CO_2 questions
Energy and Telecommunications Interim Committee

This information was formulated in conjunction with the study outline for carbon sequestration adopted in the 2007-08 ETIC Work Plan. It is meant to highlight some broad areas of potential discussion. By no means, is this a complete list of discussion points. The ETIC may want to look at making general findings or more specific findings in these particular areas.

With the announcement of pending federal regulations, the committee may wish to discuss the work plan for sequestration and potential end results. The Environmental Protection Agency (EPA) is not expected to finalize federal regulations related to CO_2 injection, which would ultimately serve as a guideline for states, prior to the conclusion of the interim.

Using the points below, which are taken out of the work plan approved by the ETIC in October, what are the policy questions the ETIC should discuss in January as it moves into a discussion of whether the ETIC intends to pursue legislation on this topic? Under each point, members also can note whether the wish to pursue or not pursue further study or analysis.

Committee members are asked to forward questions or comments to staff by **December 21, 2007**. Comments can be sent to snowakowski@mt.gov, or mailed to P.O. Box 201704, Helena, MT 59620-1704. The information will be provided to the ETIC in advance of the next meeting.

✔The feasibility of geological and terrestrial carbon sequestration in Montana and the characteristics of areas of the state where carbon could be sequestered. (ETIC 2007-08 Work Plan, pages 3-4)

Background reports as well as presentations provided to the ETIC in Colstrip by the Big Sky Carbon Sequestration Partnership were aimed at addressing the feasibility question The information provided below is simply offered as background information.

Advancing Research

Montana legislators have over the years created a variety of study and research organizations, many aimed at economic development or focused specifically on agricultural commodities. The Board of Research and Commercialization Technology (MBRCT) is created in 2-15-1819, MCA. It is attached to the Department of Commerce. Each year the board collects applications and awards research grants. In 2007, the MBRCT awarded 23 grants totaling $3.2 million in funding. The purpose of the research and commercialization special revenue account in 90-3-1002 and 90-3-1003, MCA is to:

"(a) provide a predictable and stable source of funding for research and commercialization projects conducted in the state that demonstrates to both private and public sources, including federal research granting agencies, that Montana recognizes the important contributions that research and commercialization endeavors offer to the state's basic industries.

(b) expand and strengthen research efforts for the state's basic industries to increase their economic impact on the state's economy;

(c) expand research efforts into areas beyond the scope of the state's basic industries to diversify and strengthen the state's economic security through the creation of technology-based operations and long-term quality jobs; and

(d) pay costs of administration of this part pursuant to 90-3-1003."

In October 2007 Montana State University in Bozeman, which includes the Big Sky Carbon Sequestration Partnership, received $156,753 for "innovative commercialization strategies for clean coal and geologic carbon sequestration in Montana."

In addition, the 2007 Legislature expanded opportunities for awarding such grants. If applications are received, at least 30% of the account funds approved for research and commercialization projects must be directed toward projects that enhance clean coal research and development or renewable resource research and development, based on the amended law.

Other research programs in Montana law include the "Montana Sustainable Agriculture Research and Education Act," in Title 20, chapter 25, part 23, and the "Agricultural Commodity Research and Market Development Enabling Act," in Title 80, chapter 11, part 5.

The current definition of "universal system benefits programs" includes public programs for "research and development programs related to energy conservation and renewables," as well as "market transformation designed to encourage competitive markets for public purpose programs." In November, the ETIC received an overview of how current USB program funds are being used in Montana.

Past legislatures also have worked in this area. In 1991 the "Clean Coal Technology" program was approved. H.B. 701 created a clean coal demonstration account in the coal tax trust fund. It put $5 million a year for six years into the fund, and when a company applied for a loan, the next legislature made a decision whether or not to award the loan. The Department of Natural Resources and Conservation designated legitimate projects. Projects had to show "efficiency in electricity generation and reduced pollutant emissions compared to current coal burning methods." Loans were made to projects that showed matching funds on a 4:1 ratio. And loans could not be made for early stage planning or preliminary research.

The bill was directed toward a clean coal demonstration project proposed at the Corette Plant in Billings. The project was aimed at reducing emissions and integrating a coal cleaning process. The $400 million project was to be paid primarily with a federal grant from the Department of Energy.

During a 1993 Special Session, the Legislature repealed the program. Elimination of the program was part of the DNRC's 10% budget reduction, which was mandated by the regular 1993 session. The project in Billings also did not receive federal funding, and the DNRC reported a lack of interest in the program.

A "Renewable Energy Sources Research and Development" program also was repealed in 2003. It included a variety of grant and loan programs that had become obsolete or been replaced by new programs, according to testimony.

