers and drying up natural springs, and change the topography affecting surface water. Even after reclamation has been completed, the water resources are often never fully restored.

Reducing regulations that increase ratepayers' energy costs

Northern Plains believes that this concept is based on a false premise. As evidenced by the hidden costs of coal, well-designed regulations ensure that the true costs of power generation pay the cost of production rather than allowing the costs to be externalized. Furthermore, good regulations can actually lead to decreased costs by encouraging good resource planning and creating a more efficient energy system.

About ten years ago, Montanans were promised a better energy future through deregulation. The idea was that a free market with less government involvement would deliver better results for consumers. The years since have proven that promise to be an empty one, as Montanans' energy rates soared after deregulation. It is difficult to find many people in Montana today who support deregulation. Why then are we discussing the supposed virtue of decreased regulation?

In order to achieve an energy system that works for Montanans and provides affordable and reliable energy for consumers, protects our resources, and produces sustainable economic development, government must be involved to provide proper regulations and incentives. Regulations should be strengthened to protect property owners from the impacts of energy development and to encourage energy development that minimizes impacts and maximizes economic and social benefits to communities.

An excellent example of a regulation that benefits Montanans is the Universal System Benefit (USB) Program. At face value, it can be seen as an increase in rates because it is a small charge on each energy user's power bill. However, the net result is to reduce energy consumption and increase the use of alternative energy. The USB funds pay for low-income bill assistance, low-income weatherization, energy efficiency programs, and grants for renewable energy projects. Each of these programs helps to reduce power bills for everyone on the system. Low-income bill assistance avoids unpaid bills that would ultimately be absorbed by other ratepayers. Meanwhile, efficiency and conservation programs reduce bills directly by reducing consumption while also helping the utility to minimize the need to go out in the market to acquire new (and often more expensive) energy sources.

We encourage you to look beyond the simple assumption that regulations lead to increased costs. Strong regulation can lead to good projects and good outcomes. Government has a direct role to play in how our state's energy system moves forward. We want a system that works to the benefit of <u>all</u> Montanans, not just energy development companies.

Promoting alternative energy systems

The cost of power from renewable energy projects has come down considerably in the last few decades. In many cases, power from a renewable project today can provide more affordable power than, for example, power that is generated at a new coal facility.

Renewable energy projects can sustainably benefit our rural communities rather than exposing them to the boom-and-bust cycle that accompanies fossil-fuel development. Northern Plains has worked for many years to promote "homegrown prosperity" and strongly encourages the ETIC to develop policies that will result in increased sustainable, renewable energy development projects. These projects can provide much needed economic development for our rural communities while preserving Montana's environment and our rural, agricultural way of life.

Biofuels can provide new markets for farmers while increasing our energy independence. Biodiesel burns cleaner than gasoline, reduces our dependence on foreign oil, and provides economic stability for Montana's agricultural economy. Not only can Montana farmers grow the crops to produce biodiesel, we envision farmers and ranchers forming cooperatives to produce their own fuel. Such a vision can bring prosperity to rural communities while producing a cleaner burning fuel.

Montana has one of the best wind supplies in the nation, and we should be doing more to encourage its development. Montana's Renewable Energy Standard has generated job growth and new revenue in the state. The Legislature should increase the standard so that Montana meets 20% of its energy demand with renewable energy by 2020 and 25% by 2025. Such a policy makes sense for consumers. As an example, electricity from the Judith Gap wind farm is supplying some of the cheapest power in the NorthWestern Energy system.

A lot can also be done to encourage more small-scale renewable energy. Farmers and ranchers can have extremely high energy bills, especially if they are paying for electric pumps to irrigate. Small-scale wind and solar systems can help to reduce those bills while also reducing the need for our rural electric cooperatives to acquire new sources of electricity. Many of our cooperatives are currently experiencing increased rates because of poor resource planning. However, few of them are doing a good job of encouraging distributed renewable energy with programs such as net metering. We need policies to require all electricity providers to allow for net-metered systems.

Thank you again for the opportunity to contribute to the discussion of revising Montana's state energy policy. Our hope for this process is that it will lead us to a new energy future that emphasizes conservation and efficiency and focuses on developing clean energy supplies that are readily available in Montana.

Sincerely,

Beth Kaeding

Beth Kaeding, Chair
Northern Plains Resource Council

Written Comments

On Revised State Energy Policy

Submitted for the November 9-10, 2009 Meeting

of the

Energy and Telecommunications Interim Committee

By Montana Electric Cooperatives' Association

Issue Topic:

"Reducing regulations that increase ratepayers' energy costs"

Introduction

Montana Electric Cooperatives' Association expresses its gratitude to the Montana Legislature's Energy and Telecommunications Committee for the opportunity to submit written comments on the topic of "Reducing regulations that increase ratepayers' energy costs."

Although many existing government regulations continue to put upward pressure on ratepayers' rates, the association remains very concerned about the imposition of three, specific government mandates – two existing, the third proposed – that we strongly believe will lead to higher rates for our ratepayers. These are mandates for:

1) The purchase of alternative renewable energy;
2) One-size-fits-all requirements for net metering, and;
3) Spending on energy efficiency programs.

At this point, none of these mandates has been imposed on Montana's electric cooperatives and action by the Legislature would be required to do so. However, legislation to accomplish that objective has been repeatedly proposed in past legislative sessions and one or more of these bills are likely to be introduced in the future. Our purpose in submitting these comments are to help ETIC understand why we believe these mandates constitute bad

public policy, particularly from the standpoint of how they would affect co-op ratepayers.

Electric cooperatives' profile in Montana

Obtaining a clear understanding of our concerns about these mandates requires at least some consideration of our uniqueness as electric utilities in Montana – in terms of ownership, structure, governance, service areas and power suppliers.

Electric cooperatives are owned by their consumers, and are operated as not-for-profit utilities with all costs or annual margins ultimately passed onto the consumers. Electric cooperatives are governed by boards of trustees democratically elected by consumer-owners of the co-ops. Co-op boards oversee all operations, including the responsibility of setting retail electricity rates for all classes of customers. Montana's 25 electric cooperatives serve in all 56 counties.

In Montana, electric cooperatives serve about 400,000 Montanans but, with ownership of the state's largest retail power distribution system, at more than 47,000 miles, these co-op utilities have an average customer density level of slightly more than 2.5 customers for every mile of power line. By comparison, NorthWestern Energy, has more than five times as many customers per mile of power line. That translates into much larger revenues per mile of power line than those of the electric cooperatives.

Two of Montana electric co-ops' primary power suppliers are Bonneville Power Administration and Western Area Power Administration, both of which are federal power marketing agencies. Other primary power suppliers are PPL Montana and Basin Electric Power Cooperative. BPA serves primarily the western portion of the state and is on track to phase out power supply to co-ops in the roughly central and southern regions by 2011. As BPA service to the central-region co-ops diminishes, those co-ops' power supply is being replaced by Basin Electric. As the southern co-ops' BPA power supply diminishes, that power is being replaced – at least in the short term – by PPL Montana. WAPA continues to serve co-ops in the central and southern regions. In the far eastern part of the state, co-ops receive power from Basin Electric and WAPA.

Regulations can increase power bills

In general, any government mandate has the potential to raise electricity costs for consumers. In large part, this occurs because mandates

tend to remove or sharply curtail flexibility required to operate utilities in a cost-effective manner.

Moreover, mandates can a have much more detrimental effect on not-for-profit, consumer-owned electric cooperatives because consumers must directly bear all increased costs. In other words, co-ops do not have profit-taking share holders who can help shoulder with ratepayers the greater financial burden inflicted by government regulation.

Finally, government regulations affecting power supply also tend to ignore on-the-ground realities such as all-requirements power supply contracts with wholesale power suppliers, especially long-term contracts. These contracts obligate the retail distribution cooperative to a certain level of power supply purchases from that supplier, sometimes obviating the ability of the co-op to meet both regulatory and contractual requirements.

Renewable Portfolio Standards (RPS) Mandates

Montana's statutory RPS requires the purchase by 2015 of 15 percent of a retail electric utility's power supply from alternative renewable energy sources. Each governing body of a cooperative utility that has 5,000 or more customers is responsible for implementing and enforcing a renewable energy standard for that cooperative utility that recognizes the intent of the legislature to encourage new renewable energy production and rural economic development, while taking into consideration the effect of the standard on rates, reliability, and financial resources. Co-ops with less than 5,000 customers or meters are exempt from the RPS.

Montana Electric Cooperatives' Association supports the use of renewable energy resources and many of our member cooperatives offer renewable energy for sale to their member-owners. Many Montana electric cooperatives, such as cooperatives purchasing power from Bonneville Power Administration and Basin Electric Power Cooperative, pay for renewable resource electricity through their wholesale power bills.

However, renewable energy usually costs more than conventional energy sources. Wind energy costs, for example, would usually be around 40 to 50 percent or higher than conventional power contracts of Montana's electric cooperatives. Moreover, many Montana electric cooperatives already offer renewable resource electricity as an optional purchase to their customers but few are willing to pay the higher price for it.

But perhaps of greatest concern in terms of consumer rates is the impact that a mandated RPS would have on our ability to purchase

significant quantities of existing cost-based hydropower. Across the state, co-ops are from roughly 25 percent to nearly 100 percent dependent on these low-cost, typically fully-depreciated resources, with wholesale prices running from approximately 2.5 cents per kWh to 3 cents per kWh. Generating electricity from new renewable electric plants is significantly more costly. For example, electricity produced with biomass costs over 9 cents per kWh. Moreover, wind energy costs 11 cents per kWh and solar thermal energy costs 21 cents per kWh (before taking into account federal production and investment tax credits.)[1] These higher costs do not take into account additional transmission fees to use the grid for transporting intermittent renewable power. In many places in Montana, transmission is inadequate to move this power where it is needed.

Simply put, mandated renewable energy portfolios will force consumer-owned electric cooperatives to substantially raise rates. These impacts would be particularly harmful to cooperatives serving sparsely populated rural areas, where customer density levels and corresponding revenues per mile of power line, are extremely low, and where poles and wires costs are much higher.

Net Metering Mandates

Under the state's net metering law passed in 1999, Montana's 25 electric distribution cooperatives are exempt from the one-size-fits-all net metering mandate but are not prohibited from voluntarily offering it to their customers.

Acting in response to customer interest in net metering, Montana's electric cooperatives have worked collectively through their statewide association to develop a model net metering policy. All of the electric cooperatives have adopted polices similar to the model policy that allow net metering and, in recognition of the need to be progressive, the policy was recently changed to allow annual true-up of net metering accounts.

However, government-imposed, one-size-fits-all net metering mandates could easily affect rates paid by other non-generating customers as well as create other unintended impacts. These include potentially serious safety risks and power quality concerns. Higher rates for other customers could be the result because mandated net metering fails to take into account the widely varying costs, rates, rate structures, and power supply and delivery issues facing each local co-op.

[1] National Rural Electric Cooperative Association calculations based on capacity cost and fuel price assumptions from the U.S. Energy Information Administration, Annual Energy Outlook 2009

Safety risks are created if cooperatives are prohibited from requiring customer installation of adequate equipment to prevent back feeding of power output from customer generation facilities. Power quality could easily deteriorate if the cooperative
utility is not exerting maximum flexibility in absorbing power output from a customer generation facility.

Energy Efficiency Mandates

As not-for-profit electric utilities owned by our customers, electric cooperatives have an enormous incentive to use electricity more efficiently. They do not need to sell electricity to build profits because that is not a motivation for co-op operations.

Montana's electric cooperatives have long been leaders in energy efficiency programs and, in the face of rising wholesale power costs, are becoming even more aggressive in these voluntary efforts. These include the hiring of energy efficiency experts to assist customers, energy audits, weatherization, incentives for installation of geothermal heating and cooling units and energy efficient water heaters as well as ongoing, extensive customer education on ways to save energy.

Like all Montana electric utilities, electric co-ops already face an existing state government mandate for spending on energy efficiency and other related programs. This is the Universal Systems Benefit Program.

As with the RPS and Net Metering mandates, MECA opposes mandates on electric utilities for energy efficiency programs to help consumers reduce energy usage. Such requirements would likely result in significant rate increases, especially in co-op country. Energy efficiency mandates force utilities to make un-economic investments in efficiency measures or purchases of savings, imposing costs on consumers. Consumers paying artificially higher electricity costs will have less disposable income to make more efficient choices in operating their homes and businesses.

Energy efficiency mandates also make utilities financially responsible for customer choices and behaviors. Ultimately, usage decisions are made behind the meter by the consumer. If some consumers don't conserve or can't afford to make efficiency improvements, the utility will be unfairly penalized and forced to purchase efficiency savings or make compliance payments.

In addition, energy efficiency mandates ignore the huge differences in the ability of different utilities – especially 25 different electric co-ops – to

achieve efficiency savings. Every utility has a different potential to make cost-effective energy efficiency investments determined in part by customer base and historical efforts to promote energy efficiency. Utilities with more industrial and commercial load can more easily make efficiency improvements, with the “lowest hanging fruit” being commercial lighting. This challenge of finding cost-effective energy efficiency savings on a continual basis going forward is particularly true of electric cooperatives. In Montana, these utilities serve mostly residential customers (typically 70 percent or more) and they have very few, if any, industrial or even large commercial accounts.

All of these factors combined can pose a significant threat of increased costs to ratepayers. These higher costs pose a likely greater hardship on consumers in co-op country because Montana’s electric co-ops serve in areas where consumer per-capita incomes typically are well below state and national averages. Raising rates on low-income people to help them reduce energy use makes little sense.

Summary

Imposition on electric co-ops of any one of the mandates of renewable portfolio standards, net metering or energy efficiency strike at the heart of the co-ops’ ability to control rate increases.

Besides the loss of fundamental local control and flexibility, the importance of which the Montana Legislature has affirmed time and time again, these mandates result in government regulation that disregards existing realities. For example, rising wholesale power costs have resulted in significant rate increases for some electric cooperatives.

Although the current recession has, for the time being, somewhat eased other cost increases, the threat of significant new environmental regulations is growing. Federal climate change regulations – originating either from Congress or directly from the Environmental Protection Agency – are the best current example. Ratepayers could see major cost increases from these policies.

Public comments on energy issues:

#1
"Increasing the supply of low-cost electricity with coal-fired generation."

Low-cost, dirty electricity from coal plants and nuclear plants are what got us into the mess we are in. The Price/Anderson act, which relieves the nuclear industry of liability, makes the electricity look cheap when in fact the costs are huge outside of the rate. By transferring the responsibility for unfixable messes like Hanford and AGW away from the ratepayers to the taxpayers, one gets the illusion that these resources are cheap when they are anything but. In reality they have cast the cost of the cleanup onto the working people of America. In most cases those taxpayers are the same people who are being wooed by cheap electricity rates. We're going to pay one way or the other.

#2
"promoting alternative energy systems"

We need to be the first state in the nation to implement the feed-in-tariff. Oops, we can't be first because Vermont and California have already done it. Let's be third! This is the German model and we know it works. Send an envoy to Germany to figure out how to set it up here in Montana.

#3
"Reducing regulations that increase ratepayers' energy costs"

I personally feel that higher electricity rates would be a good thing for the environment and strict regulation on polluters should be put in place and enforced. Our children will thank us someday for saving the planet. I doubt they will thank us for low electricity rates if the price is allowing the degradation of the environment. They would admire leadership in this time of important choices which finds them forced to sit by powerlessly watching us let it all go up in smoke. Go poll your grandkids about this topic.

My personal opinions as an owner of a renewable energy business in Missoula
Mary Hamilton

Nowakowski, Sonja

From: Mathsen, R.M. and L.S. [mathsenlsrm@yahoo.com]
Sent: Tuesday, October 20, 2009 5:17 PM
To: Nowakowski, Sonja
Subject: Energy Policy

The state's energy policy must be one that moves Montana toward a clean energy future, the only future that will be acceptable by coming generations. I do not want a policy the continues down the path of coal development. That path destroys the environemnt, citizens' health, and leave us out of the promising development of alternative energy that is readily available in Montana.

Ron Mathsen
Great Falls

To: Energy and Telecommunications Interim Committee

From: Todd O'Hair, MT Government Affairs Manager, Rio Tinto Energy America

Date: October 19, 2009

Re: Comments on requested agenda topic of "Increasing the supply of low-cost electricity with coal-fired generation"

Dear Committee members,

On behalf of Rio Tinto Energy America, thank you for the opportunity to provide comments on the importance of increasing Montana's supply of low-cost electricity. As you will see, it is our position that low-cost electricity is directly related to coal-fired generation.

Rio Tinto Energy America is one of the largest coal mining companies in the nation, with mining operations in Montana and Wyoming. Employing approximately 1,500 employees, Rio Tinto Energy America (RTEA) specializes in the production of Powder River Basin coal, a low sulfur and high energy coal used by electrical generating utilities across the United States.

In Montana, Rio Tinto Energy America owns and operates the Spring Creek Mine located near Decker, Montana and holds a 50/50 joint venture interest in Decker Coal. Rio Tinto Energy America's Spring Creek Mine is Montana's largest producing coal mine shipping nearly 18 million tons of coal in 2008.

Coal is an important and growing part of Montana's economy. In 2006, Montana coal production topped 41 million tons and grew to nearly 45 million tons by 2008[1]. With the recent expansion of the Signal Peak mine near Roundup, Montana coal production will likely continue its growth trajectory.

Wyoming is experiencing significant growth as well. During the same period, 2006 to 2008, Wyoming coal production grew from 446 million tons to 461 million tons[2].

The combined tonnage of Montana and Wyoming indicates the importance of coal not only to our regional economies, but also to the national energy portfolio. In fact, approximately 40% of the nation's coal supply comes from the Powder River Basin states of Wyoming and Montana[3]. And that figure is likely to increase as well.

