

BEFORE THE PUBLIC UTILITIES COMMISSION OF COLORADO

DOCKET NO. 08I-113EG

ORDER OPENING INVESTIGATORY DOCKET AND NOTICE OF INQUIRY

COMMENTS OF NANCY LAPLACA

PER DECISION C08-1157 ON TOPICS FOR NOVEMBER 13, 2008 HEARING

These comments are submitted in response to Commission Decision C08-1157, paragraph 5, page 2; requesting comments on the following:

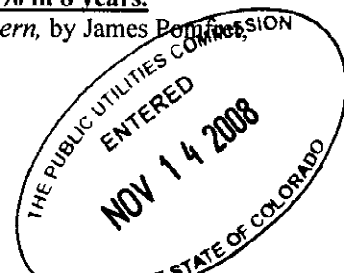
- (a) **Utility incentives to build, rather than buy generation, and how Commission policies influence that incentive;**
- (b) **Risk and rate-of-return trade-offs and how various Commission policies on adjustment clauses, cost recovery, and utility deployment of new technologies impact both risk and return;**
- (c) **A continued discussion of meaningful measures of the efficiency of the utility firm; and**
- (d) **A discussion of policies that promote innovation and the appropriate adoption of new technologies.**

In the past two years, U.S. citizens and Coloradans have woken up to the dangers of climate change. Unfortunately, most investor-owned utilities – like the U.S. automobile industry – continue to ignore the reality of global warming. Unfortunately for all of us, more is at stake than simply a larger gasoline bill – the future of our planet is at risk. If we are going to address climate change in a meaningful way, rather than just pay lip service to the crisis we face, we must do better.¹

Attachment A is a Reuters article quoting former British Treasury economist Sir Nicholas Stern, whose 2006 report on the economic effects of climate change woke up the world. Stern reports that inaction on global warming will cost far more than action, and risk should be tackled early.² In October 2008 – last month – Stern said that the risk of ignoring climate change will be

¹ Xcel Energy's coal burn is going to increase, not decrease, over the next 5 years, from 64% of energy produced to 69% of energy produced, before falling to 61% in 2015. This is a reduction of only 3% in 8 years.

² Attachment A, Reuters, *Risks of Global Warming Greater Than Financial Crisis* – Stern, by James Pomfret, October 27, 2008.



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much larger than even our current financial crisis. Deutsche Bank has recently released a report that also details the costs of inaction.³

Following is a discussion of each of the 4 topics that will be addressed at the November 13th hearing. LaPlaca respectfully requests a separate hearing on the critical issue of determining a value, or range of values, for externalities. Declaring that externalities can only be *qualified*, rather than quantified, allows industry to profit by using our air and water as a dumping ground. **The Commission has an obligation to the public it serves to hold a hearing on externalities, and to allow public health experts and affected citizens to provide scientifically sound data.**

(a) Utility incentives to build, rather than buy generation, and how Commission policies influence that incentive;

LaPlaca suggests that utilities be given increased incentives to build clean energy sources, rather than the current, de-facto preference for dirty energy. For example, by refusing to include the enormous and destructive “externalities” in coal, the Commission is effectively giving coal “a leg up.”

(b) Risk and rate-of-return trade-offs and how various Commission policies on adjustment clauses, cost recovery, and utility deployment of new technologies impact both risk and return;

The staid utility industry has become significantly more *risky* in the past few years. This is reflected in the number of global warming lawsuits Xcel is defending, which include (1) a lawsuit by the City of Kivalina in Alaska (damage from global warming, the city will need to relocate eventually); (2) lawsuits relating to Comanche 3, (3) a recent settlement with New York Attorney General (AG) Andrew Cuomo due to lack of risk disclosure on Securities and Exchange Commission (SEC) filings, (4) President-elect Obama’s statement that he will instruct the EPA to issue a ruling that carbon dioxide (CO2) is a pollutant under the Clean Air Act, and (5) the alarming and increasing threat from global warming.

In addition, 82 of the 151 new coal-fired power plants proposed in late 2006 have been cancelled, abandoned, or put on hold.⁴ This week Wisconsin regulators voted 3-0 to reject a

³ http://www.dbadvisors.com/deam/stat/globalResearch/climatechange_full_paper.pdf

⁴ http://www.sourcewatch.org/index.php?title=What_happened_to_the_151_proposed_coal_plants%3F

\$1.3 billion coal plant proposed by Alliant Energy.⁵ A key reason for the rejection was global warming, and other reasons were that the project was “not in the public’s interest,” coal is not the least expensive alternative to meet demand, and the cost of complying with carbon constraints needed to be taken into account.