Questions for committee consideration: (Example, If sequestration is not feasible, should the state play a role in advancing the technology?) Pursue/Do not pursue feasibility?

1. _____

2. _____

3. _____

✔An examination of methods and technologies for the geological and terrestrial sequestration of carbon. (ETIC 2007-08 Work Plan, pages 3-4)

A background report provided to the ETIC in November provided a summary of the various sequestration methods and technologies currently under consideration.

Commissions and Boards
Several states have formed carbon sequestration advisory boards to provide guidelines and calculate the costs of offsetting emissions. In general, these advisory boards focus on terrestrial sequestration in agriculture and forestry ecosystems. Nebraska, Wyoming, and Idaho have advisory committees. In 2002, Idaho created a carbon sequestration advisory committee. The Idaho Soil Conservation Commission provides leadership for the group, and a Carbon Sequestration Assessment Fund was developed. The Wyoming Carbon Sequestration Advisory Committee was created through state legislation under the Wyoming Carbon Storage Law and is authorized for 8 years from 2001 until 2009.

Questions for committee consideration: (Example, Is one form of sequestration preferable over another?) Pursue/Do not pursue methods discussion?

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3. _____

✔A review of the findings and recommendations of the Montana Climate Change Advisory Committee related to carbon sequestration. (ETIC 2007-08 Work Plan, pages 3-4)

Here are a list of the related draft MCCAC recommendations as outlined in November:

- Develop a mandatory greenhouse gas (GHG) reporting protocol that applies to all sectors.

- Reduce greenhouse emissions in Montana to 1990 levels by 2020 and an additional 80% reduction by 2050.

- State government should reduce its GHG emissions to 1990 levels by 2018.

- Develop a periodic, complete inventory of GHG emission sources and sinks.

- Implement a public education and outreach program to support GHG emissions reduction efforts at all levels.

- Require utilities to supply 20% of their load from renewable sources of energy by 2020 and 25% by 2025. Measures to increase electricity production at existing hydroelectric facilities should be considered eligible for the renewable standard.

- Provide incentives to increase the supply of renewable energy in the state and reduce its cost. (See attached list of renewable incentives in current MCA)

- Seek funds to help develop and deploy technologies for energy storage and advanced fossil fuels.

- Provide incentives and remove barriers for combined heat and power and distributed generation projects.

- Establish a requirement that all fossil fuel-fired power plants meet a technology fuel-neutral emissions level expressed in tCO_2MWh and, as needed to achieve this level, file a plan with the DEQ that details the facility's commitment to capture CO_2 and implement terrestrial and or geological sequestration as a part of operating plans and permits. The specific requirement would be established through rule making by the Montana Board of Environmental Review. The CCAC recommends that the DEQ petition for such a rule, and that the Legislature approve supporting language. It also recommends a CO_2 emissions capture goal of $0.5tCO_2/MWh$ (or 1,100 lbs./MWh with 50% reduction from emissions at a standard coal plant.) increasing commensurate with the implementation of best available control technology.

- Provide incentives to encourage emissions reductions at power plants through increased efficiency and co-firing.

- Strengthen the Major Facility Siting Act to enable eminent domain for pipelines to transport CO_2 and protect landowners with appropriate siting requirements, while addressing liability issues.

- Investigate and implement policies to encourage the reduction of greenhouse gas emissions per MWh produced or, in the case of renewable facilities, encourage an increase of output at existing facilities.

- Require utilities to acquire electricity only from generation sources that capture and sequester CO_2 to a level equivalent to that accompanied by a natural gas combined cycle plant (about 50%).

- Best Management Practices, including the EPA Natural Gas STAR program, should be implemented in Montana for methane and CO_2 reductions in oil and gas operations.

- Montana should require than any future coal-to-liquids refineries capture and store CO_2 from the start of operations and co-fire some fraction of biomass.

The Environmental Quality Council also will be reviewing and discussing all the MCCAC recommendations, including those related to carbon sequestration.

Questions for committee consideration: (Example, Should the ETIC examine these particular points further?) Pursue/Do not pursue MCCAC recommendations?

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3. _____

✔An inventory of sources and volumes of carbon produced in Montana. (ETIC 2007-08 Work Plan, pages 3-4)

The background report provided to the ETIC in October includes information about sources and volumes of carbon in Montana. The MCCAC recommends mandatory GHG reporting for all sectors in its draft. The draft recommendations also outline a reduction in emissions and an inventory system for emissions. Again, federal action may dictate in some areas. Several pieces of federal legislation that require varying forms of carbon management are before Congress. The EQC, which is completing a climate change study, also may choose to work in this area.

In October 2007, the Kansas Department of Health and Environment became the first government agency in the U.S. to reject an air permit for a proposed electricity-generating plan

because of carbon dioxide emissions. The decision is expected to be challenged in the court system.