Globally, coal is expected to continue its crucial role in providing affordable energy. Recently, President Obama's Department of Energy Secretary, Steven Chu noted the current and *growing* demand for affordable energy in a letter to energy ministers gathered at the Carbon Sequestration Leadership Forum in London. In Secretary Chu's letter, he reminded participants of the link between prosperity and affordable energy:

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[1] Montana Coal 2008 Council brochure,

[2] "Wyo coal makes inroads; Rail, mine expansions result in another record year" Star-Tribune, January 8, 2009

[3] "Wyoming, State Energy Profiles" Energy Information Administration, last updated Oct. 1, 2009

"*We also know that prosperity depends on reliable, affordable access to energy. Coal accounts for about 25% of the world's energy supply and 40% of carbon dioxide emissions and is likely to be a major and growing source of electricity generation for the foreseeable future*."[4]

The importance of coal for developing countries and economies should not be dismissed. Consider countries such as China, India and South Africa, who rely on coal for 81%, 68% and 94% of their electrical generation respectively (See Chart 1).

As Secretary Chu noted, global demand for coal is only expected to increase as developing nations search for ways to provide affordable electricity to the remaining 1.6 billion people who have no electricity[5].

Here in the United States, coal production has increased as well, despite increasing uncertainty associated with climate change and any accompanying regulatory scheme. In 2008, United State's coal production had climbed to a record 1.17 billion tons[6].

Increased production certainly follows increased demand. And despite the perceptions and *realities* of coal, the fact remains that coal is one of the most consistently reliable and affordable sources of electricity today. Demand for low cost energy has driven the demand, in particular demand for Powder River Basin coal.

Critics believe coal should be excluded from our energy portfolio, ignoring the fact that few other energy sources provide electricity as consistently and cheaply as coal. As a result, nearly half of our nation's electricity is supplied via coal-fired generation[7]

Affordable electricity is not only important for economic growth, but crucial to maintaining and improving the standards of living in our day-to-day lives, especially for lower income residents.

Undeniably, home energy prices disproportionately affect lower-income households. In Montana, total population in 2007 reached 956,624 residents[8]. According to U.S. Census Bureau's Current Population Survey, Montana's estimated poverty rate was 14.1% in 2007, which amounts to more than 134,000 Montana residents living in poverty.[9] (See Chart 2 for federal poverty guidelines)

Furthermore, according to a report on home energy affordability, households below 50% of the federal poverty guidelines pay 37% or more of their annual income for home energy bills[10]. The report extrapolates those figures to conclude that a household with

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[4] "Chu calls for affordable carbon capture and storage in 8 to 10 years" SNL Financial October 12, 2009
[5] "Welcome to UN-Energy" United Nations, Economic and Social Development website, 2009
[6] "U.S. Coal Supply and Demand, 2008 review" Energy Information Administration,
[7] "Electric Power Annual, 2007" Energy Information Administration
[8] "Population by Sex, Race, and Hispanic Origin**,** 2000-2008" Montana Department of Commerce table 3
[9] "Montana's Poverty Report Card: Statewide Report", George Haynes, Ph.D., Julia Haraldson June 2009
[10] "On the Brink, the Home Energy Affordability Gap in Montana" Fisher, Sheehan & Colton, Public Finance and General Economics, April 2003

an average income of $30,000 with the same energy burden would pay over $11,000 a year or $925 per month for energy costs.

Low cost energy is critical to Montana families, especially low-income households.

The importance coal plays in providing low cost energy is delivered through a variety of comparisons and studies.

As noted by Sonja Nowakowski in her policy paper on the subject, the Energy Information Administration (EIA) compared fossil fuel based electricity delivered prices and found coal to be the least expense energy source. According to the EIA, liquid fuel (petroleum) was the most expensive at $15.72 per MMBtu, followed by natural gas at $9.11. Delivered coal was significantly less expensive, coming in at $2.05 MMBtu[11]. Applying a general factor of 293 kwh per MMBtu, prior to any considerations of variable utility heat rates, indicates comparative fuel-only figures of 5.4 cents/kwh for petroleum, 3.1 cents/kwh for natural gas and 0.7 cents/kwh for coal.

While natural gas is increasingly the carbon fuel of choice for electrical generation, history has demonstrated that natural gas prices are highly variable and extremely volatile (see chart 3). As you can see, the natural gas market has been particularly erratic in the last three years (2006 – current). Over reliance on natural gas for future electrical generation has the potential to expose Montana consumers to spiking energy prices with no reasonable cost-effective alternatives.

On the other hand, Powder River Basin coal, plentiful in Montana and Wyoming, has a consistent and reliable price pattern. While carbon fuel sources such as petroleum and natural gas reacted with significant volatility to market conditions, delivered coal prices were much more predictable and manageable as visualized by the bottom line in Chart 4 (See Chart 4).

As further evidence for your consideration; Powder River Basin (PRB) coal is converted to electricity in 38 states. Twenty of those thirty-eight states use large amounts of PRB coal (8 million tons or more annually). And of those large consumers of PRB coal, 19 have electrical generation rates *lower* than the national average[12]

Not only is coal a low cost producer of electricity, but Powder River Basin coal is especially cost effective. As Ms. Nowakowski correctly noted, the delivered price of coal can double or even triple the final cost of the product. The cost effectiveness of PRB coal is therefore amplified with proximity since transportation is often the most expensive component of converting PRB coal to electricity.

Montana is in a particularly enviable position with regard to opportunities to create low cost power. As other states look to create low cost power, they are increasingly looking to the PRB states of Wyoming and Montana; generating low cost power even as they absorb extremely high transportation costs.

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[11] "Electric Power Monthly September 2009: With data for June 2009", Energy Information Administration

[12] "The Powder River Basin: Powering America, T.J. Considine, November 2009

This enviable position will become increasingly evident as the energy demand of the state increases and generation supply shifts over the next several years.

As producers of low-cost energy fuels, RTEA encourages the Committee to consider how the State of Montana will meet the demand for low-cost energy essential for economic development and affordable living.

Not only should coal remain an active part of the future portfolio for Montana's energy supply, but serious consideration should be given for efforts to *increase* coal-fired generation in Montana. An honest evaluation of hurdles that deny deployment of coal-based generation is appropriate.

In particular, the Committee should carefully examine the regulatory scheme within the jurisdiction of the State of Montana. Regulatory uncertainty creates financial uncertainty and it is only appropriate that policy-makers understand the implications for future coal-based generation resulting from current and future state statutes and regulations.

Thank you for your consideration. I look forward to assisting your efforts.

Todd O'Hair
MT Government Affairs Manager
Rio Tinto Energy America

Chart 1

Coal in Electricity Generation

South Africa 94%	Poland 93%	PR China 81%
Australia 76%	Israel 71%	Kazakhstan 70%
India 68%	Czech Rep 62%	Morocco 57%
Greece 55%	USA 49%	Germany 49%

Source: IEA 2009

Chart 2

2007 HHS Poverty Guidelines[13]

Persons in Family or Household	48 Contiguous States and D.C.	Alaska	Hawaii
1	$10,210	$12,770	$11,750
2	13,690	17,120	15,750
3	17,170	21,470	19,750
4	20,650	25,820	23,750
5	24,130	30,170	27,750
6	27,610	34,520	31,750
7	31,090	38,870	35,750
8	34,570	43,220	39,750
For each additional person, add	3,480	4,350	4,000

[13] *Federal Register*, Vol. 72, No. 15, January 24, 2007, pp. 3147–3148

Chart 3

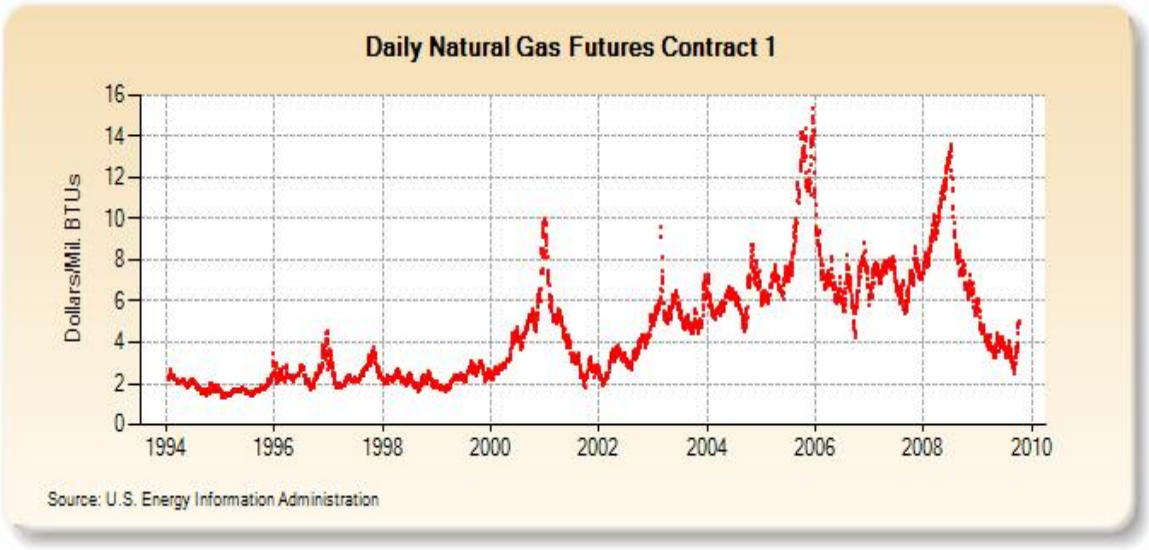
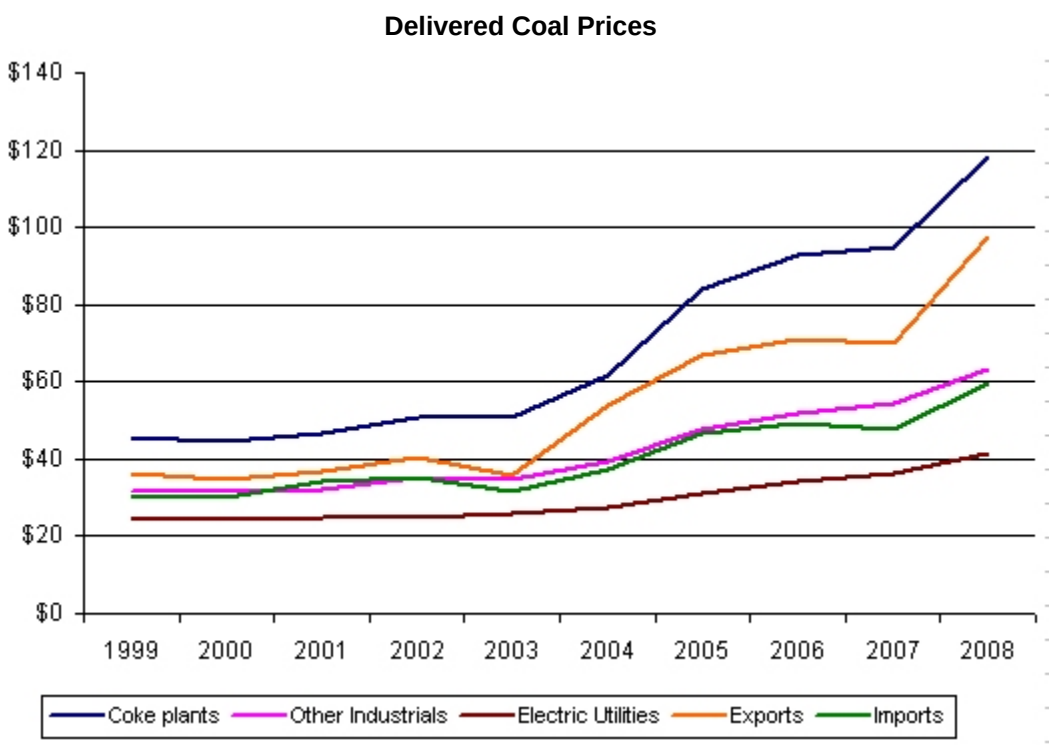


Chart 4



Sources: Energy Information Administration, *Quarterly Coal Report*, October-December 2008, DOE/EIA-0121(2008/Q4) (Washington, DC April 2009); *Coal Industry Annual*, DOE/EIA-0584, various issues; and Annual Coal Report, DOE/EIA-0584(2003), various issues; *Electric Power Monthly*, March 2009, DOE/EIA-0226 (2009/03), (Washington, DC); and U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545" and "Monthly Report IM 145.

Date: October 20, 2009

To: The Montana 2009-10 Energy and Telecommunications Interim Committee

Subject: Public Comment - Montana's Energy Policy

Thank you for allowing the public to submit comments regarding these important issues. Having read the 130 pages of comments from your last public query, I'll try to make this short.

Regarding wind power, as it relates to alternative energy system promotion, it is my view that more consideration should be given to protecting the magnificent wildlife and open sky that is Montana. I am not opposed to wind turbines and wind energy centers, but consider we may be heading into a period of exploding wind turbine growth with our blinders on, and possibly ignoring some of the already available science that is at our disposal.

I believe that all Montana Legislators care about the effect that erecting wind turbines and building wind energy centers have on Avian and bats that reside in, and travel though, this great State. These Legislators should know the facts. For example, according to a September 2009 released report[1] the number of birds at Judith Gap has increased significantly over the last several years. Also, in June of last year it was reported at NewWest.net that a higher than expected number of bats were killed at Judith Gap in a first of its kind 2008 released study. It is very unfortunately that no report was released for Avian and Bat fatalities this year, a sadly missed opportunity.

Invenergy has done a good job at providing reports that show this important information. As far as I know, they are not obliged to release these studies and they should be commended for doing so. It is my opinion that these ongoing studies should be taken out of their hands and done independently with assistance from technical advisory professionals from all walks of life; I believe this should apply to all major wind farms in the State.

If we can afford to ship energy 'Made In Montana' out of the State because we produce more than we need, and potentially risk the wildlife that is here, we can make the energy producing companies and energy consumers pay for these types of important scientific studies that are the only way to know what environmental effect there may be.

More use of our great Montana University System technical professionals should also take place in the legislature in my view. Countless studies are undertaken with Montanans' money, including money derived from coal, on renewable energy research. The results of at least some of these studies should be introduced, if possible, to spread knowledge and promote Government and University System transparency.

Also, I would like to thank Ms. Nowakowski for all her hard work over the years, she does a great job for the ETIC in my opinion.

James Schell
East Helena, MT

[1]Source: RESULTS OF THE 2008 GRASSLAND BIRD DISPLACEMENT STUDY AT THE JUDITH GAP WIND ENERGY PROJECT, WHEATLAND COUNTY, MONTANA (http://tinyurl.com/yhu5sng)

10/21/2009

To the Energy and Telecommunications Interim Committee (ETIC)

Dear Committee Members:

I am writing in regard to the development of energy in the State of Montana and the carbon emissions policy in the United States. The rich fossil fuel deposits in Montana are interconnected at the national and international markets. Coupled with our national carbon emissions non-existing national standards, our nation and state in the near future will have to deal with the fact that the world will demand a drastic reduction in US carbon consumption.

In short, the Legislature has given the Energy Committee the opportunity to develop a program that will meet the challenge of carbon reduction. This is necessary to avoid the drastic climatic changes produced by industrial nations.

Even though Montana has an abundance of fossil fuel resources, the ETIC must concern itself with the future development of Montana's abundant fossil fuel resource, and it must develop a system for rating carbon consumption blueprint of each product exported to other nations and states. Such a rating will be a guide for customers to purchase products while the task of carbon consumption meets its goals. Some of the industrialized nations have already made such changes and are successful in cutting, or reducing, their rate of carbon consumption. The new Japanese Prime Minister has promised a 25% reduction by 2020 if others do the same. The British Prime Minister Gordon Brown made the statement this week, Oct. 20, 2009, that if governments do not reduce drastically their carbon emissions during the forthcoming, G-8,Copenhagen Conference, it will mean that the change to prevent a global disaster will have been missed.

In addition, the private and corporate world is also dealing with scaling back of carbon emissions and making a smaller footprint for its products. When I visited Denmark two years ago, I was reminded by a Maersk official, one of the largest shipping corporation in the world, that his corporation is requiring a carbon consumption blueprint for every product shipped to different parts of the globe. Again, a corporation such as Wallmart also requires the same for producers supplying its stores. Needless to point out the Danes are very proud of their contribution to reduce global environmental disasters. It was Maersk which had invented the double hull for oil tankers after the Exxon Valdez incident in Alaska, and as of June 2009, Denmark will generate 25% of its electricity from wind generators.

In addition, reading the Hans Joachim Schellnhuber interview in the German, Der Spiegel, (http://www.spiegel.de/international/germany/0,1518,646506,00.html), it was pointed out that they world must by 2050 have reduced its carbon consumption drastically if it wishes to survive. This professor is a well known German climatic scientist who advises the German Chancellor, Angela Merkel, pertaining to global climate change issues, has published a study stating that the rich industrial countries must cut emissions by 25% to 40% by 2020 levels if the world is to have a fair chance of avoiding catastrophic climate changes. This study suggests that the United States must cut its carbon emissions

100 percent by 2020 for it is by far the largest producer of carbon emissions while China has a target date of 2035.

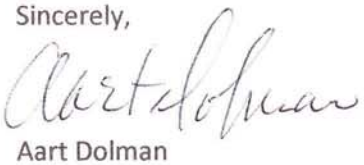
Last month, I was in France for an extended vacation and when I was leaving, at Charles de Gaulle Airport, I picked up the French issue of Paris Match, 9/23/09/, that France will join, after Denmark, Great Britain, and Sweden, on January 1, 2010, imposing the carbon tax consumption of fossil fuels. This means that all users of fossil fuels, such diesel and gasoline will have to pay at the pump such as 4.5cts per liter of gasoline, for diesel also 4.5cts while pumping more than 50 liters the tax would be raise to 2.25 Euros as a supplement. Fossil fuel burning electric generators, including other plants, would have to pay a hefty 17 Euros per ton of emissions. The purpose was to drastically cut carbon emissions and the taxes would rise in the future with the hope that automobile drivers would purchase vehicles with low carbon consumption.