Alliant, like Xcel and other intervenors including CF&I, continue to argue that carbon is not yet regulated. However, because coal plants are a 50 year investment and the growing likelihood of carbon regulation will add considerably to yearly operating costs, this change will make a huge difference. For example, a carbon tax of \$20/ton will add about \$80 million/year to the cost of Comanche 3 (\$20 ton x 4,000,000 tons of CO₂/year). These costs *don’t* take into account the increasing costs of global warming such as crop loss, rising sea levels, more severe hurricanes, desertification, increased wildfires and eventual climate refugees. Twenty years from now, cities like New Orleans and cities on the Gulf coast could experience large decreases in population. Those people will go somewhere, but where?

Xcel’s risk disclosure to Colorado residents is far less than its disclosures to CERES, an organization committed to promoting disclosure and sustainability for investors.⁶ Table 1 from a May 2008 CERES report⁷ shows that Xcel’s carbon dioxide (CO₂) emissions are 2,078.2 pounds per MWh, one of the highest in the U.S.

Xcel’s disclosure in Colorado is also at odds with the level of disclosure required in filings at the Securities and Exchange Commission (SEC). Attachment B⁸ is a New York Times article dated August 28, 2008, titled *Xcel to Disclose Global Warming Risks*, and reports an agreement between New York Attorney General Andrew Cuomo and Xcel. The agreement requires Xcel to make detailed disclosures about global warming risks to investors, disclose the financial risks of lawsuits, and disclose federal or state court decisions that would affect its business. Xcel would also need to disclose risks associated with global warming such as drought, rising sea levels, and water use by power plants.⁹ Don’t Coloradans deserve the same level of

⁵ The Journal Sentinel, *PSC Rejects Alliant Energy’s Proposed Coal Plant*, by Thomas Content, November 11, 2008, <http://www.jsonline.com/business/34277094.html>

⁶ www.ceres.org

⁷ CERES, NRDC and others, *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the U.S.*, May 2008, page 26, located at: <http://www.ceres.org//Document.Doc?id=333>

⁸ See Attachment B, New York Times, *Xcel to Disclose Global Warming Risks*, by Nicholas Confessore, August 28, 2008.

⁹ *Id.*, page 2.

disclosure? Attorney General Cuomo states that investors “have the right to know all the associated risks.” Don’t ratepayers have the same right to know?

(c) A continued discussion of meaningful measures of the efficiency of the utility firm;

Colorado’s CO2 emissions per MWh are some of the highest in the nation,¹⁰ meaning that our plants are among the least-efficient and most-polluting in the U.S. Colorado is the 9th worst CO2 emitter in the nation, according to the EPA.¹¹ LaPlaca suggests that a reduction in CO2 emitted per MWh be included as a measure of Xcel’s “efficiency”, but that using 2015 as a benchmark year is simply too far in the future to be meaningful.

(d) A discussion of policies that promote innovation and the appropriate adoption of new technologies.

Surely an “appropriate” technology is one which does not pour toxic poisons into our air and water, or exacerbate global warming. Coal combustion waste, pre-natal developmental damage from coal, increased health risks, and other significant costs should not just be dismissed. Any discussion of policies that “promote innovation” and look at “appropriate” technology must include a recognition that coal-fired power plants are the largest single source of CO2, acid rain, mercury and other potent toxics.

Citizens overwhelmingly support clean energy. Attachment C¹² is a survey of 600 Colorado adults conducted in October 2008, with the following conclusions:

- 76 percent support a moratorium on new coal-fired power plants;
- 87 percent believe that natural gas companies should have to provide information about hazardous chemicals used and produced in natural gas production;"
- 52 percent want government aid for wind and solar power at the same or higher than coal-fired and nuclear power plants;
- Over half want the government to "evenly divide" any subsidies, tax breaks or other incentives for new nuclear coal v. wind and solar."

¹⁰ <http://www.epa.gov/solar/energy-and-you/chart-text.html>

¹¹ *Id.*

¹² Attachment C, Colorado Energy/Climate Survey: *Most in State Oppose More 'Subprime' Investments in Coal, Nuclear Power* <http://www.marketwatch.com/news/story/colorado-energyclimate-survey-most-state/story.aspx?guid=%7b61939086-8683-40B5-A821-8A650E2285B7%7d&dist=hppr>

- 32 percent would go further, having government "shift all or most of subsidies from nuclear and coal to wind and solar."
- 70 percent see coal as the "power sources of yesterday."
- 93 percent see solar and wind "power sources of tomorrow;"
- **68 percent would ask for wind, solar and other renewables if they could "tell your power or utility company where to get the power to run your house."**
- In contrast, 10 percent would pick nuclear and 3 percent would pick coal;
- 67 percent of Coloradans believe have limited time to figure out global warming solutions;
- 57 percent believe "action on global warming will create new jobs and investment."