Questions for committee consideration: (Example, Should there be mandatory reporting of carbon emissions, as recommended in the MCCAC draft?) Pursue/Do not pursue emission issue?

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✔A review of existing state and federal regulations governing carbon sequestration. (ETIC 2007-08 Work Plan, pages 3-4)

On October 11, 2007 the EPA announced plans to establish rules for geological sequestration. The regulations will ensure that a permitting system for CO_2 injection is consistent with what is now in place under the Safe Drinking Water Act, according to the EPA. The Safe Drinking Water Act is established under the Underground Injection Control (UIC) program. The EPA plans to propose regulatory changes to the UIC program in the summer of 2008. Due to federal primacy, unless the federal government opts to allow states to petition, as it did with Class II wells, the EPA then would set the regulations for CO_2 injection. The state may have the opportunity to set more stringent rules, if it so chooses. These rules also may address liability issues. Depending on the EPA's regulations the committee may consider whether a Montana agency should, if allowed, petition to oversee the injection of carbon dioxide.

During the 2007 May Special Session the "Clean and Green" energy bill was approved. House Bill No. 3, as it relates to sequestration, provides tax incentives for energy generation facilities that emit less carbon than conventional technologies. Incentives also are provided for equipment that sequesters carbon. Based on the legislation, numerous types of facilities constructed after May 2007, including integrated gasification combined cycle plants that sequester carbon dioxide and natural gas combined cycle plants that offset a portion of the carbon dioxide produced through carbon credit offsets, are eligible for tax abatements. The percentage of carbon dioxide to be sequestered must be based on technology that is "practically obtainable as determined" by the DEQ, but not less than 65%.

The Electric Utility Industry Generation Reintegration Act (HB 25), approved by the 2007 Montana Legislature, includes a carbon sequestration component. Until the state or federal government adopts uniformly applicable standards, HB 25 prohibits the Public Service Commission from approving acquisitions or leases of facilities or equipment used to generate electricity that is primarily fueled by coal unless a minimum of 50% of the CO_2 produced by the facility is captured and sequestered. Natural gas plants also must include cost-effective carbon offsets. The bill applies only to electric generating units constructed after January 1, 2007. The

Public Service Commission is responsible for rulemaking related to carbon dioxide as stipulated in HB 25. By March 31, 2008, the PSC was required to adopt rules to implement the cost-effective carbon offsets required at new facilities fueled by natural or synthetic gas.

Questions for committee consideration: (Example, If state's are given the option of regulating CO_2 injection, should a particular state agency take on that role?) Pursue/Do not pursue regulations?

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✔A review of the liability issues related to sequestration and legal issues related to surface vs. subsurface issues. (ETIC 2007-08 Work Plan, pages 3-4)

Again, dependent upon the EPA rules, the ETIC also may wish to confront the liability issue. A legal analysis provided to the ETIC in November raised the question of property interests in pore space used for CO2 storage and ownership of those property interests. Laws regulating natural gas storage and transmission are provided in Title 82, chapters 10 and 11. The power of eminent domain is granted for natural gas storage in Montana laws.

In 2007 the Montana Legislature contemplated legislation granting the power of eminent domain for geological sequestration and carbon transport. That bill was approved, however it was void, due to a "contingent voidness" clause. A certification process for the use of eminent domain as it relates to natural gas is in Title 82, chapter 10, part 3.

Questions for committee consideration: (Example, Should the state clarify property interests associated with storage?) Pursue/Do not pursue liability issue?

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✔The costs and benefits of carbon sequestration. (ETIC 2007-08 Work Plan, pages 3-4)

Background reports provided in October and November addressed costs, risks, and benefits related to sequestration. PPL Montana shared some of its preliminary findings related to retrofitting for carbon sequestration.

The 1991 "Clean Coal Technology" program, which was repealed in 1993, created a clean coal demonstration account in the coal tax trust fund. It also allowed local taxing jurisdictions to exempt up to 100% of property taxes, for up to 25 years. The 2007 Legislature also discussed a variety of incentives for carbon sequestration. The attached list includes a synopsis of those bills.

To date, 14 states have enacted or are in the process of enacting legislation with some form of financial incentive for "clean coal technologies." Those incentives range from streamlined permitting in Colorado for certain technologies to tax credits for coal gasification facilities in Kansas. Kentucky, for example, requires its state Public Service Commission to approve various long-term contracts by utilities when the projects are for synfuel plants that use coal. Kentucky also has an environmental surcharge for pollution control retrofit costs.

Questions for committee consideration: (Example, Should the state assist with the costs borne by operators that retrofit for sequestration?) Pursue/Do not pursue costs/benefits issue?

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Other questions for committee consideration:

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