Also when purchasing an automobile in Great Britain, each automobile has its carbon consumption rating displayed on the equipment list. And in Denmark's grocery stores on each product has a carbon rating and environmental conscience shoppers choose their product by its lowest rating rather than by price.

Therefore, it is essential that the Energy Committee study a wide range of subjects for carbon consumption and make recommendations to the Legislature to facilitate the production of a variety of merchandize. This is even more so important for our agricultural products which are exported to other nations. Each product produced in Montana must have a carbon consumption blue print, and this must be related, for instance, to its electric generation exports for a state as California does not consume electricity generated from fossil fuels. The Carbon ratings will be the driving force in future economic development.

Please do not hesitate to contact me if I can be of assistance. Thank you for your consideration.

Sincerely,



Aart Dolman
3016 Central Ave
Great Falls, MT. 59401
email: aart-dolman@bresnan.net Phone: 406-452-5554

Nowakowski, Sonja

From: Charlotte Trolinger [ctrolinger@imt.net]
Sent: Wednesday, October 21, 2009 2:39 PM
To: Nowakowski, Sonja
Subject: ETIC meeting, Nov. 9 - 10 topics

Dear Energy Committee,
My comments are intended to address the three topics you will be focusing on for your November 9 - 10 meeting:

* increasing the supply of low-cost electricity with coal-fired generation;
* promoting alternative energy systems;
* reducing regulations that increase ratepayers' energy costs.

There is no sane reason why Montana should continue to develop any more fossil fuel, carbon-based energy resources no matter how "cheap" the electricity to be made with coal-fired generation. Such electricity is only cheap because the actual costs are not factored in and are delayed costs to be paid by all of us rather than by the mining and utility companies and their stockholders.

We know what the ill effects are from developing these sources of energy, both in the consequences from mining (environmentally and socially) and from the consequences of burning them, resulting in CO2 emissions as well as dispersal of toxic elements such as mercury and other heavy metals. We are killing ourselves as well as the ecosystems we inhabit. One definition of insanity is to repeat a specific action expecting a different result to occur (despite the obvious evidence to the contrary).
The first choice for a renewable and sustainable energy source actually requires no "development" at all, only conservation. The cheapest energy of all is the energy we don't use (which IS becoming a mantra in some circles). That means there's plenty of work to be done and economic opportunity -an obvious arena for "green jobs". By promoting conservation the Energy Committee can help Montanans on two counts - encouraging economic development and jobs while also reducing or containing energy costs.

Insofar as energy development, the evidence is in that we have sufficient capacity for our energy needs if we develop wind, solar and geothermal energy sources. We can solve whatever attendant issues are part of the development of these energy sources without incurring the lethal overall degradation we are wreaking on Montana (and the planet) by developing and using carbon-based sources for energy (so far we don't have to fight the renewed interest in nuclear energy, an equally fallacious solution).
Montana has the capacity to be a leader within the United States for development of these renewable and sustainable energy sources, for the energy needs beyond those conservation can meet. Various sources indicate energy demand has begun to fall since 2007. I am encouraged. We don't have much time -if any-- to make enough of a difference to reverse the climate effects we've set in motion, especially in light of the fact that the changes we're now experiencing are the result of greenhouse gases released in the 1960's. We know of the increase in energy consumption (and attendant gases released) over the past fifty years.

Insofar as reducing regulations which increase taxpayers' costs, I can only offer general comments. To reduce regulations solely for the sake of reducing costs without considering a regulation's intent seems obviously absurd. Regulations such as those which prevent environmental degradation, serve consumers and encourage energy self sufficiency (for communities and individual ratepayers) and sustainability should clearly be a necessary cost. We know how poorly Montana was served by deregulation, a movement which was trumpeted to be for consumers' benefit on the grounds of lowering

costs through (nonexistent) market competition.

Conservation and renewable sustainable energy must be the sources we work to develop. These energy sources will help Montana regain control of producing its own energy again, also. We need need to get clean OUT of coal and quit sticking our heads in the ground -- literally. Attention to a "smart" grid with many local renewable energy generation sources, rather than large concentrated sites of energy generation, owned by out-of-state companies, will benefit Montana citizens, too -- as well as the planet.

It's time for Montana to concentrate on creating a clear clean energy policy, in a direction of sanity, for all our sakes. Thank you.

Sincerely,

Charlotte Trolinger
AERO member
1006 E. Geyser
Livingston, MT 59047
406-222-4704
ctrolinger@imt.net
p.s. I refer the committee to two publications for more insights and ideas, ***Repowering Montana - A Blueprint for Homegrown Energy Self-reliance*** by Montana's own AERO (Alternative Energy Resources Organization of Helena) and ***Carbon-Free and Nuclear-Free, A Roadmap for U.S. Energy Policy*** by Arjun Makhijani, energy expert, electrical engineer and nuclear fusion specialist who is widely published, has testified before Congress on energy issues and has been interviewed on Montana radio.

Nowakowski, Sonja

From: lalonnie@email.com
Sent: Wednesday, October 21, 2009 3:27 PM
To: Nowakowski, Sonja
Subject: Energy Policy

20 October 2009

Legislative Services Division
Attn. Sonja Nowakowski
P.O. Box 201704
Helena, MT 59620-1704

RE: Energy Policy

Honorable Members of the Energy and Telecommunications Interim Committee:

Montanans deserve a successful energy policy that not only protects consumers, but also ensures a secure and clean energy future for our state. Achieving these goals is best accomplished by integrating renewable and clean alternative energy sources into our existing supply. Continuing to increase residential and commercial energy efficiency also demands top priority.

Unfortunately, electricity from coal-fired generation is not a "low-cost" option, economically, socially or environmentally. The detrimental repercussions from the byproducts of coal-fired generation are well documented. Rising construction costs and climate change concerns have forced delays and numerous cancellations of coal-fired power plant proposals. The Highwood Generating Station debacle clearly demonstrates the lack of investment interest in such ventures. Furthermore, regulatory uncertainty is making new and existing coal-fired generation even more cost prohibitive. Proposals to increase its use should be tabled until CCS technologies become commercially proven.

Our state's resources need to be directed toward what is attainable now. For example, making creative financial incentives, such as feed in tariffs, available for groups like small business and ag producers would encourage installation of Montana-made, small-scale renewables. Think of the win-win scenario. Jobs for production, jobs for installation, quicker investment recoup for buyers, grid demand relief, etc. etc. Consider that over 90,000 (ninety thousand) individual backyard windmills could be installed for just the initial cost of constructing a coal-fired power plant.

As you revise Montana's energy policy, please remember the impact your negotiations will have on our state's economic future. Corporate leaders, such as Nike, Sun Microsystems, Levi Strauss Co., and Starbuck's are committed to renewable energy, energy efficiency and green jobs. As we look to encourage business development in our state, it is critical to provide an environment that is not only economically inviting, but also capable of providing the clean and green resources corporate business has come to demand.

Your leadership is key to a sound energy policy for our state. By focusing on clean and renewable energy and energy efficiency, you will ensure a secure energy future for Montana.

Sincerely yours,

LaLonnie Ward
70 McKinior Rd
Great Falls, MT 59405

Nowakowski, Sonja

From: lalonnie@email.com
Sent: Wednesday, October 21, 2009 3:27 PM
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Subject: Energy Policy

20 October 2009

Legislative Services Division
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Sincerely yours,

LaLonnie Ward
70 McKinior Rd
Great Falls, MT 59405

MONTANA ENVIRONMENTAL INFORMATION CENTER

October 21, 2009

Legislative Services Division
Sonja Nowakowski
P.O. Box 201704
Helena, MT 59620-1704

Comments submitted via E-mail: snowakowski@mt.gov

The Montana Environmental Information Center is a non-profit environmental advocate protecting clean water and air, and a healthy environment for all Montanans. We appreciate the opportunity to provide input to the Energy and Telecommunications Interim Committee as it develops an energy policy for the State of Montana. We believe that the State's energy policy should promote clean and renewable energy resources and help Montanan residences and businesses save money on monthly utility bills through cost-effective conservation and efficiency programs. It is time for Montana to move past the old dirty methods of generating electricity and move toward a more sustainable energy future.

COAL IS NOT CLEAN

The premise of increasing the supply of low-cost electricity with coal is fundamentally incorrect. Coal is not a low cost electricity source. Coal costs are highly externalized. Very few of the actual costs of coal are currently reflected in the price of electricity. But this is changing. When coal costs are fully considered, coal becomes a far more expensive resource than energy efficiency, conservation and renewable resources. The federal government is moving forward with various regulations that are discussed below that will begin to capture the cost of these externalities.

In 2008, PPL's Colstrip facilities emitted 579 tons of PM_{10}, 17,054 tons of sulfur dioxide, 30,931 tons of nitrogen dioxide, and 353 tons of volatile organic compounds, or a total of 48,917 tons of these four pollutants (these four pollutants are tracked by the Montana Department of Environmental Quality for the purpose of establishing a fee schedule). This makes Colstrip the largest air pollution source in the State for these air pollutants by 43,244 tons. The next largest source is PPL's JE Corette facility in Billings, also a coal-fired power plant. In fact, for these four pollutants, 5 of the top 8 air pollution sources in Montana, are coal-fired power plants. In 2003 Colstrip emitted over 17.5 million tons of carbon dioxide, making it the 13th highest emitting coal-fired power plant in the nation. Colstrip's reported mercury emissions in 2001 were 860 pounds, making it the 16th largest mercury emitting coal –fired power plant in the nation. Colstrip paid $25 million to settle a lawsuit over its contamination of neighboring groundwater, one of the largest settlements of this type in the nation. Coal is not clean.

The Cost of Carbon

Coal-fired power plants are responsible for 32 percent of the carbon emitted into the atmosphere each year in the United States. Federal regulation of carbon emissions is inevitable. Utilities across the country now incorporate a carbon cost into their portfolio planning analysis. Coal-fired power plants are the largest single sources of carbon dioxide emissions each year. As mentioned above., these facilities already pay fees based upon air emissions. This is a well-established nationwide program. Adding a carbon cost to a sources annual air fees would not be a complicated program as it already exists for other air pollutants.

In Montana, coal-fired power plants emit about 50 percent of Montana's overall greenhouse gases each year. As mentioned, each coal-fired facility emits millions of tons of greenhouse gases each year. This is markedly more than is emitted of the other pollutants that are assessed an annual fee. It is therefore likely the initial cost for carbon emissions will be something less than the current cost of other pollutants and the threshold for compliance will vary as well. But even using a very conservative carbon cost estimate of $10/ton, a carbon cost will change the economics of coal. But it is important to remember that these are not new costs associated with coal. These costs are currently being borne by the general public, not by the facility that is creating the pollution and making the profit. When these external costs are internalized, the true cost of coal will be more accurately reflected.

Federal Government Has Proposed Regulations for Carbon Dioxide

In late September, the U.S. Environmental Protection Agency (EPA) began the process to regulate global warming pollutants. Currently these pollutants have escaped regulation under the federal and state clean air acts. EPA Administrator Lisa Jackson said that the proposed rule would affect about 14,000 large sources of carbon dioxide. Because the largest sources of carbon dioxide are coal-fired power plants it is expected that the new regulation will significantly impact the development of new, and the modification of existing, coal-fired power facilities. The rule is expected to require these facilities to control greenhouse gas emissions using best available control technology.

In addition, on September 22, 2009, EPA finalized a rule that is critical step toward regulation of greenhouse gases. According to EPA, the rule requires large sources and suppliers of greenhouse gases to begin reporting their emissions:

> "Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA. The gases covered by the proposed rule are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF6), and other fluorinated gases including nitrogen trifluoride (NF3) and hydrofluorinated ethers (HFE)."

http://www.epa.gov/climatechange/emissions/ghgrulemaking.html

In addition, two existing Montana coal-fired power plants will be subject to best available retrofit technology. That means that these facilities may need to upgrade their air pollution controls to better control emissions that impair visibility in the region. Colstrip and Corette have already filed plans with EPA. EPA expects to make a decision about compliance with the BART requirement by the end of 2010. The implementation of BART at these facilities could further internalize the cost of existing coal in Montana.

New air pollution rules and implementation of existing rules will help move toward a regulatory framework that begins to internalize the cost of coal development and use. When the cost of coal is internalized, the price of power from coal plants will increase, and coal will no longer be considered a low cost power source.

New EPA Waste Rules Will Further Internalize the Cost of Coal

For decades, EPA refused to develop a nationwide regulatory framework for the disposal of liquid and solid wastes from coal-fired power plants. EPA's foot dragging is about to end. EPA has promised that it will release new regulations governing this waste stream by the end of 2009. It is widely expected that these new rules will categorize coal combustion waste as a hazardous waste.

Waste from coal plants is the 2nd largest waste stream in the United States. Burning coal for electricity generates 131 million tons of waste each year from more than 600 facilities (3 times as much as all municipal garbage). This figure is expected to climb to 175 million tons by 2015 with implementation of improved air pollution control requirements. This waste presents a serious health risk to nearby communities. A 2007 EPA risk assessment suggested that people living near some power plant landfills faced a cancer risk 2,000 times higher than federal health standards. Residents living near unlined impoundments have as much as a 1 in 50 chance of getting cancer from drinking water containing arsenic from the leaking impoundment.

Last December a waste pond operated by the Tennessee Valley Authority flooded a nearby community with over a billion gallons of toxic sludge. Cleanup at this site is expected to cost $1.1 billion. Water pollution from unsafe waste disposal practices is well known and well documented. These costs should be calculated as part of the cost of coal. It is expected EPA will begin that process by finally regulating this hazardous waste stream by years end. Again, when these costs are internalized, the true cost of coal will be established.

Health Costs Increase Costs of Coal-Fired Plants

Each year coal plants emit enormous amounts of air and water pollution. These pollutants are known to have negative impacts on public health and natural resources. Coal plants are the largest source of mercury and sulfur dioxide emissions nationwide. They are the second largest source of nitrogen oxides, a major cause of smog. They emit huge volumes of fine particle pollution that can lodge deep in the lungs. They emit many toxic pollutants including chromium, lead, arsenic, and acid gases.

For almost two decades EPA refused to regulate hazardous air emissions from coal-fired electric generating units. When EPA finally issued weak regulations for these toxic

emissions, a court quickly threw them out. Now EPA is required to implement a regulatory framework to control hazardous air emissions from coal-fired facilities. While mercury emissions are perhaps the best-known toxic emissions from coal plants, there are dozens of others that have received no in the media. EPA is required by law to regulate all hazardous air pollutants emitted by coal-fired facilities. The cost of controlling toxic emissions from these coal facilities should also be incorporated into the calculation of coals' true costs.

The National Academy of Science just released a significant study regarding the true cost of energy production and use (attached). This study found that the cost of coal, in particular, is far higher than is reflected in the current marketplace.

> "The aggregate damages associated with emissions of SO2, NOx, and PM from these coal-fired facilities in 2005 were approximately $62 billion, or $156 million on average per plant."

Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use, National Academy of Sciences, Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production and Consumption; National Research Council, October 2009, page 5.

This study underscores the fact that coal is not a low-cost source of electricity. The cost of coal must include the economic impact it imposes on people and resources in surrounding communities, downwind communities and impacted communities.

PUBLIC HEALTH AND ENVIRONMENTAL REGULATIONS SHOULD BE STRENGTHENED NOT WEAKENED.

There is no better example of how "decreased" regulation affects ratepayers than Montana's failed experiment with deregulation of the electric utility industry. Montanans enjoyed some of the lowest rates in the nation prior to deregulation. But when industry asked the legislature to deregulate the electric utility industry, promised lower rates, more renewable energy, and increased prosperity, it was a smokescreen. Despite a heated debate in the legislature, the industry got its way and deregulation passed. Now we face some of the highest rates in the region.

In a similar vein, weakening public health and environmental regulations is a smokescreen, not the solution. Strengthening regulations to protect public health, communities and the environment from the hazards of coal development is the best solution. Electricity rates should not be decreased on the backs of property owners near these plants or the health of those who live downwind or depend on impacted water resources. Autism, asthma, cancer and premature death have all been linked to emissions from coal-fired power plants. These diseases, and many more, create very real costs for families. Power plant owners should not be allowed to transfer the costs of their operations to the public. That is the purpose of public health and environmental regulations. Those regulations should never be weakened for short-term industry profit.

In addition, some regulations result in increased conservation and energy efficiency. These programs actually decrease consumers' power bills. That is why the last legislature removed the sunset date from the universal systems benefit program. These types of energy conservation programs should be increased to protect consumers from increasing power prices.

PROMOTING ALTERNATIVE ENERGY SYSTEMS? FINALLY A GOOD IDEA!

Promoting alternative energy systems is only a good idea if those alternative systems use renewable power. Alternative systems that result in high levels of pollution, relatively high life-cycle costs, and fail to decrease global warming pollution, should not be promoted by the State.

The first thing Montana should do is increase the Renewable Portfolio Standard (RPS) to 20% by 2020 and 25% by 2025. The RPS should be extended to all utilities in Montana including rural electric cooperatives. The existing RPS has been easily met by utilities and the price has been one of the lowest cost resources in NorthWestern Energy's portfolio. It has generated job growth and new revenue in the state. Encouraging responsible renewable energy development is a good idea for the state.

But Montana should not focus solely on tax and financial incentives for improving renewable energy. Montana should focus on educational programs that prepare the workforce for creating and obtaining jobs in the emerging new energy economy. The demand will increase for the installation of residential and commercial scale renewable resources. The Montana workforce should be trained and ready to participate in this emerging economy. This is especially true as the nation turns away from traditional fossil fuel development in the age of global warming. It is critical that our workforce be prepared and the State have a fully funded and developed educational system will help Montanans succeed.

Finally, we cannot ignore the potential impacts associated with renewable energy development. We should develop a framework to ensure that the best projects get built and that impacts to wildlife be minimized. Even Wyoming has a wind siting act. Montana should develop one as well so that unintended consequences are avoided and our wind resource is developed responsibly.