Last, but not least, most Coloradans do not see today's politicians as "likely to act on climate issues."¹³ In fact, two out of five Coloradans have "**only a small degree of confidence,**" and **33 percent have "no confidence"** that our current elected officials "will act decisively on global warming issues."¹⁴

Natural Gas Externalities Also Not Taken Into Account

In 2005 the oil and gas industry was exempted from the Safe Drinking Water Act. Currently oil and gas companies do not have to disclose the types of toxic chemicals they inject into ground and our water supplies during the drilling process. Colorado Representatives Diana DeGette and John Salazar introduced legislation, HR 7231, to repeal this exemption and require drillers to let the public know what toxic chemicals they are injecting into our ground water. This is just plain common-sense. In Colorado, we have many experts, like Dr. Theo Colborn, who can testify about the toxic stew of gas drilling chemicals, and her painstaking accumulation of information about the health effects from gas drilling.¹⁵ In addition, Dr. Kristin Welker-Hood from the group Physicians for Social Responsibility would be happy to meet with

¹³ Obviously, few citizens have the time, energy, expertise or stomach to participate in either the legislative or regulatory processes where most attorneys and experts charge at least \$150 per hour. The few of us arguing for the inclusion of externalities, for example, or making a concerted effort to talk about fossil fuel depletion, are operating *pro bono* at great odds. However, citizens are waking up and asking hard questions about reducing coal, promoting renewable energy and reducing the threat of runaway climate change.

¹⁴ "Clean" coal is a good example of our inability to come up with effective solutions that are not industry-oriented. Most "clean" coal projects in the U.S. have been cancelled because investors understand it's a money-loser.

¹⁵ LaPlaca attempted to submit testimony Ms. Colborn, who is nearly 80 years old, testified in October 2007 before U.S. Rep. Henry Waxman's Government Oversight Committee. However, Xcel struck that testimony that was submitted to the record for 07A-447E, so it was not considered. Although Xcel can strike testimony, the effect of the continued dumping of toxics can only be hidden -- another unfortunate example of Xcel's greenwashing.

the Commissioners or staff, or to make a public presentation. The Oil and Gas Accountability Project, based in Durango, has many experts who could also make presentations.

Coal Combustion Wastes, the 2nd Largest Waste Stream in the U.S., Are Completely Ignored

Researching coal combustion waste was quite literally a nauseating experience. As one veteran Coal Combustion Waste (CCW) activist told me, if people had any idea that the beef they eat comes from cattle standing in feedlots stabilized with fly ash, that fly ash is put in fields as “fertilizer”, that it’s leaking into groundwater, leaking from old coal mines, and has been used for everything from construction filler to fertilizer, they would be horrified. Coal mining waste is the largest waste stream in the U.S., and CCW is the second largest waste stream. Municipal waste is third. There are many good studies on CCW.¹⁶ Problems with CCW include:

- Toxins include arsenic, cadmium, zinc, sulfates, lead, mercury and other substances which are carcinogenic, affect the nervous system, or have other health impacts;
- CCW is direct threat to ground water: contamination of drinking water;
- Toxins bio-accumulate in the food chain. Wildlife die-offs have occurred from CCW pollution;
- CCW should be regulated as a toxic waste, requiring landfilling in a licensed landfill, with added liners, leachate collection systems, testing and groundwater monitoring.
- We need CCW landfill regulations that are protective of public health;
- The Coal Industry and utility plants should pay the true costs of CCW.
- By making the true costs of CCW paid by the generators will the industry have greater motivation to move from 18th century power generation to cleaner, and more sustainable 21st century power source needs.

Many Credible Studies and Experts Are Available to Quantify Coal Externalities

Physicians for Social Responsibility (www.psr.org) works on public health issues, and the health impacts of coal-fired power plants is high on its list. In fact, PSR testimony helped kill the Alliant coal plant recently rejected 3-0 by Wisconsin regulators.¹⁷ PSR frequently uses a study by the Ontario Ministry of Energy and Environment, which LaPlaca has submitted in previous filings. An overview of that study is included as Attachment D. Ontario’s finding in

¹⁶ http://www.catf.us/projects/power_sector/power_plant_emissions/pollution_locator/

¹⁷ Email with Barbara Gottlieb, PSR Environment and Health Program Manager, on November 12, 2008.

this study is significant because it owned both the coal plant and the hospital that treated citizens affected by coal pollution. That study¹⁸ found:

- Under a “status quo” scenario –mostly coal-fired power – the health costs were over three times the cost of power generation.

The table below is an excerpt from that study, and more detailed results are included in Attachment D. The study found that closing coal plants would provide a net benefit of \$2.4 billion to Ontario, since health costs amounted to \$3 billion annually.

	Scenario			
	1 Status Quo	2 All Gas	3 Refurbished Nuclear/ Gas	4 Emission Reducing Technology
Financial Costs	\$ 985 a	\$ 2,076	\$ 1,529	\$ 1,367
Health Damages	\$3,020	\$388	\$365	\$1,079
Environmental Damages	\$371	\$141	\$48	\$356
Total Cost of Generation	\$4,377	\$2,605	\$1,942	\$2,802

a: All values are expressed as annualised costs/damages in 2004\$ Millions.

Dr. Kristen Welker-Hood is available to discuss health effects from coal-fired power plants, and a short biography is included as Attachment E.

Effect of Coal-Fired Power Plants on Cognitive Development of Children

Following is an abstract from a report issued by the Center for Disease Control (CDC), as well as a July 15, 2008 report from Science Daily¹⁹ about the effect of closing coal-fired power plants on the cognitive development of children. The study showed:

- Pre-natal exposure to coal-burning emissions was associated with significantly lower average developmental scores and reduced motor development at age two.
- In the second unexposed group, these adverse effects were no longer observed; and the frequency of delayed motor developmental was significantly reduced.

¹⁸ http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&back=yes&news_id=96&backgrounder_id=70

¹⁹ See Attachment F, Science Daily, *Closing Coal-Fired Power Plants Improves Cognitive Development of Children, New Study Suggests*, Science Daily, July 15, 2008: <http://www.sciencedaily.com/releases/2008/07/080714151525.htm>

- Prenatal exposure to plant emissions was measured by a biomarker of polycyclic aromatic hydrocarbon (PAH) exposure in umbilical cord blood.²⁰

Statistically Significant Link Between Autism and Proximity to Coal-Fired Power Plants

Another significant issue is the link between increased autism and mercury emissions. An April 24, 2008 article in Science Daily included as Attachment G states:

- a statistically significant link between pounds of industrial release of mercury and increased autism rates; and
- For the first time in scientific literature shows a statistically significant association between autism risk and distance from the mercury source.

Fly Ash Has Been Treated As Less-Hazardous Than Household Garbage for the Past 20 Years

Fly ash is considered a “recycled air pollution control residue” by the EPA.²¹ Experts believe that an **unintended result of stricter mercury rules at power plants makes fly ash more dangerous by concentrating heavy metals such as mercury**. Rules were weakened by the Reagan administration, and the EPA has still not created mercury for cement plants -- **eight years** after being ordered by a federal court to promulgate rules.

- A 2007 EPA study found that mercury content in ash had jumped by 850 percent.
- Ash use in cement kilns has skyrocketed, from 1 million tons in 2001 to over 4 million tons in 2006, according to industry;
- Other states, including Maryland and Virginia are tightening up disposal rules after groundwater was polluted by toxic ash.
- Outside Norfolk VA wells were tainted after being built around a golf course on top of 3 million tons of ash tainted with boron – **a heavy toxic metal linked to low birth weight**.²²

Air Pollution Linked to Deep Vein Thrombosis

²⁰ The investigators controlled for exposures to other pollutants, such as tobacco smoke and lead, which might have contributed to neurodevelopment problem.

²¹ See Attachment H, Albany Times Union, *Fly Ash: Culprit at LaFarge? Residue of coal-burning is being examined as possible source of mercury pollution*, by Brian Nearing, October 26, 2008.

²² All figures are from Attachment H.

A study released in Italy in May 2008 shows long-term exposure to air pollution seems to increase blood clots in legs.²³ Dr. Andrea Baccarelli, who led the study, pointed out that this is consistent with the fact that air pollution causes heart attacks and strokes.