Sincerely,

Anne Hedges
Program Director
Montana Environmental Information Center

Free Executive Summary

Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use

Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production and Consumption; National Research Council

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Summary

Modern civilization is heavily dependent on energy from sources such as coal, petroleum, and natural gas. Yet, despite energy's many benefits, most of which are reflected in energy market prices, the production, distribution, and use of energy also cause negative effects. Beneficial or negative effects that are not reflected in energy market prices are termed "external effects" by economists. In the absence of government intervention, external effects associated with energy production and use are generally not taken into account in decision making.

When prices do not adequately reflect them, the monetary value assigned to benefits or adverse effects (referred to as damages) are "hidden" in the sense that government and other decision makers, such as electric utility managers, may not recognize the full costs of their actions. When market failures like this occur, there may be a case for government interventions in the form of regulations, taxes, fees, tradable permits or other instruments that will motivate such recognition.

Recognizing the significance of the external effects of energy, Congress requested this study in the Energy Policy Act of 2005 and later directed the Department of the Treasury to fund it under the Consolidated Appropriations Act of 2008. The National Research Council committee formed to carry out the study was asked to define and evaluate key external costs and benefits—related to health, environment, security, and infrastructure—that are associated with the production, distribution, and use of energy but not reflected in market prices or fully addressed by current government policy. The committee was not asked, however, to recommend specific strategies for addressing such costs because policy judgments that transcend scientific and technological considerations—and exceed the committee's mandate—would necessarily be involved.

The committee studied energy technologies that constitute the largest portion of the U.S. energy system or that represent energy sources showing substantial increases (>20%) in consumption over the past several years. We evaluated each of these technologies over their entire life cycles—from fuel extraction to energy production, distribution, and use to disposal of waste products—and considered the external effects at each stage.

Estimating the damages associated with external effects was a multistep process, with most steps entailing assumptions and their associated uncertainties. Our method, based on the "damage function approach," started with estimates of burdens (such as air-pollutant emissions or water-pollutant discharges). Using mathematical models, we then estimated these burdens' resultant ambient concentrations as well the ensuing exposures. The exposures were then associated with consequent effects, to which we attached monetary values in order to produce damage estimates. One of the ways economists assign monetary values to energy-related adverse effects is to study people's preferences for reducing those effects. The process of placing monetary values on these impacts is analogous to determining the price people are willing to pay for commercial products. We applied these methods to a year close to the present (2005) for which data were available, and also to a future year (2030) so as to gauge the impacts of possible changes in technology.

A key requisite to applying our methods was determining which policy-relevant effects are truly external, as defined by economists. For example, increased food prices caused by the conversion of

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agricultural land from food to biofuel production, are *not* considered to represent an external cost, as they result from (presumably properly functioning) markets. Higher food prices may of course raise important social concerns and may thus be an issue for policy makers, but because they do not constitute an external cost they were not included in the study.

Based on the results of external-cost studies published in the 1990s, we focused especially on air pollution. In particular, we evaluated effects related to emissions of particulate matter (PM), sulfur dioxide (SO_2), and oxides of nitrogen (NO_x), which form criteria air pollutants.[1] We monetized effects of those pollutants on human health, grain crop and timber yields, building materials, recreation, and visibility of outdoor vistas. Health damages, which include premature mortality and morbidity (such as chronic bronchitis and asthma), constituted the vast majority of monetized damages, with premature mortality being the single largest health-damage category.

Some external effects could only be discussed in qualitative terms in this report. Although we were able to quantify and then monetize a wide range of burdens and damages, many other external effects could not ultimately be monetized because of insufficient data or other reasons. In particular, the committee did not monetize impacts of criteria air pollutants on ecosystem services or non-grain agricultural crops, or effects attributable to emissions of hazardous air pollutants.[2] In any case, it is important to keep in mind that the individual estimates presented in this report, even when quantifiable, can have large uncertainties.

In addition to its external effects in the present, the use of fossil fuels for energy creates external effects in the future through its emissions of atmospheric greenhouse gases (GHGs)[3] that cause climate change, subsequently resulting in damages to ecosystems and society. This report estimates GHG emissions from a variety of energy uses, and then, based on previous studies, provides *ranges* of potential damages. The committee determined that attempting to estimate a single value for climate change damages would have been inconsistent with the dynamic and unfolding insights into climate change itself and with the extremely large uncertainties associated with effects and range of damages. Because of these uncertainties and the long time frame for climate change, our report discusses climate change damages separately from damages not related to climate change.

OVERALL CONCLUSIONS AND IMPLICATIONS

Electricity

Although the committee considered electricity produced from coal, natural gas, nuclear power, wind, solar energy, and biomass, it focused mainly on coal and natural gas—which together account for nearly 70% of the nation's electricity—and on monetizing effects related to the air pollution from these sources. From previous studies, it appeared that the electricity *generation* activities accounted for the majority of such external effects, with other activities in the electricity cycle, such as mining or drilling, playing a lesser role.

[1]Criteria pollutants, also known as "common pollutants" are identified by the U.S. Environmental Protection Agency (EPA), pursuant to the Clean Air Act, as ambient pollutants that come from numerous and diverse sources and that are considered to be harmful to public health and the environment, and to cause property damage.

[2]Hazardous air pollutants, also known as toxic air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

[3]Greenhouse gases absorb heat from the earth's surface and lower atmosphere, with the result that instead of that energy being radiated into space much of it is radiated back toward the surface. These gases include water vapor, carbon dioxide, ozone, methane, and nitrous oxide.

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Coal

Coal, a nonrenewable fossil fuel, accounts for nearly half of all electricity produced in the United States.We monetized effects associated with emissions from 406 coal-fired power plants, excluding Alaska and Hawaii, during 2005. These facilities represented 95% of the country's electricity from coal. Although coal-fired electricity generation from the 406 sources resulted in large amounts of pollution overall, a plant-by-plant breakdown showed that the bulk of the damages were from a relatively small number of them. In other words, specific comparisons showed that the source-and-effect landscape was more complicated than the averages would suggest.

Damages Unrelated to Climate Change

The aggregate damages associated with emissions of SO_2, NO_x, and PM from these coal-fired facilities in 2005 were approximately $62 billion, or $156 million on average per plant.[4] But the differences among plants were wide—the 5th and 95th percentiles of the distribution were $8.7 million and $575 million, respectively. After ranking all of the plants according to their damages, we found that the 50% of plants with the lowest damages together produced 25% of the net generation of electricity but accounted for only 12% of the damages. On the other hand, the 10% of plants with the highest damages, which also produced 25% of net generation, accounted for 43% of the damages. Figure S-1 shows the distribution of damages among coal-fired plants.

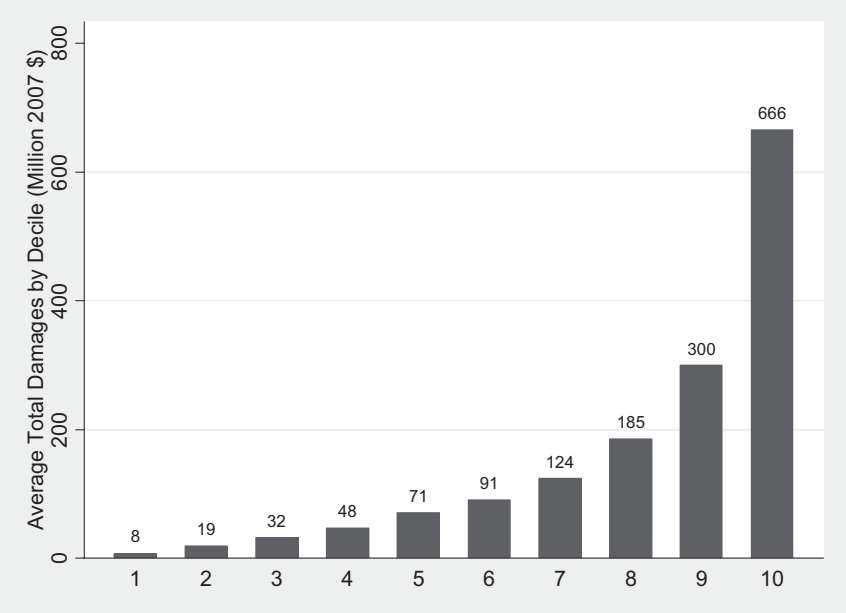

Figure S-1 Distribution of aggregate damages among the 406 coal-fired power plants analyzed in this study. In computing this chart, plants were sorted from smallest to largest based on damages associated with each plant. The lowest decile (10% increment) represents the 40 plants with the smallest damages per plant (far left). The decile of plants that produced the most damages is on the far right. The figure on the top of each bar is the average damage across all plants of damages associated with SO_2, NO_x, and PM. Damages related to climate-change effects are not included.

[4]Costs are reported in 2007 dollars.

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Some of the variation in damages among plants occurred because those that generated more electricity tended to produce greater damages; hence we also reported damages per kWh of electricity produced. If plants are weighted by the amount of electricity they generate, the mean damage is 3.2 cents per kWh. For the plants examined, variation in damages per kWh is primarily due to variation in pollution intensity (emissions per kWh) among plants, rather than variation in damages per ton of pollutant. Variations in emissions per kWh mainly reflected the sulfur content of the coal burned; the adoption, or not, of control technologies (such as scrubbers); and the vintage of the plant—newer plants were subject to more stringent pollution control requirements. As a result, the distribution of damages per kWh was highly skewed: there were many coal-fired power plants with modest damages per kWh as well as a small number of plants with large damages. The 5th percentile of damages per kWh is less than half a cent, while the 95th percentile of damages is over 12 cents.[5]

The estimated air pollution damages associated with electricity generation from coal in 2030 will depend on many factors. For example, damages per kWh are a function of the emissions intensity of electricity generation from coal (e.g., pounds [lb] of SO_2 per MWh), which in turn depends on future regulation of power-plant emissions. Based on government estimates, net power generation from coal in 2030 is expected to be 20% higher on average than in 2005. Despite projected increases in damages per ton of pollutant resulting mainly from population and income growth—average damages per kWh from coal plants (weighted by electricity generation) are estimated to be 1.7 cents per kWh in 2030, compared to 3.2 cents per kWh in 2005. This decrease derives from the assumption that SO_2 emissions per MWh will fall by 64% and that NO_x and PM emissions per MWh will each fall by approximately 50%.

Natural Gas

An approach similar to that used for coal allowed the committee to estimate criteria-pollutant-related damages for 498 facilities in 2005 that generated electricity from natural gas in the contiguous 48 states. These facilities represented 71% of the country's electricity from natural gas. Again, as with coal, the overall averages masked some major differences among plants, which varied widely in terms of pollution generation.

Damages Unrelated to Climate Change

Damages from gas-fueled plants tend to be much lower than those from coal plants. The sample of 498 gas facilities produced $740 million in aggregate damages from emissions of SO_2, NO_x, and PM. Average annual damages per plant were $1.49 million, which reflected not only lower damages per kWh at gas plants but smaller plant sizes as well; net generation at the median coal plant was more than six times larger than that of the median gas facility. After sorting the gas plants according to damages, we found that the 50% with the lowest damages accounted for only 4% of aggregate damages. By contrast, the 10% of plants with the largest damages produced 65% of the air-pollution damages from all 498 plants (see Figure S-2). Each group of plants accounted for approximately one-quarter of the sample's net generation of electricity.

Mean damages per kWh were 0.16 cents when natural gas-fired plants were weighted by the amount of electricity they generated. But the distribution of damages per kWh had a large variance and was highly skewed. The 5th percentile of damages per kWh is less than 5/100 of a cent, while the 95th percentile of damages is about a cent.[6]

[5]When damages per kWh are weighted by electricity generation, the 5th and 95th percentiles are 0.19 and 12 cents; the unweighted figures are .53 and 13.2 cents per kWh.

[6]When damages per kWh are weighted by electricity generation the 5th and 95th percentiles are 0.001 and 0.55 cents; the unweighted figures are .0044 and 1.7 cents per kWh.

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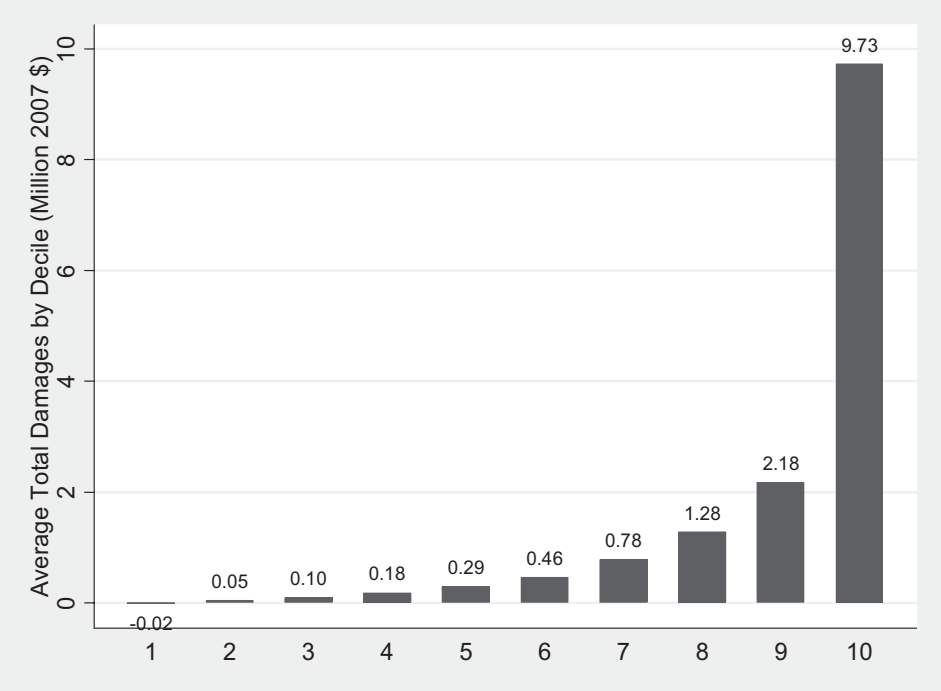

Figure S-2 Distribution of aggregate damages among the 498 natural gas-fired power plants analyzed in this study. In computing this chart, plants were sorted from smallest to largest based on damages associated with each plant. The lowest decile (10% increment) represents the 50 plants with the smallest damages per plant (far left). The decile of plants that produced the most damages is on the far right. The figure on the top of each bar is the average damage across all plants of damages associated with SO_2, NO_x, and PM. Damages related to climate-change effects are not included.

Although overall electricity production from natural gas in 2030 is predicted to increase by 9% from 2005 levels, the average pollution intensity for natural gas facilities is expected to decrease, though not as dramatically as for coal plants. Pounds of NO_x emitted per MWh are estimated to fall, on average, by 19%, and emissions of PM per MWh are estimated to fall by about 32%. The expected net effect of these changes is a decrease in the aggregate damages related to the 498 gas facilities from $740 million in 2005 to $650 million in 2030. Their average damage per kWh is expected to fall from 0.16 cents to 0.11 cents over that same period.

Nuclear

The 104 U.S. nuclear reactors currently account for almost 20% of the nation's electrical generation. Overall, other studies have found that damages associated with the normal operation of nuclear power plants (excluding the possibility of damages in the remote future from the disposal of spent fuel) are quite low compared with those of fossil-fuel-based power plants.[7]

However, the life cycle of nuclear power does pose some risks. If uranium mining activities contaminate ground or surface water, people could potentially be exposed to radon or other radionuclides

[7]The committee did not quantify damages associated with nuclear power. Such an analysis would have involved power-plant risk modeling and spent-fuel transportation modeling that would have required far greater resources and time than were available for this study.

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through ingestion. Because the United States mines only about 5% of the world's uranium supply, such risks are mostly experienced in other countries.

Low-level nuclear waste is stored until it decays to background levels and currently does not pose an immediate environmental, health, or safety hazard. However, regarding spent nuclear fuel, development of full-cycle, closed-fuel processes that recycle waste and enhance security could further lower risks.

A permanent repository for spent fuel and other high-level nuclear wastes is perhaps the most contentious nuclear-energy issue, and considerably more study of the external cost of such a repository is warranted.

Renewable Energy Sources

Wind power currently provides just over 1% of U.S. electricity, but it has large growth potential. Because no fuel is involved in electricity generation, neither gases nor other contaminants are released during the operation of a wind turbine. Its effects do include potentially adverse visual and noise effects, and the killing of birds and bats. In most cases, wind-energy plants currently do not kill enough birds to cause population-level problems, except perhaps locally and mainly with respect to raptors. The tallies of bats killed and the population consequences of those deaths have not been quantified but could be significant. If the number of wind-energy facilities continues to grow as fast as it has recently, bat and perhaps bird deaths could become more significant.

Although the committee did not evaluate in detail the effects of solar and biomass generation of electricity, it has seen no evidence that they currently produce adverse effects comparable in aggregate to those of larger sources of electricity. However, as technology improves and penetration into the U.S. energy market grows, the external costs of these sources will need to be reevaluated.

Greenhouse Gas Emissions and Electricity Generation

Emissions of CO_2 from coal-fired power plants are the largest single source of GHGs in the United States. CO_2 emissions vary; their average is about 1 ton of CO_2 per MWh generated, with a 5th-to-95th-percentile range of 0.95–1.5 tons. The main factors affecting these differences are the technology used to generate the power and the age of the plant. Emissions of CO_2 from gas-fired power plants also are significant, with an average of about 0.5 ton of CO_2 per MWh generated and a 5th-to-95th-percentile range of 0.3–1.1 tons. Life-cycle CO_2 emissions from nuclear, wind, biomass, and solar appear so small as to be negligible compared to those from fossil fuels.

Heating

The production of heat as an end-use accounts for about 30% of U.S. primary energy demand, the vast majority of which derives from the combustion of natural gas or the application of electricity. External effects associated with heat production come from all sectors of the economy, including residential and commercial (largely for the heating of living or work spaces) and industrial (for manufacturing processes).

Damages Unrelated to Climate Change

As with its combustion for electricity, combustion of natural gas for heat results in lower emissions than from coal, which is the main energy source for electricity generation. Therefore health and environmental damages related to obtaining heat directly from natural gas combustion are much less than damages from the use of electricity for heat. Aggregate damages from the combustion of natural gas for

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direct heat are estimated to be about $1.4 billion per year, assuming that the magnitude of external effects resulting from heat production for industrial activities is comparable to that of residential and commercial uses.[8] The median estimated damages attributable to natural gas combustion for heat in residential and commercial buildings is approximately 11 cents per thousand cubic feet. These damages do not vary much across regions when considered on a per-unit basis, though some counties have considerably higher external costs than others. In 2007, natural gas use for heating in the industrial sector, excluding its employment as a process feedstock, was about 25% less than natural gas use in the residential and commercial building sectors.

Damages associated with energy for heat in 2030 are likely to be about the same as those that exist today, assuming that the effects of additional sources to meet demand are offset by lower-emitting sources. *Reduction* in damages would only result from more significant changes—largely in the electricity-generating sector, as emissions from natural gas are relatively small and well controlled. But the greatest potential for reducing damages associated with the use of energy for heat lies in greater attention to improving efficiency. Results from the recent National Academies' study *America's Energy Future* suggest a possible improvement of energy efficiency in the buildings and industrial sectors by 25% or more between now and 2030. *Increased* damages would also be possible, however, if new domestic energy development resulted in higher emissions or if additional imports of liquefied natural gas, which would increase emissions from the production and international transport of the fuel, were needed.

Greenhouse Gas Emissions

The combustion of a thousand cubic feet of gas generates about 120 lb (0.06 tons) of CO_2. Methane, the major component of natural gas, is a GHG itself and has a global-warming potential about 25 times that of CO_2. Methane enters the atmosphere through leakage, but the U.S. Energy Information Administration estimates that such leakage amounted to less than 3% of total U.S. CO_2-equivalent (CO_2-eq) emissions[9] (excluding water vapor) in 2007. Thus in the near term, where domestic natural gas remains the dominant source for heating, the average emissions factor is likely to be about 140 lb CO_2-eq/MCF (including upstream methane emissions), while in the longer term—assuming increased levels of liquefied natural gas or shale gas as part of the mix—the emissions factor could be 150 lb CO_2-eq/MCF.

Transportation

Transportation, which today is almost completely reliant on petroleum, accounts for nearly 30% of U.S. energy consumption. The majority of transportation-related emissions come from fossil-fuel combustion—whether from petroleum consumed during conventional-vehicle operation, coal or natural gas used to produce electricity to power electric or hybrid vehicles, petroleum or natural gas consumed in cultivating biomass fields for ethanol, or electricity used during vehicle manufacture.

The committee focused both on the non-climate-change damages and GHG emissions associated with light-duty and heavy-duty on-road vehicles, as they account for more than 75% of transportation-energy consumption in the United States. Although damages from non-road vehicles (for example, aircraft, locomotives, and ships) are not insignificant, the committee emphasized the much larger highway component.

[8]Insufficient data were available to conduct a parallel analysis of industrial activities that generate useful heat as a side benefit.

[9]CO_2-equivalent (noted as CO_2-eq) expresses the global warming potential of a given stream of greenhouse gases, such as methane, in terms of CO_2 quantities.

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Damages Unrelated to Climate Change

In 2005, the vehicle sector produced $56 billion in health and other non-climate-change damages, with $36 billion from light-duty vehicles and $20 billion from heavy-duty vehicles. Across the range of light-duty technology/fuel combinations considered, damages expressed per vehicle-mile traveled (VMT) ranged from 1.2 cents to 1.7 cents (with a few combinations having higher damage estimates).[10]

The committee evaluated motor-vehicle damages over four life-cycle stages: (1) vehicle operation, which results in tailpipe emissions and evaporative emissions; (2) production of feedstock, including the extraction of the resource (oil for gasoline, biomass for ethanol, or fossil fuels for electricity) and its transportation to the refinery; (3) refining or conversion of the feedstock into usable fuel and its transportation to the dispenser; and (4) manufacturing and production of the vehicle. Importantly, vehicle operation accounted in most cases for less than one-third of total damages, with other components of the life cycle contributing the rest. And while life-cycle stages 1, 2, and 3 were somewhat proportional to actual fuel use, stage 4 (which is a significant source of life-cycle emissions that form criteria pollutants) was not.

The estimates of damage per VMT among different combinations of fuels and vehicle technologies were remarkably similar (see Figure S-3). Because these assessments were so close, it is essential to be cautious when interpreting small differences between combinations. The damage estimates for 2005 and 2030 also were very close, despite an expected rise in population. This result is attributable to the expected national implementation of the recently revised "corporate average fuel economy" (CAFE) standards, which require the new light-duty fleet to have an average fuel economy of 35.5 miles per gallon by 2016 (although an increase in vehicle-miles traveled could offset this improvement somewhat).

Despite the general overall similarity, some fuel/technology combinations were associated with greater non-climate damages than others. For example, corn ethanol, when used in E85 (fuel that is 85% ethanol and 15% gasoline), showed estimated damages per VMT similar to or slightly higher than those of gasoline, both for 2005 and 2030, because of the energy required to produce the biofuel feedstock and convert it to fuel. Yet cellulosic (non-food biomass) ethanol made from herbaceous plants or corn stover had lower damages than most other options when used in E85. The reason for this contrast is that the feedstock chosen and growing practices employed do influence the overall damages from biomass-based fuels. We did not quantify water use and indirect land use for biofuels.[11]

Electric vehicles and grid-dependent hybrid vehicles showed somewhat higher damages than many other technologies for both 2005 and 2030. Although operation of the vehicles produces few or no emissions, electricity production at present relies mainly on fossil fuels and, based on current emission control requirements, emissions from this stage of the life cycle are expected to still rely primarily on those fuels by 2030, albeit at significantly lower emission rates. In addition, battery and electric motor production—being energy- and material-intensive—added up to 20% to the damages from manufacturing.

Compressed natural gas had lower damages than other options, as the technology's operation and fuel produce very few emissions.

Although diesel had some of the highest damages in 2005, it is expected to have some of the lowest in 2030, assuming full implementation of the Tier 2 vehicle emission standards of the U.S. Environmental Protection Agency (EPA). This regulation, which requires the use of low-sulfur diesel, is expected to significantly reduce PM and NO_x emissions as well.

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[10]The committee also estimated damages on a per-gallon basis, with a range of 23 to 38 cents per gallon (with gasoline vehicles at 29 cents per gallon). Interpretation of the results is complicated, however, by the fact that fuel/technology combinations with higher fuel efficiency appear to have markedly higher damages per gallon than those with lower efficiency, solely due to the higher number of miles driven per gallon.

[11]Indirect land use refers to geographical changes occurring indirectly as a result of biofuels policy in the United States and to the effects of such changes on greenhouse gas emissions.

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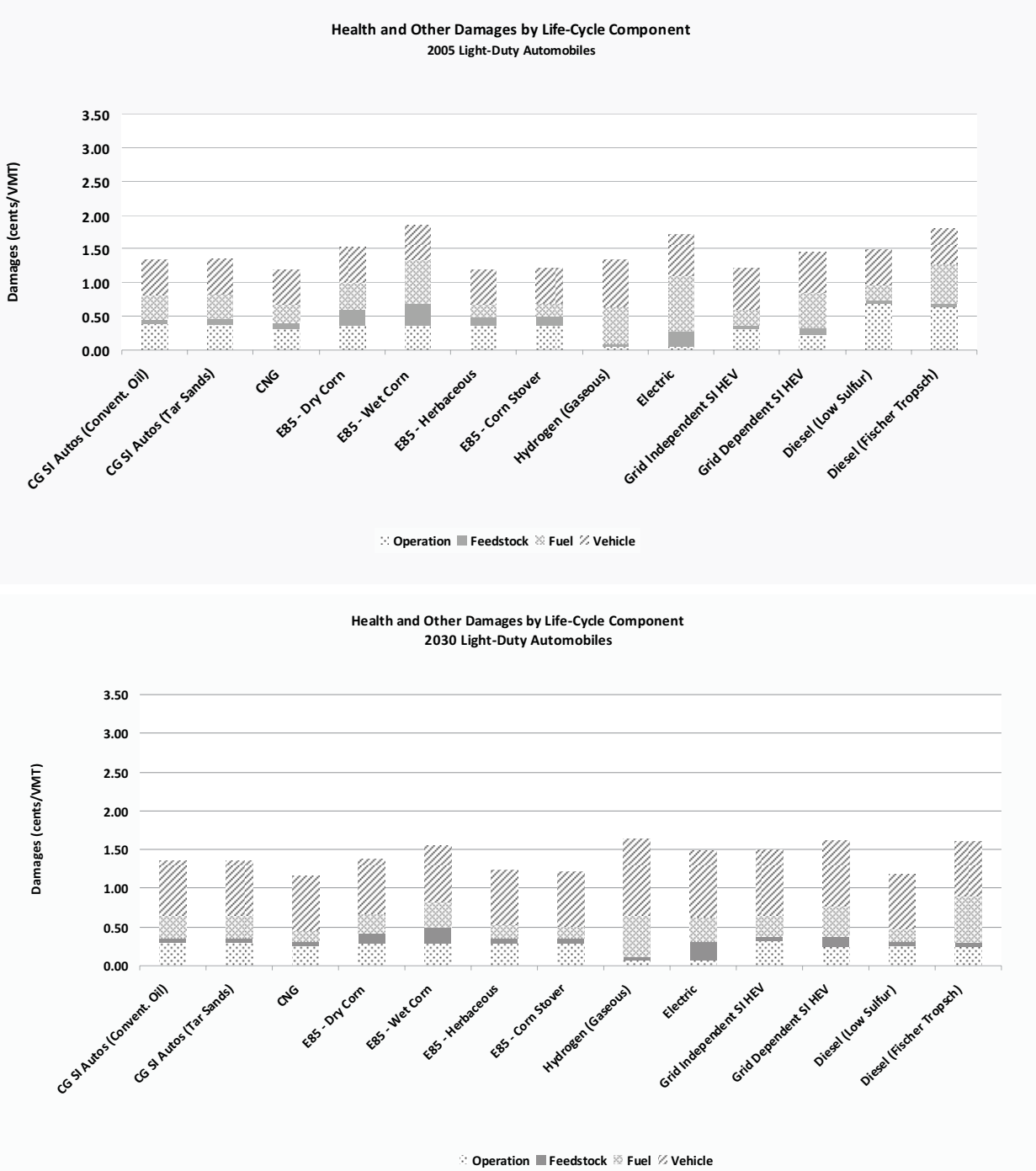

FIGURES S-3 Health and other non-climate damages are presented by life-cycle component for different combinations of fuels and light-duty automobiles in 2005 (top) and 2030 (bottom). Damages are expressed in cents per VMT (2007 USD). Going from bottom to top of each bar, damages are shown for life-cycle stages as follows, vehicle operation, feedstock production, fuel refining or conversion, and vehicle manufacturing. Damages related to climate change are not included. CG SI refers to conventional gasoline spark ignition. CNG refers to compressed natural gas; E85 refers to 85% ethanol fuel; HEV refers to hybrid electric vehicle.

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Heavy-duty vehicles have much higher damages per VMT than those of light-duty vehicles because they carry more cargo or people, and therefore have lower fuel economies. However, between 2005 and 2030, these damages are expected to drop significantly, assuming the full implementation of the EPA Heavy-Duty Highway Vehicle Rule.

Greenhouse Gas Emissions

Most vehicle and fuel combinations had similar levels of GHG emissions in 2005 (see Figure S-4). Because vehicle operation is a substantial source of life-cycle GHGs, enforcement of the new CAFE standards will have a greater impact on lowering GHG emissions than on lowering life-cycle emissions of other pollutants. By 2030, with improvements among virtually all light-duty vehicle types, the committee estimates there would be even fewer differences between the GHG emissions of the various technologies than there were in 2005. However, in the absence of additional fuel-efficiency requirements, heavy-duty vehicle GHG emissions are expected to change little between 2005 and 2030, except from a slight increase in fuel economy in response to market conditions.

Both for 2005 and 2030, vehicles using gasoline made from petroleum extracted from tar sands and diesel derived from Fischer-Tropsch fuels[12] had the highest life-cycle GHG emissions among all fuel/vehicle combinations considered. Vehicles using celluosic E85 from herbaceous feedstock or corn stover had some of the lowest GHG emissions because of the feedstock's ability to store carbon dioxide in the soil. Those using compressed natural gas also had comparatively low GHG emissions.

Future Reductions

Substantially reducing non-climate damages related to transportation would require major technical breakthroughs, such as cost-effective conversion of cellulosic biofuels, cost-effective carbon capture and storage for coal-fired power plants, or a vast increase in renewable energy capacity or other forms of electricity generation with lower emissions.[13] Further enhancements in fuel economy will also help, especially for emissions from vehicle operations, although they are only about one-third of the total life-cycle picture and two other components are proportional to fuel use. In any case, better understanding of potential external costs at the earliest stage of vehicle research should help developers minimize those costs as the technology evolves.

Estimating Climate Change Damages

Energy production and use continue to be major sources of GHG emissions, principally CO_2 and methane. And damages from these emissions will result as their increased atmospheric concentrations affect climate, which in turn will affect such things as weather, freshwater supply, sea level, biodiversity, and human society and health.[14]

Estimating these damages is another matter, as the prediction of climate-change effects, which necessarily involves detailed modeling and analysis, is an intricate and uncertain process. It requires aggregation of potential effects and damages that could occur at different times (extending centuries into

[12]The Fischer-Tropsch reaction converts a mixture of hydrogen and carbon monoxide—derived from coal, methane, or biomass—into liquid fuel.

[13]The latter two changes are needed to reduce the life-cycle damages of grid-dependent vehicles.

[14]In response to a request from Congress, the National Academies has launched America's Climate Choices, a suite of studies designed to inform and guide responses to climate change across the nation.

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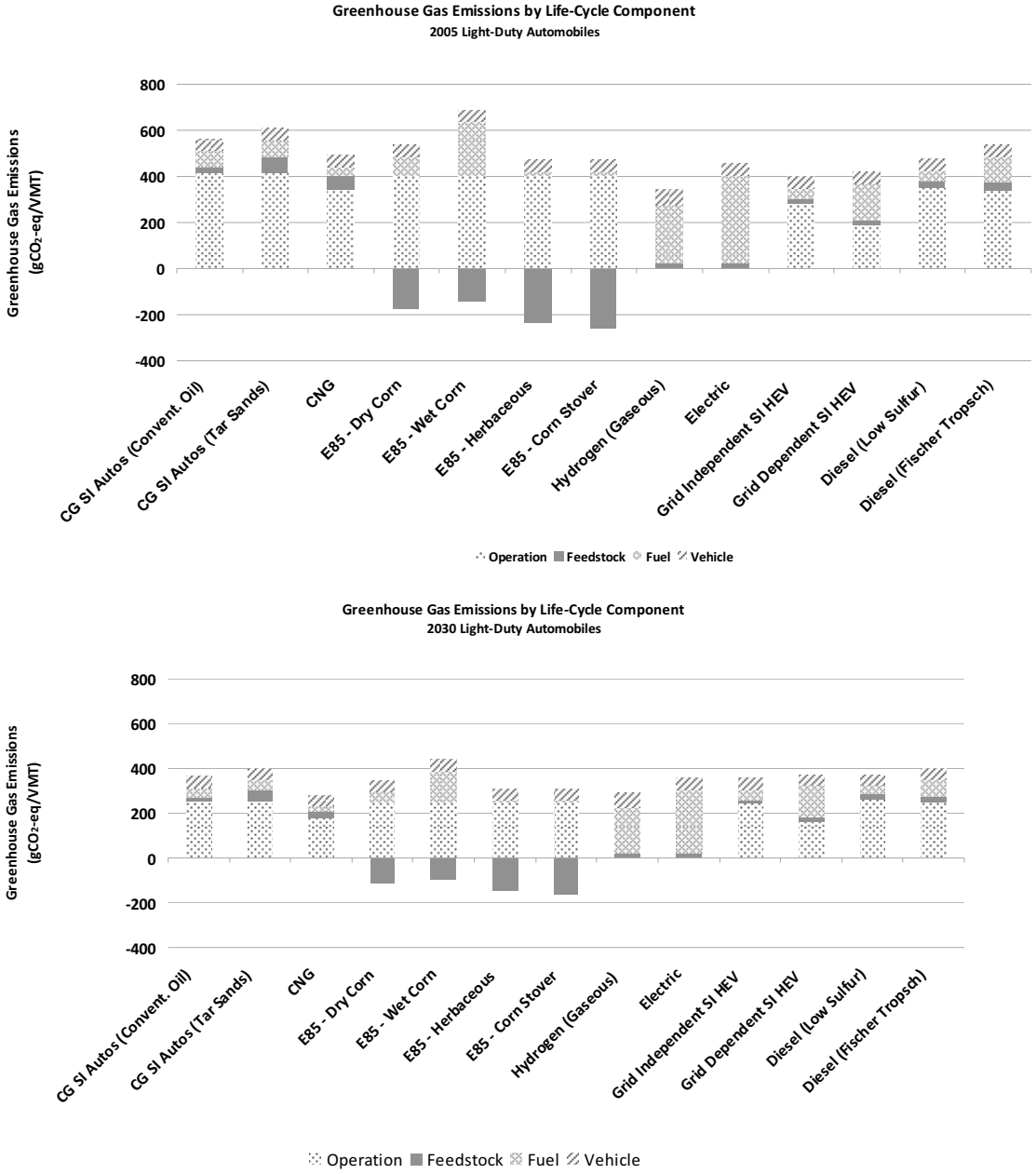

FIGURE S-4 GHG emissions (grams CO_2-eq)/VMT by life-cycle component for different combinations of fuels and light-duty automobiles in 2005 (top) and 2030 (bottom). Going from bottom to top of each bar, damages are shown for life-cycle stages as follows, vehicle operation, feedstock production, fuel refining or conversion, and vehicle manufacturing. One exception is ethanol fuels for which feedstock production exhibits negative values due to CO_2 uptake. The amount of CO_2 consumed should be subtracted from the positive value to arrive at a net value.

the future) and among different populations across the globe. Thus, rather than attempt such an undertaking itself, especially given the constraints on its time and resources, the committee focused its efforts on a review of existing integrated assessment models (IAMs) and the associated climate-change literature.

We reviewed IAMs in particular, which combine simplified global-climate models with economic models that are used to: (1) estimate the economic impacts of climate change; and (2) identify emissions

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regimes that balance the economic impacts with the costs of reducing GHG emissions. But because IAM simulations usually report their results in terms of mean values, this approach does not adequately capture some possibilities of catastrophic outcomes. While a number of them have been studied—such as release of methane from permafrost that could rapidly accelerate warming; and collapse of the West Antarctic or Greenland ice sheets, which could raise sea level by several meters—the damages associated with these events and their probabilities are very poorly understood. Some analysts nevertheless believe that the expected value of total damages may be more sensitive to the possibility of low-probability catastrophic events than to the most likely or best-estimate values.

In any case, IAMs are the best tools currently available. And an important factor in using them (or virtually any other model that accounts for monetary impacts over time) is the "discount rate," which converts costs and benefits projected to occur in the future into amounts ("present values") that are compatible with present-day costs and benefits. Because the choice of a discount rate for the long periods associated with climate change is not well established, however, the committee did not choose a particular discount rate for assessing the value of climate change's effects; instead, we considered a range of discount-rate values.

Under current best practice, estimates of global damages associated with a particular climate-change scenario at a particular future time are translated by researchers into an estimate of damages per ton of emissions (referred to as marginal damages) by evaluating the linkage between current GHG emissions and future climate-change effects. Marginal damages are usually expressed as the net present value of the damages expected to occur over many future years as the result of an additional ton of CO_2-eq emitted into the atmosphere. Estimating these marginal damages depends on the temperature increase in response to a unit increase in CO_2-eq emissions, the additional climate-related effects that result, the values of these future damages relative to the present, and how far into the future one looks. Because of uncertainties at each step of the analysis, a given set of possible future conditions may yield widely differing estimates of marginal damages.

Given the preliminary nature of the climate-damage literature, the committee found that only rough order-of-magnitude estimates of marginal damages were possible at this time. Depending on the extent of projected future damages and the discount rate used for weighting them, the range of estimates of marginal damages spanned two orders of magnitude, from about $1 to $100 per ton of CO_2-eq, based on current emissions. Approximately one order of magnitude in difference was attributed to discount-rate assumptions, and another order of magnitude to assumptions about future damages from emissions used in the various IAMs. The damage estimates at the higher end of the range were associated only with emissions paths without significant GHG controls. Estimates of the damages specifically to the United States would be a fraction of these levels, because this country represents only about one-quarter of the world's economy, and the proportionate impacts it would suffer are generally thought to be to be lower than for the world as a whole.

Comparing Climate and Non-Climate Damage Estimates

Comparing non-climate damages to climate-related damages is extremely difficult. The two measures differ significantly in their time dimensions, spatial scales, varieties of impacts, and degrees of confidence with which they can be estimated. For 2005, determining which type of external effect caused higher damages depended on the energy technology being considered and the marginal damage value selected from the range of $1 to $100 per ton of CO_2-eq emitted. For example, coal-fired electricity plants were estimated to emit an average of about 1 ton of CO_2 per MWh (or 2 lb/kWh). Multiplying that emission rate by an assumed marginal damage value of $30/ton CO_2-eq, climate-related damages would equal 3 cents/kWh, comparable to the 3.2 cents/kWh estimated for non-climate damages. It is important to keep in mind that the value of $30/ton CO_2-eq is provided for illustrative purposes and is not a recommendation of the committee.

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Natural Gas: The climate-related damages were higher than the non-climate damages from natural gas-fired power plants, as well as from combustion of natural gas for producing heat, regardless of the marginal damage estimate. Because natural gas is characterized by low emissions that form criteria pollutants, the non-climate damages were about an order of magnitude lower than the climate damages estimated by the models, if the marginal climate damage were assumed to be \$30/ton CO_2-eq.

Coal: The climate-related damages from coal-fired power plants were estimated to be higher than the non-climate damages when the assumed marginal climate damage was greater than \$30/ton CO_2-eq. If the marginal climate damage was less than \$30/ton CO_2-eq, the climate-related damages were lower than the non-climate damages.

Transportation: As with coal, the transportation sector's climate-change damages were higher than the non-climate damages only if the marginal damage for climate was higher than \$30/ton CO_2-eq.

Overall: All of the model results available to the committee estimated that the climate-related damages per ton of CO_2-eq would be 50-80% worse in 2030 than in 2005. Even if annual GHG emissions were to remain steady between now and 2030, the damages per ton of CO_2-eq emissions would be substantially higher in 2030 than at present. As a result, the climate-related damages in that year from coal-fired power plants and transportation are likely to be greater than their non-climate damages.

Infrastructure Risks and Security

The committee also considered external effects and costs associated with disruptions in the electricity-transmission grid, energy facilities' vulnerability to accidents and possible attack, oil-supply disruptions, and other national security issues. We concluded as follows:

- The nation's electric grid is subject to periodic failures because of transmission congestion and the lack of adequate reserve capacity. These failures are considered an external effect, as individual consumers of electricity do not take into account the impact of their consumption on aggregate load. The associated and possibly significant damages of grid failure underscore the importance of carefully analyzing the costs and benefits of investing in a modernized grid—one that takes advantage of new smart technology and that is better able to handle intermittent renewable-power sources.
- The external costs of accidents at energy facilities are largely taken into account by their owners and, at least in the case of our nation's oil and gas transmission networks, are of negligible magnitude per barrel of oil or thousand cubic feet of gas shipped.
- Because the United States is such a large consumer of oil, policies to reduce domestic demand can also reduce the world oil price, thereby benefiting the nation through lower prices on the remaining oil it imports. Government action may thus be a desirable countervailing force to monopoly or cartel-producer power. However, the committee does not consider this influence of a large single buyer (known as monopsony power) to be a benefit that is external to the market price of oil. It was therefore deemed to be outside the scope of this report.
- Although sharp and unexpected increases in oil prices adversely affect the U.S. economy, the macroeconomic disruptions they cause do not fall into the category of external effects and damages. Estimates in the literature of the macroeconomic costs of disruptions and adjustments range from \$2 to \$8 per barrel.
- Dependence on imported oil has well-recognized implications for foreign policy, and although we find that some of the effects can be viewed as external costs, it is currently impossible to quantify them. For example, the role of the military in safeguarding foreign supplies of oil is often identified as a relevant factor. But the energy-related reasons for a military presence in certain areas of the world cannot readily be disentangled from the non-energy-related reasons. Moreover, much of the military cost is likely to be fixed in nature. For example, even a 20% reduction in oil consumption, we believe, would likely have little impact on the strategic positioning of U.S. military forces throughout the world.

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- Nuclear waste raises important security issues and poses tough policy challenges. The extent to which associated external effects exist is hard to assess, and even when identified they are very difficult to quantify. Thus although we do not present numerical values in this report, we recognize the importance of studying these issues further.

In Conclusion

In aggregate, the damage estimates presented in this report for various external effects are substantial. Just the damages from external effects the committee was able to quantify add up to more than $120 billion for the year 2005.[15] Although large uncertainties are associated with the committee's estimates, there is little doubt that this aggregate total substantially underestimates the damages, because it does not include many other kinds of damages that could not be quantified for reasons explained in the report, such as damages related to some pollutants, climate change, ecosystems, infrastructure and security. In many cases we have identified those omissions, within the chapters of this report, with the hope that they will be evaluated in future studies.

But even if complete, our various damage estimates would not automatically offer a guide to policy. From the perspective of economic efficiency, theory suggests that damages should not be reduced to zero but only to the point where the cost of reducing another ton of emissions (or other type of burden) equals the marginal damages avoided. That is, the degree to which a burden should be reduced depends on its current level and the cost of lowering it; the solution cannot be determined from the amount of damage alone. Economic efficiency, however, is only one of several potentially valid policy goals that need to be considered in managing pollutant emissions and other burdens. For example, even within the same location, there is compelling evidence that some members of the population are more vulnerable than others to a particular external effect.

While not a comprehensive guide to policy, our analysis does indicate that regulatory actions can significantly affect energy-related damages. For example, the full implementation of the federal diesel-emissions rules would result in a sizeable decrease in non-climate damages from diesel vehicles between 2005 and 2030. Similarly, major initiatives to further reduce other emissions, improve energy efficiency, or shift to a cleaner electricity-generating mix (e.g., renewables, natural gas, nuclear) could substantially reduce external effects' damages, including those from grid-dependent hybrid and electric vehicles.

It is thus our hope that this information will be useful to government policy makers, even in the earliest stages of research and development on energy technologies, as an understanding of their external effects and damages could help to minimize the technologies' adverse consequences.

ABBREVIATIONS USED IN THE SUMMARY

CAFE	corporate average fuel economy	MCF	thousand cubic feet
CO_2	carbon dioxide	MWh	megawatt hours
CO_2-eq	carbon dioxide equivalent	NO_x	nitrogen oxides
E85	ethanol 85% blend	PM	particulate matter
GHG	greenhouse gas	SO_2	sulfur dioxide
kWh	kilowatt hours	VMT	vehicle-miles traveled
IAM	integrated assessment model		

[15]These are damages related principally to emissions of NO_x, SO_2, and PM relative to a baseline of zero emissions from energy-related sources for the effects considered in this study.

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Senior Staff

STEVE MERRILL, Director
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Preface

The U.S. Congress directed the U.S. Department of the Treasury to arrange for a review by the National Academy of Sciences to define and evaluate the health, environmental, security, and infrastructural external costs and benefits associated with the production and consumption of energy—costs and benefits that are not or may not be fully incorporated into the market price of energy, into the federal tax or fee, or into other applicable revenue measures related to production and consumption of energy.

In response, the National Research Council established the Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production and Consumption, which prepared this report. Biographic information on the committee members is presented in Appendix A.

In the course of preparing this report, the committee met six times. At two of the meetings, oral presentations were made by the following individuals at the invitation of the committee: Christopher Miller (staff for U.S. Senator Harry Reid); Mark Heil and John Worth (U.S. Department of the Treasury); Raymond Braitsch, Thomas Grahame, and Robert Marlay (U.S. Department of Energy); Robert Brenner and James Democker (U.S. Environmental Protection Agency); Arthur Rypinski (U.S. Department of Transportation); Nicholas Muller (Middlebury College), and Richard Tol (Economic and Social Research Institute, Dublin, Ireland). Interested members of the public at large were also given an opportunity to speak on these occasions. Subsequently, the committee held two teleconferences and one subgroup meeting to complete its deliberations.

In addition to the information from those presentations, the committee made use of peer-reviewed scientific literature, government agency reports, and databases.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise in accordance with procedures approved by the National Research Council Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following for their review of this report: David T. Allen, University of Texas, Austin; William F. Banholzer, the Dow Chemical Company; Eric J. Barron, National Center for Atmospheric Research; Donald Boesch, University of Maryland; Dallas Burtraw, Resources for the Future; Douglas M. Chapin, MPR Associates, Inc.; A. Myrick Freeman, III, Professor Emeritus, Bowdoin College; Charles H. Goodman, Southern Company Services, Inc. (retired); Dale W Jorgenson, Harvard University; Nathaniel Keohane, Environmental Defense Fund; Jonathan I. Levy, Harvard School of Public Health; Erik Lichtenberg, University of Maryland; Robert O. Mendelsohn, Yale University; Armistead Russell, Georgia Institute of Technology; Kumares C. Sinha, Purdue University; Kerry Smith, Arizona State University; Kirk R. Smith, University of California, Berkeley; Susan Tierney, Analysis Group; and Michael Walsh, Independent Consultant.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by Lawrence T. Papay, Science

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Applications International Corporation (retired) and Charles E. Phelps, University of Rochester. Appointed by the National Research Council, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the author committee and the institution.

We wish to thank Eric Barron (National Center for Atmospheric Research) and Robert Stavins (Harvard University) for their service as members of the committee during the early stages of this study; they resigned from the committee for personal reasons.

Ronnie Brodsky (University of Maryland) and Paulina Jaramillo and Constantine Samaras (both of Carnegie Mellon University) helped with information gathering and literature reviews. Joseph Maher (Resources for the Future) assisted in data analysis and in developing report illustrations.

The committee's work was assisted by staff of the National Research Council's Board on Environmental Studies and Toxicology (BEST); the Board on Energy and Environmental Systems (BEES); and the Board on Science, Technology, and Economic Policy (STEP). We wish to thank Raymond Wassel, project director, and James Reisa (director of BEST) Steve Merrill (director of STEP) and James Zucchetto (director of BEES). Scientific and technical information was provided by David Policansky, Keegan Sawyer, Patrick Baur, Alan Crane, Leah Nichols, Duncan Brown, and Mirsada Karalic-Loncarevic. Logistical support was provided by John Brown and Daniel Mullins. Steve Marcus served as editor. Ruth Crossgrove was the senior editor and Radiah Rose was senior editorial assistant.

Jared Cohon, *Chair*
Committee on Health, Environmental, and Other
External Costs and Benefits of Energy Production
and Consumption

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BOXES, FIGURES AND TABLES

BOXES

FIGURES

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TABLES

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Nowakowski, Sonja

From: Patrick Judge [patrick@nwenergy.org]
Sent: Wednesday, October 21, 2009 4:31 PM
To: Nowakowski, Sonja
Subject: Hi Sonja -- here are some comments for you

Attn: Sonja Nowakowski
Legislative Services Division
P.O. Box 201704
Helena, MT 59620-1704

Dear Sonja, October 21, 2009

The NW Energy Coalition (NWEC) appreciates the invitation to provide feedback on the second round of energy policy issues being examined by the Energy & Telecommunications Interim Committee. As stated before, NWEC is an alliance of more than 100 environmental, civic, and human service organizations, utilities, and businesses in Oregon, Washington, Idaho, Montana, Alaska and British Columbia dedicated to a clean and affordable energy future for the Pacific Northwest. Along with its 15 Montana member organizations, NWEC has been active in promoting the clean, affordable, and efficient production and use of energy in Montana for many years.

Increasing the Supply of Low-Cost Energy with Coal

NWEC disagrees with the premise that expanding Montana's reliance on coal-fired electricity would lower energy costs to consumers. To the contrary, the true "cost of coal" is already quite expensive -- due to its unacceptably high impact on public health and the natural environment -- and likely to become more so.

Simply put, coal is the most polluting way to generate a kilowatt-hour of electricity, across a wide range of contaminants. A typical coal-fired power plant releases thousands of tons of criteria air pollutants (oxides of sulfur and nitrogen, fine particulates, carbon monoxide, etc.) each year, and millions of tons of greenhouse gases. It is also a leading source of mercury and other toxic emissions.

When looking at coal and other fossil fuels, the full "cradle to grave" impacts must be considered, from the initial extraction of the fuel through landscape-disrupting strip-mining, to the eventual disposal of heavy metal-laden ash. The operation of a coal-fired power plant implies a serious depletion of natural resources -- both fuel and water. The cooling water requirements of a typical plant easily rival the domestic needs of a major Montana city.

The national trend is clearly in the direction of internalizing more of these costs into the price of power. This makes additional investments in coal a risky proposition for consumers, especially in states like Montana, where coal already holds a dominant position in the state's portfolio of energy resources. Already, nearly two-thirds of the electricity produced in the state is coal-based. The state's consumers need more diversity in the resource stack, not less.

Reducing Regulations that Increase Rates

Here again, NWEC would disagree with any implicit suggestion that regulations always (or nearly always) lead to increased costs, or conversely, that increased costs always (or primarily) stem from increased regulation. Regulations such as energy-efficient building codes, appliance standards, and even speed limits have saved the nation, the region, and the state enormous quantities of both energy and money. Thanks in large part to regulatory requirements, conservation now ranks as the region's third largest electricity resource. Some 3,700 aMW (or "negawatts" as Amory Lovins describes it) save regional electricity consumers $1.6 billion on their energy bills, each year. Moreover, the Northwest Power and Conservation Council's recently released Draft 6th

Power Plan identified an additional 5,800 aMW that can and should be developed by 2030.

Proper regulations designed to protect public and environmental health do not "add costs" -- more accurately, they reallocate costs that are already being borne (whether it through medical bills, taxpayer-funded mine cleanups, reduced economic activity due to compromised fisheries, or the constellation of adverse impacts resulting from global climate change). As a matter of fairness, these costs should not be paid principally by society at large (or sub-segments made vulnerable through happenstance of health, geography, profession, etc.), but rather by the "cost causers" -- i.e. industry and its customers, who will see more accurate prices that can help inform their decisions regarding alternatives (conservation, distributed renewables, etc.).

NWEC also observes that Montana has already susbstantially weakened many of its landmark environmental laws (MEPA, MFSA, etc.). NWEC believes this strategy runs counter to the best interests of the state, its people, and its economy. Other states in the region are increasingly concerned about the environmental practices of their trading partners. Washington, Oregon, and California have all enacted environmental performance standards that apply to both imported and locally-produced power. Conventional, coal-fired power no longer passes muster. Along the same lines, in order to qualify for certain federal stimulus grants, Montana had to certify compliance with energy efficient building codes. Here again, it pays to be green. Montana is perfectly positioned to seize the benefits of the rapidly developing green economy. State government can be a key partner in helping make that happen, starting with its energy policy.

Promoting Alternative Energy Systems

_ NWEC strongly supports the continued growth of Montana's alternative energy sector, so long as the term "alternative" is interpreted in the sense of MCA 15-32-101(1) (i.e. "nonfossil"). To avoid confusion, NWEC prefers the term "renewable."

The first step in promoting renewable energy is to identify its many advantages. Its environmental benefits are legendary, starting with air quality: the operation of renewable energy generators creates no criteria air pollutants, no greenhouse gases, and no mercury emissions. In addition, there are no "fuel cycle" costs (no mining, drilling, or transporting fuel), no waste disposal issues, no process-water requirements, and no thermal pollution issues. Economic benefits are similarly impressive. Renewable energy is increasingly cost-competitive, as has been demonstrated with commercial-scale wind projects like at Judith Gap. Renewable energy sources rely on inexhaustible, free fuel, which leads to stable and predictable prices over the life of the project. Renewable energy projects also help diversify utilities' supply portfolios. In addition to providing a hedge against fuel price risk, renewables are essentially immune from the "regulatory risk" associated with future environmental initiatives (most observers believe carbon regulation is imminent, whether by Congress, EPA, both, or some other authority).

Montana's vast renewable energy resource has been well documented. Wind and other renewable energy development can boost local economies in rural parts of the state through green jobs, additional tax revenues, and supplemental lease income for private and public landowners. The state has also taken an interest in the manufacturing side of the industry. Butte is already home to the REC silicon plant, and has active proposals for a silicon recycling operation and the Fuhrlander wind turbine plant.

Finally, as mentioned in the introduction to Montana's Renewable Power Production and Rural Economic Development Act, renewable energy will "enhance Montana's energy self-sufficiency and independence" (MCA 69-3-2002). This notion also applies to smaller-scale distributed renewable energy projects, which help individual families and businesses become more self-sufficient. Distributed projects have the added benefits of 1) avoiding "line losses" and 2) increasing energy security (because a collection of independently-powered systems is inherently more resilient than "central station" power acting alone).

Montana has made a good start in adopting policies to promote alternative energy, but much more can and should be done. In particular:

• Montana's successful renewable energy standard (15% by 2015) should be expanded and extended (to 25% by 2025, with an intermediate step of 20% by 2020).

• Montana's renewable energy loan program has also seen tremendous success and growth. The loan limits could be increased to allow for larger projects (as was recently done with stimulus funds), and with more and

more projects in the 50 kW range, it is also time for the net-metering limit to be raised.
• Standardized interconnection policies, and apprenticeship & licensing programs for installers would also be greatly beneficial.

Numerous other policies and practices could be implemented to help accelerate the growth of renewable energy in Montana, from rate design mechanisms (such as time-of-use rates); to smart-grid and integration technologies, innovative transmission pricing, and environmental disclosure and labeling (so consumers are more aware of the sources of their energy). The state energy policy should establish an overall goal for an energy system that is clean, affordable, sustainable, and resilient. Adopting such a vision would set the stage for these more-specific implementing policies.

Again, NWEC thanks the committee for taking up this topic and for considering these comments.
Sincerely,

Patrick Judge
Montana Energy Efficiency Advocate
NW Energy Coalition
107 W. Lawrence, Suite N-10
Helena, MT 59601
406/513-1001
patrick@nwenergy.org

Nowakowski, Sonja

From: Gessaman [rkkgessaman@gmail.com]
Sent: Wednesday, October 21, 2009 4:50 PM
To: Nowakowski, Sonja
Subject: ETIC Comments

1006 36th Ave NE
Great Falls, MT 59404
October 21, 2009

Dear Ms. Nowakowski,
We understand the Montana Legislature's Energy and Telecommunications Interim Committee (ETIC) is currently asking for public comment on the following topics:

1. Increasing the supply of low-cost electricity with coal-fired generation;
2. Reducing regulations that increase ratepayers' energy costs; and 3. Promoting alternative energy systems.

Why the ETIC even needs to ask for comment on using coal-fired generation to supply supposedly cheap electricity is beyond comprehension! When all the costs are tallied up, there is nothing cheap about dirty (coal) fossil-fuel generated electricity. Burning coal to produce electricity does NOT create cheap electricity. When all the environmental, health care, long term waste disposal, etc. and other associated cost of using coal to generate electricity are considered, the resultant electricity is far more expensive than even the electricity produced from solar panels. And that is even without considering the value of the water resources that are used, polluted, or otherwise diverted from other potential usages - especially in a state like Montana where water is becoming an increasingly scarce commodity. Increased federal regulation of carbon dioxide, coal wastes disposal, hazardous air pollutants, mining, and transportation are likely to increase the cost of coal-generated electricity further.

The cheapest electricity comes from hydro; we have a perfect illustration of that here in Great Falls where PPL is producing power at five local dams at a cost in the low $20/MW range. Much has been made of the supposedly "cheap power" that would have been produced by SME at the PROPOSED $1 Billion (capital cost), coal-fired Highwood Generating Station to be sited near Great Falls. That power did not turn out to be as cheap as represented. However, the EIS for this facility noted that in excess of 300 MW of potential hydo power was available for development in the SME service area. Development of this potential power was dismissed because numerous small facilities would have been involved, and small generating facilities do not provide the same ego-boost to executives as a big showplace industrial plant. Small hydro facilities can be justified because the cost of power production is low and the limited production results in mostly local usage which eliminates many of the transmission constraints associated with centralized, larger generating facilities.

Based on these citizen's experience with Montana's foray into electricity deregulation, we citizens do NOT need the Montana Legislature to help us any further by further reducing regulations on energy producers. Electricity deregulation was an unmitigated disaster. Before deregulation, most of Montana had electrical rates that overall were close to or the lowest in the Northwestern USA regional area; now Montanans "enjoy" electricity rates that are reportedly the highest in the Northwestern USA. Regulations should be strengthen, not weakened.
Strong regulations and timely enforcement of those regulations results in the elimination of weak, poorly-operated, and economically unsustainable businesses that cut corners in ways that potentially damage their workers, the communities where they are located, and the industry's reputation.

So, should alternative energy systems be promoted? You bet! Montana needs a clean energy policy that promotes almost anything that produces energy except the fossil-fuel resources (mostly coal) that our Governor is always talking about developing. Let the coal stay in the ground!

While that coal is in the ground, we won't need to worry about ITS potential carbon dioxide emissions, contribution to climate change, etc. Montana needs a NEW, sound energy policy that focuses on renewable and sustainable practices, generates good, clean jobs, promotes the use of the latest, developing technology both by business and individual citizens, encourages the efficient use of energy, and puts Montana out front in the energy future of our nation. A baby step in the right direction would be to require EVERY electric supply company, including all co-ops, in Montana to fully adopt net-metering so that distributed, grid-tied, small-scale, alternative energy production is truly economically viable.

Clean Energy is a must for the 21st Century; Sustainable Energy will be required for the 22nd Century. The 22nd Century will be here before we know it. There is no reason Montana can not be at the forefront with both clean and sustainable energy NOW!

Sincerely,

Ronald L and Kathleen Z. Gessaman

Nowakowski, Sonja

From: Julia Page [jpage@wispwest.net]
Sent: Wednesday, October 21, 2009 4:54 PM
To: Nowakowski, Sonja
Subject: energy policy

Dear ETIC,

Thanks for your attention to this important issue and the opportunity to comment at this time.

I have just a few general comments:

Coal fired generation is not low-cost energy. If the environmental and health costs of coal fired generation were quantified and properly attributed, coal would be known as a very expensive source of electricity. Coal generation consumes huge amounts of water and destroys aquifers beyond the ability of even the best efforts to reclaim. Leaking coal ash impoundments have polluted aquifers around the country. Close to home, the leaking ash ponds at Colstrip are a perfect example of that problem. Additionally and very obviously, coal fired generation throws huge amounts of carbon dioxide into the atmosphere. At a time when the world is finally addressing climate change and the need to reduce the production of CO2, it is wrong headed for Montana to consider devising an energy future based on coal. Coal fired generation produces large amounts of mercury and sodium dioxide air pollution as well.

On the other hand, it makes a lot of sense to promote renewable energy systems at this time. Montana's Renewable Portfolio Standard has generated new jobs and revenue for the state and should be strengthened by state law so that we achieve 20% of energy production from renewable sources by 2020 and even more than that in the future. Distributed generation systems, such as wind or solar, are clean, safe and reliable and can be built relatively quickly and with relatively little environmental harm. Standards should be set for the siting of wind farms so as to minimize the impacts on birds, in particular. Not all standards or regulations cause an increase in the cost of production. I strongly believe that good, clear regulations produce better projects that are both economically and environmentally sound and that those projects, appropriately designed, will be built sooner and will serve the state better for this and especially for future generations.

Thanks for taking on this difficult and contentious subject. I appreciate the opportunity to comment.

Julia Page
Box 608
Gardiner, MT 59030
jpage@wispwest.net

Nowakowski, Sonja

From: Neil Taylor [neiltaylor@bresnan.net]
Sent: Wednesday, October 21, 2009 6:03 PM
To: Nowakowski, Sonja
Subject: ETIC Comments

Attachments: HGS Projected Power Costs.pdf

HGS Projected ower Costs.pdf ..

Dear Ms. Nowakowski,

I want to add just a few short comments for your records on this subject and the upcoming discussions oF Montana increasing its coal- fired electrical production to accomplish low cost power for our residents which is an oxymoron I will prove herein.

I have been involved for the past five years in exposing the fallacy of cheap electricity from the proposed Highwood Generation Station outside the city of Great Falls. There is no way a billion dollar coal plant like HGS can compete economically with other forms of clean power generation which we have plenty of in Montana. We are blessed with wind, hydro, solar, and geothermal capabilities galore. All these, with current technologies available, are much cheaper methods of electrical generation than is coal. We need to focus our money and energies (pun intended) on these clean resources rather than waste capital and talents on trying to improve dirty, expensive, and unproven coal generation plants.

Nature has already done a marvelous job of sequestering excess CO2, from past eons, in the form of coal. Lets trust Mother Nature on this one and focus our intellects on the alternative non-polluting resources we have in this state and country.

I am enclosing a spread sheet that proves, without any doubt, my claims that coal is more expensive and not the way to go here in Montana for our energy needs. Even using a very conservative ($10/
Ton) for the future cost of CO2 penalties and unproven sequesterization ideas, the bottom line is quite obvious to those who will take the effort to look. Please do so for our citizens whom depend on your guidance and will suffer or benefit from your conclusions.

Montana already produces an excess of electrical power (around 50% more than Montana consumes). We can be the electrical socket for the nation, but not at the expense of our environment. Montana can think out of the box or find leaders that can and will.

Thank you,
Neil J. Taylor
3417 4th Ave south
Great FAlls, MT 59405

Attachment:

Highwood Generation Station Cost Analysis

Highwood Generation Station			HGS Costs	
Calculation Basis				
Plant Capacity MW		250		
Hours of operation (annual)		8,760		
Availability on line (Sister Kentucky CFB Plant historic)		87%		
Actual Annual Operating Hours		7621.2		
Capital Cost per MW		$3,160,000		
Estimated Expenses				
Coal ($/ton;tons/year as per US energy Information Administration)	$12.50	1,200,000	Annual Coal Purchases	$15,000,000
Coal Transport ($per ton as per BNSF Railroad estimated)	$24.00	$28,800,000	Annual Coal Delivery Cost	$28,800,000
City Fire Services (GF/SME Fire Services Agreement)	annual cost	$300,000		$150,000
Potable Connection Fee (6" Line-GF Resolution 9708)		$1,333		
Sewer Connection Fee (12" Force Main-GF Resolution 9708)		$18,830		
CO2 Produced Tons/Year		3,522,081		
Carbon Tax per Ton on GHG/CO2 (Estimated)	per ton	$10	Carbon Tax with no CCS	$35,220,810
Raw Plant Water (202,366,512 cubic ft/yr)		$364,260	Annual Raw Water	$364,260
O & M Variable ($/MWH)		$6	O & M Variable	$11,431,800
O & M fixed ($/KW-yr)		$41	O & M Fixed	$10,132,500
Staffing (Approximately 75 Jobs)		$5,000,000	Annual Staffing	$5,000,000
Property Taxes (3% of assed value)		3% tax rate	Annual Property Taxes	$12,100,000
Asset Cost (HGS as per Fergus Electric 6/5/08)		$790,000,000	Debt Service Payments	$57,392,640
			Total Annual Expenses	**$175,592,010**
Amortization (years)		30	Electricity Produced (MWH's)	1,905,300
Interest Rate on financing		6.0%	**HGS Busbar Cost/MWH**	**$92**
Annual Loan Payments		$57,392,640	**Customer Cost including Line Loss**	**$97**

COMMENTS TO THE ENERGY AND TELECOMMUNICATIONS INTERIM COMMITTEE OF THE RENEWABLE NORTHWEST PROJECT AND THE NATURAL RESOURCES DEFENSE COUNCIL

1) Increasing the Supply of Low-cost Electricity With Coal-fired Generation

The above statement reflects a serious misunderstanding about the nature of coal-based electricity and power pricing.

First, the statement assumes that using coal to produce electricity is "low-cost." Nothing could be further from the truth. There are enormous hidden costs associated with the use of coal. We pay these costs, though we do not pay them in utility bills.

A recent study by the National Academy of Sciences makes this point explicitly. The executive summary, setting the stage for the analysis that will follow, begins:

> *Modern civilization is heavily dependent on energy from sources such as coal, petroleum, and natural gas. Yet, despite energy's many benefits, most of which are reflected in energy market prices, the production, distribution, and use of energy also cause negative effects. Beneficial or negative effects that are not reflected in energy market prices are termed "external effects" by economists. In the absence of government intervention, external effects associated with energy production and use are generally not taken into account in decision making.*
>
> *When prices do not adequately reflect them, the monetary value assigned to benefits or adverse effects (referred to as damages) are "hidden" in the sense that government and other decision makers, such as electric utility managers, may not recognize the full costs of their actions. When market failures like this occur, there may be a case for government interventions in the form of regulations, taxes, fees, tradable permits or other instruments that will motivate such recognition.*
>
> *Recognizing the significance of the external effects of energy, Congress requested this study in the Energy Policy Act of 2005 and later directed the Department of the Treasury to fund it under the Consolidated Appropriations Act of 2008. The National Research Council committee formed to carry out the study was asked to define and evaluate key external costs and benefits—related to health, environment, security, and infrastructure—that are associated with the production, distribution, and use of energy but not reflected in market prices or fully addressed by current government policy. The committee was not asked, however, to recommend specific strategies for addressing such costs because policy*

judgments that transcend scientific and technological considerations—and exceed the committee's mandate—would necessarily be involved.[1]

The NAS study found that in 2005 (which was the year chosen to study) the nation's coal plants (excluding coal plants in Alaska) caused damages of approximately $62 billion. These costs included the costs associated with human health impacts, grain crop and timber yields, building materials, recreation, and visibility of outdoor vistas. Human health impacts from coal plant pollution constituted the vast majority of these costs. Notably, this $62 billion does not include the economic damages that the nation is presently incurring as a result of climate change.

Since the study utilized plant-by-plant data and conducted its analysis on that basis it was possible for the study to derive a cost per kwh of damage caused by each plant. The study found that the plant mean increased cost was 3.2 cents per kwh. To put this number in context, in 2005 the average price of electricity for residential customers in this country was 9.45 cents per kwh.

Second, the tight connection that the statement draws between electricity produced from burning coal and its price to the consumer is simplistic and embodies a fairly significant misunderstanding of how electricity is priced.

For instance, in the Pacific Northwest, including portions of Montana, coal plants represent only 13% of total generating capacity and electricity from coal is only around 23% of total generation.[2] Hydropower is the dominant generation type both in terms of capacity and energy. Yet, electricity rates in the Pacific Northwest are arguably the lowest of any region in the country. According to the Energy Information Administration (EIA), in 2008, Idaho had the lowest cost electricity in the nation (6.81 cents/kwh), Washington had the 4th lowest costs (7.5 cents/kwh), Oregon was 12th (8.55 cents/kwh), and Montana, along with Oklahoma, had the 14th lowest costs (9.04 cents/kwh).[3]

In the Pacific Northwest, then, it would seem as if hydropower is a low-cost resource. But, what is this a function of? First, it is a function of having a river system and water regime that one of the best in the world. Second, it is a function of the extensive development of that system – the Bonneville Power Administration (BPA) markets the output of 31 federal hydropower projects. Third, it is function of the fact that those projects and related infrastructure were paid for by taxpayers and constructed many years ago. Fourth, it is a function of the fact that the prices charged by BPA for that power is often not at a market rate.

So, too, with coal fired generation. It is true that the cost associated with historic utility based coal generation is inexpensive relative to the price that would obtain for new

[1] http://www.nap.edu/catalog.php?record_id=12794 The executive summary is available on-line. A pdf of the entire study is available from the commenter.
[2] See Northwest Power and Conservation Council Draft 6th Plan at 6-29. These numbers include that portion of Colstrip generation dedicated for loads in the northwest, including Montana load.
[3] http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html

generation. Again, however, this is largely a function of the fact that utility commissions seek to keep costs to consumers as low as possible and that most coal plants are several decades old and their capital costs have been fully, or largely, recovered. Of course, the cost of merchant coal generation is not "low-cost," rather it is set at a market price. In any event, the costs of new coal plants, indeed of all new generation, is more expensive than generation already bought and paid for.[4]

Moreover, as discussed above, the cost to society of producing electricity from coal is not reflected in the charge consumers pay for that power. It is well recognized that in the near future emissions of greenhouse gases from sources such as electric generating units will be assessed a charge. For coal plants this charge will be significant because of their high carbon dioxide emissions per unit of energy produced. Accordingly, any discussion about coal generation's relative cost has to factor carbon charges into account. It may be – depending on the price of carbon and whether carbon capture and storage technology is feasible, for a reasonable price – that coal generation will be competitive with other forms of generation. The opposite result is also possible.

2) Promoting Alternative Energy Systems

It is not entirely clear what is meant by this heading. For the purposes of this discussion "alternative energy systems" will be interpreted to mean non-fossil, relatively small-scale distributed generation. There are obvious advantages to this form of electricity generation including no or low fuel costs, increased energy security, local economic benefits, reduced environmental impacts, and less line-loss, i.e., waste, from transmission.

Montana has policies that seek to incentivize this form of generation but much more could be done. Some of the measures that could be implemented in combination or separately are identified below.

- Allowing for the creation of "energy improvement districts" to enable funding and development of small projects.
- Increasing Montana's net-metering limit, which is currently set at 50 kw systems.
- Requiring that interconnection standards be made uniform across <u>all</u> the state's utilities.
- Establishing a feed-in-tariff that would obligate the state's utilities to purchase power produced within their service territory.
- Ensuring that tax incentives and loan amounts are set at a level that will encourage substantial project development.

[4] Tthe Northwest Power and Conservation Council Draft 6th Plan compares various forms of generation types and does not find coal to be at an advantage; rather it is on a par with many other resources. Draft Plan at 6-9 to 6-10.

3) Reducing Regulations That Increase Ratepayers' Energy Costs

It is impossible to comment on this item because its basis is not clear. There can be, of course, regulations that are unwise or are unneeded, in which case those regulations impose unnecessary costs on society. Recent experience has demonstrated, however, that a failure to regulate is likely of far greater concern than too much regulation. Montana's regulatory regime is hardly onerous. If there is a requirement in Montana associated with the production or distribution of energy that is unduly burdensome on consumers it is not self-evident.

Nowakowski, Sonja

From: suemeadows [smeadow@jps.net]
Sent: Saturday, October 24, 2009 10:59 AM
To: Nowakowski, Sonja

I am a member of the League of Women Voters here in Bozeman. I wish to express my opinion that Montana should not go forth with development of any coal fired power plants. Please turn toward solar and wind energy resources and help save us all.

Thank you for your consideration.

Sue Meadows 587-9088

Nowakowski, Sonja

To: snowakowski@mt.gov

Subject: Promoting Wind Power

I believe Montana wants to promote the production of wind power as a green energy source. I have signed a contract with Pacific Winds Energy to install wind turbines on my farmland. If you wish to see the project, go to www.powerworks.com and click on the Renaissance Project. They are planning a 165MW project on my property and my neighbors.

Our problem is that Pacific Winds Energy submitted their transmission interconnection application on July 31, 2009 to Western Area Power Administration (WAPA). WAPA provided acknowledgement of the application on August 10, 2009. An interconnection feasibility study (IFS) agreement was to have been included with the acknowledgement. Once the agreement was executed, the IFS must be completed within 45 calendar days of the execution, pursuant to WAPA's Large Generator Interconnection Procedures (LGIP) dated May 1, 2007, filed with and approved by the Federal Energy Regulatory Commission.

WAPA has stated to Pacific Winds Energy that they have an overwhelming backlog of interconnection studies and that it could be two years before they can offer the IFS agreement and initiate the interconnection study process.

Can something be done to speed this along? We are all saying that we really want to promote wind energy because of its inherent green capabilities, but anyone trying to do so runs into this brick wall. As a landowner, I would really like to get this started, for a variety of reasons.

Thomas Rudolph
Golden Prairies, Inc.

Nowakowski, Sonja

From: wwranch@3rivers.net
Sent: Sunday, October 25, 2009 1:13 AM
To: Nowakowski, Sonja
Subject: CCAC report for interim energy committee?

Attachments: CCAC final report.pdf

CCAC final
ɔort.pdf (609 KB)

Greetings Sonja,

I strongly recommend that the CCAC final report be considered as part of the committee's efforts on energy. The CCAC adressed energy in detail, AND included perspectives from both sides of the issue. That alone should still make a credible source of invaluable information that many Montanans worked hard at for almost two years.

It would be indeed unfortunate if the committee were not to take advantage of the Governor's CCAC report.

Who from the Governor's office is working with the committee?

Respectfully,

Richard Liebert
Member, CCAC Agriculture working group member

Great Northern Properties L.P.

601 Jefferson Street, Suite 3600 • Houston, TX 77002
(713) 751-7500 • Fax (713) 751-7591

Charles H. Kerr
President

ckerr@gnplp.com
Direct: (713) 751-7590

October 26, 2009

Great Northern Comments to Montana Energy and Telecommunications Interim Committee on Coal Development in Montana – October 2009

Great Northern Properties (GNP) and Great Northern Project Development (GNPD) appreciate the opportunity to offer comments to the Energy and Telecommunications Interim Committee (ETIC) on challenges related to coal development in Montana. GNP is the largest private owner of coal reserves in the United States, with approximately 20 billion tons of reserves in Montana and North Dakota. GNP and the State of Montana share equally in the ownership of the Otter Creek reserves in southeastern Montana. At other sites, GNPD is developing projects that could convert GNP's coal reserves to other forms of energy, such as electricity, synthetic natural gas (SNG) or liquid fuels.

Montana has the largest coal reserves of any state, but has lagged behind Wyoming and other states when it comes to coal production and electricity production from coal. Many factors contribute to this situation, some of which are discussed below.

ETIC has asked for comments on "increasing the supply of low-cost electricity with coal-fired generation". At the outset, it must be noted that Montana's coal reserves vastly exceed the state's demand for electricity. Therefore, to develop even a small fraction of the state's coal reserves will require exporting coal or other forms of energy produced from coal, including electricity.

Both Wyoming and North Dakota are net exporters of electricity and have benefitted them greatly from this approach.

The recent progress of the Signal Peak coal mine is an example of successful coal development in Montana and the related economic benefits (jobs & taxes). Additional Montana coal-by-rail opportunities, including Otter Creek, may be achievable and should certainly be pursued.

However, our belief is that greater benefits (substantially more jobs & taxes) will accrue to the State of Montana by building energy conversion facilities at Montana coal mines to produce electricity, SNG and liquid fuels. Developers of these energy conversion projects are looking for the best locations for their projects. So, when making large investments, they are naturally going to make comparisons between Montana and neighboring states with substantial coal reserves such as Wyoming and North Dakota. Some of our comments will suggest steps Montana can take to become more competitive with these neighboring states.

In 2008, the Montana Chamber of Commerce conducted a statewide poll that included the following question: "Do you favor or oppose new development of coal powered electrical generation to provide low cost, stable energy supply for Montanans?" Seventy six percent favored such coal development and fifteen percent opposed it. Forty-five percent strongly favored it. Clearly, there is public support for responsible development of Montana's coal resources.

Topic #1 - Developers of energy projects face greater permitting risks in Montana than in neighboring states.

Issue 1a. Appeals. Generally, the Department of Environmental Quality staff does a good job of processing applications and issuing permits in a timely fashion and in compliance with statutes and rules. However, frivolous, time consuming and expensive appeals to the Board of Environmental Review and to the courts often times derail projects that have demonstrated an ability to comply with all applicable environmental requirements. HB483 (2009 Session) was a good-faith attempt to eliminate abuses in the appeals process. However, amendments to HB483 resulted in substantially weaker legislation.

> Recommendation 1a. The Legislature should pass legislation similar to HB483 in its original form.

Issue 1b. MEPA. MEPA provides an additional opportunity for appeals to permits that does not exist in states, such as Wyoming and North Dakota, which do not have similar statutes. Current law prohibits agencies from using MEPA or MEPA documents to deny, modify or condition permits. However, permits for most energy projects are challenged even though they have been determined to comply with substantive law, like The Clean Air Act. The language of MEPA is very broad and prone to subjective determinations. The broad and subjective language makes it a useful tool in challenging permits; even those that are in compliance with substantive laws. Major energy projects will always have opponents. Montana needs to find the correct balance

between public input and moving projects forward. Such projects cost hundreds of millions of dollars, if not billions. The institutions that lend the money for such projects are not willing to do so if the permits are tied up in litigation. So, if Montana wants projects that comply with all of our regulatory programs to move forward, the legal challenges based on MEPA must be addressed.

> Recommendation 1b. The Legislature should pass legislation further clarifying that MEPA is procedural and not substantive and that MEPA appeals cannot be used to overturn and/or stay permits.

Issue 1d. More stringent state regulations. Montana has a recent history of adopting environmental requirements that are more stringent than federal requirements. Examples are mercury and PM10 emissions. Other energy producing states generally accept the federal standards as being sufficiently protective.

> Recommendation 1d. The Legislature should pass legislation specifying that requirements more stringent than federal standards can only be implemented by an act of the Legislature.

Issue 1e. Western Climate Initiative (WCI). Montana is a full-fledged Partner in WCI, while Wyoming is an Observer and North Dakota is not participating in any fashion. There is concern

that Montana may move forward on some or all portions of the WCI agenda without Legislative authorization, one of which could be a regional cap and trade system.

Recommendation 1e. The Legislature should pass legislation prohibiting Montana from implementing any substantive portions of the WCI program without Legislative authorization.

Topic #2 - Montana needs to develop regulations for next generation coal development.

Issue 2a. CO2 Sequestration. SB498 (2009 Session) established the statutory framework for CO2 sequestration in Montana. This was a significant step forward for Montana, but the Board of Oil & Gas Conservation (BOGC) needs to complete regulations called for by SB498.

Recommendation 2a. BOGC should complete all regulations required by SB498.

Issue 2b. Underground Coal Gasification (UCG). Montana needs to develop a regulatory program for permitting UCG projects. The UCG process gasifies coal in place that would otherwise be economically or physically un-mineable using existing surface or underground mining techniques. UCG also substantially reduces capital costs and eliminates many of the environmental and other issues related to surface mining and conventional coal gasification.

Recommendation 2b. The Legislature should develop a UCG permitting program.

Topic #3 - Montana has higher taxes on coal development than other coal-rich states.

Issue 3a. High State Taxes on Coal Development. During the 2007 Legislative Session, Great Northern commissioned a study of state taxes in Montana, Wyoming and North Dakota on a hypothetical 500 MW coal-fired integrated gasification combined cycle (IGCC) power plant and an associated coal mine, transmission lines and a pipeline to transport CO2 for sequestration. Based on tax policies in place at that time, the annual total yearly state tax burden in Montana was more than three times that of Wyoming or North Dakota ($35 million vs. $11 million).

HB3 (2007 Special Session) closed the tax gap to some extent, but Montana taxes are still substantially higher than in Wyoming and North Dakota. Updating the 2007 analysis to reflect current tax policies, the annual Montana state tax burden is still about 1.5 times that of Wyoming and North Dakota for the first 10 years of operation ($16 million vs. $11 million). The Montana tax burden increases to two times that of Wyoming and North Dakota starting in the eleventh year of operation ($21 million vs. $11 million).

This tax disparity means that developers, when comparing total tax burdens, will prefer Wyoming and North Dakota to Montana when selecting sites for coal energy conversion facilities.

Recommendation 3a. The Legislature should reduce taxes on new Montana coal mines and energy conversion facilities to levels equivalent to Wyoming and North Dakota.

Topic #4 - Neighboring states have a variety of programs to support coal development that are absent in Montana.

Issue 4a. Research & Development (R&D). North Dakota uses a significant portion of its severance tax revenues for R&D to support the coal industry. The annual budget for the North Dakota R&D program is approximately $10 million, much of which is spent at the state's universities. As a result, North Dakota is recognized as a leader in lignite R&D.

HB715 (2007 Session) dedicated 30% of Montana's Research and Commercialization (R&C) Technologies program funding for clean coal and renewable energy research. (The R&C program is funded with a portion of the interest on the coal severance tax trust fund.) This amounted to about $1 million annually which resulted in initial research into Montana's UCG resources and the removal of sodium from Montana coal deposits, including Otter Creek. However, sustained and higher funding is needed. Unfortunately, HB123 (2009 Session) reduced funding for the R&C program by 65%.

Recommendation 4a. The Legislature should make more funding available for coal R&D by increasing funding for the R&C program and/or increasing the percentage of R&C funding dedicated to coal.

Issue 4b. Matching Funds. The North Dakota Industrial Commission makes up to $10 million of matching funds available to support early stage development of new coal projects. The Wyoming Infrastructure Authority also provides matching funds during the early stages of development of transmission lines and other energy projects. North Dakota and Wyoming have also provided for bonding authority to support new energy development. Montana does not have similar programs to provide financial support to new energy development. These types of programs are investments by those states that they think will provide substantial returns for their states in terms of increased taxes and jobs. Montana should do the same.

> Recommendation 4b. The Legislature should establish programs to provide matching funds and bonding authority to support development of Montana's vast coal resources.

Issue 4c. Local Impact Funding. One of the primary purposes of the Montana coal severance tax is to generate sufficient revenues to provide adequate funding for local governments and schools in areas impacted by new coal development. However, over the past few decades when coal development was limited, severance tax revenues have been diverted to a variety of other state government programs. This has led to proposals such as HB660 (2009 Session) that would require developers to provide upfront payments for local impacts in addition to paying severance taxes.

Recommendation 4c. The Legislature should establish a program to ensure that local impacts are addressed using coal severance tax revenues. One approach might be to fund local impacts with loans from the severance tax trust fund to be repaid with new severance tax revenues from new coal development.

Topic #5 - Transmission lines are needed to enable any significant development of Montana's coal (and wind) resources.

Issue 5a. State support for transmission development. The Energy Promotion and Development Division (EPDD) within the Department of Commerce has done a lot of good work to promote transmission development in Montana with limited resources. EPDD has a small budget and a limited set of tools compared to its counterparts in neighboring states.

Recommendation 5a. The Legislature should provide EPDD with a larger budget and additional tools, such as matching funds and bonding authority, to facilitate transmission development in Montana.

Please recognize that the recommendations we have set forth above stem from the past and present activities and experiences of the two entities we own and control that are actively doing business in Montana, North Dakota and other states, that are actively pursuing the monetization of these undeveloped coal resources and that are currently developing coal conversion projects utilizing this coal. The recommendations and solutions proposed herein are based on our actual

and on-going experience and are not "theoretical" in nature. We very much appreciate the effort and support of ETIC and look forward to working with you in the future. Should you have any further questions or wish additional input, please do not hesitate to contact me.

Sincerely,

Charles H. Kerr

Nowakowski, Sonja

From: Catharine Carey [cgc57@bresnan.net]
Sent: Friday, October 30, 2009 2:16 PM
To: Nowakowski, Sonja
Subject: Montana Energy and Telecommunications Interim Committee

I urge you to prohibit new coal-fired electric power plants until carbon sequestration is environmentally viable. Coal is not cheaper than renewable energy if one considers the costs of global warming, which are increased droughts and less water, increased forest fires, increased pests, rising ocean levels, and increasing global instability. Please increase incentives to renewable energy and energy conservation.

Catharine Carey
3525 Duncan Drive
Missoula, MT 59802

Nowakowski, Sonja

From: Commissioners [commissioners@co.carbon.mt.us]
Sent: Tuesday, November 03, 2009 1:29 PM
To: Nowakowski, Sonja
Cc: goodwind.ankney@gmail.com; Sheryl Wood; Harold Blattie
Subject: Energy and Telecommunications Interim Committee: Energy Policycomments
Attachments: MACo Resolution 2009-02 Carbon Study.doc

Sonya,

I serve as the Chair for the Montana Association of Counties, Energy Committee, and offer these comments regarding the Energy Policy for the Energy and Telecommunications Interim Committee.

The Montana Association of Counties supports the development of all of our natural resources for energy including coal, oil, natural gas, wind, geothermal, and other forms of 'renewable energy'.
We feel strongly that our coal resources will, and should play, a large role in providing affordable and reliable energy. We feel that the State of Montana, and the United States, should provide as much our energy needs domestically so that we are not reliant on foreign energy resources. We do not feel that 'alternative energy' resources alone can provide a reliable energy portfolio. Energy sources such as wind and solar are more of a supplemental, or 'fuel replacer', to traditional fossil fuel or nuclear energy.

If we are to sustain and grow our economy, we need to have a firm and reliable source of energy.

Counties are also very concerned about how the expected increased cost of energy will affect our ability to provide services. If the 'cap and trade' legislation
Were implemented, our electric energy costs could easily go up by 50%. Diesel fuel and gasoline prices could go up even more. I have attached a resolution adopted by the Montana Association of Counties at our 100th Annual meeting last September regarding carbon cap and trade.

Thank you for your time and consideration.

Sincerely,

John E. Prinkki
Carbon County Commissioner
PO Box 887
Red Lodge, Montana

RESOLUTION 2009-02

OPPOSITION TO LEGISLATION IMPOSING NEW TAXES OR COSTS THROUGH FEDERAL CLIMATE CHANGE REVENUES COLLECTIONS

It is the intent of the Montana Association of Counties to oppose federal legislation imposing new taxes on state or local governments, employers or households from climate revenues collections.

WHEREAS, the Montana Association of Counties supports an in-depth study and evaluation of the financial and environmental impacts of a carbon cap and trade program or the lack thereof and its impact on the local economy in this time of severe economic recession and rising unemployment; and,

WHEREAS, on July 26, 2009, the U.S. House of Representatives passed H.R.2454, the American Clean Energy and Security Act of 2009, that is currently on the United States Senate calendar, which will create a cap and trade program for greenhouse gasses; and,

NOW, THEREFORE, BE IT RESOLVED, the Montana Association of Counties urges Congress to conduct an in-depth study and evaluation of the financial and environmental impacts of such legislation; and,

BE IT FURTHER RESOLVED, that the Montana Association of Counties opposes any federal legislation, including cap and trade legislation, if it imposes any new tax, energy cost, or other financial burden on state and local governments, employers and households; and,

BE IT FURTHER RESOLVED, that the Montana Association of Counties recommends that individual counties adopt a similar resolution with copies forwarded to Montana's Congressional delegation.

SPONSOR: MACo Public Lands Committee

RECOMMENDATION: Do Pass

PRIORITY: High

ADOPTED: Annual Conference, Helena, MT September 23, 2009