What Technologies Are “Appropriate?” Gus Speth, Director of Yale’s School of Forestry and Environmental Studies: “Get Rid of Perverse Subsidies”

Long-time environmentalist, Yale professor and author Gus Speth, when asked what we could do to most effectively address climate change, said:²⁴

- Get rid of “perverse subsidies” and make companies pay for environmental damage;
- The needed changes will “not simply happen.” We need a movement of citizens and scientists to create change;
- This movement is similar to the anti-slavery, civil rights, anti-apartheid and anti-war movements;
- Eventually, our leaders in the political and business worlds will see it is in their best interest to promote transitions;
- But absent a push from citizens, they will come to this realization much too late.

International Energy Agency (IEA): Annual Decline of Large Post-Peak Oil Fields Is 6.7%

A recent article in the Wall Street Journal²⁵ reported that the IEA says that annual decline rate of existing post-peak oil fields is accelerating, and the average annual decline rate world-wide is 6.7% for fields past peak production. This is an alarming number, and should be a wake-up call. Although crude has recently declined to less than \$60/barrel, once the world is definitively past peak production, the cost of everything – from coal mining to food – will increase dramatically. The “race” is whether we can build renewable infrastructure before we experience enormous increases in the cost of energy.

²³ Health Day Reporter, *Air Pollution Linked to Blood Clots in Legs*, by Ed Edelson, May 12, 2008. Learn more about the health risks of air pollution from the [U.S. National Library of Medicine](#). SOURCES: Andrea Baccarelli, M.D., assistant professor, environmental health, University of Milan, Italy; Robert D. Brook, M.D., assistant professor, internal medicine, University of Michigan, Ann Arbor; May 12, 2008, *Annals of Internal Medicine*

²⁴ Grist interview, March 1, 2004, located at: <http://www.grist.org/comments/interactivist/2004/03/01/james/>

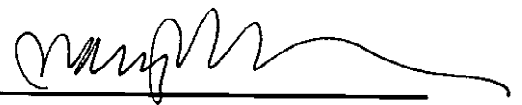
²⁵ See Attachment I, Wall Street Journal, *Oil Supplies Will Tighten and Prices Jump, EIA Warns*, by Neil King Jr. and Spencer Schwartz, November 7, 2008, page A10.

Are We Such Monsters That We Are Willing to Call Horrific Health Effects “Unquantifiable”?

Who among us can possibly call these effects “unquantifiable”? Are we so immune to the world our children will inherit, so intent on having “cheap” electricity, that we can watch childhood asthma continue to increase, that we can dump thousands and thousands of tons of toxics on poor communities who live within a stone’s throw from coal plants? And finally, do we really think we can continue to ignore these emissions? Will they just “go away?”

Although there are many issues in this docket, LaPlaca respectfully requests a meaningful discussion to determine an actual value, or range of values, for externalities. Our children will thank us.

Respectfully submitted this 12th day of November 2008.



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CERTIFICATE OF SERVICE

I hereby certify that on November 12, 2008, the original and seven copies of the foregoing **COMMENTS OF NANCY LAPLACA** was served by hand delivery on:

Doug Dean, Director
Colorado Public Utilities Commission
1560 Broadway, Suite 250
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and copies were e-mailed, faxed, hand delivered, FedEx'ed, or placed in the United States Mail, postage prepaid, addressed to:

COLORADO PUBLIC UTILITIES COMMISSION
1560 BROADWAY, SUITE 250
DENVER, CO 80202

Attachment A

Risks of global warming greater than financial crisis-Stern

Mon Oct 27, 2008 2:50am EDT By James Pomfret

http://www.reuters.com/article/homepageCrisis/idUSHKG98951.CH_2400

HONG KONG, Oct 27 (Reuters) - The risks of inaction over climate change far outweigh the turmoil of the global financial crisis, a leading climate change expert said on Monday, while calling for new fiscal spending tailored to low carbon growth.

"The risk consequences of ignoring climate change will be very much bigger than the consequences of ignoring risks in the financial system," said Nicholas Stern, a former British Treasury economist, who released a seminal report in 2006 that said inaction on emissions blamed for global warming could cause economic pain equal to the Great Depression.

"That's a very important lesson, tackle risk early," Stern told a climate and carbon conference in Hong Kong. As countries around the world move from deploying monetary and financial stabilisation measures, to boosting fiscal spending to mend real economies, Stern said the opportunity was there to bring about a new, greener, carbon-reducing world order.

"The lesson that we can draw out from this recession, is that you can boost demand in the best way possible by focusing on low carbon growth in future," Stern said, including greater public spending on mass public transport, energy and green technologies.

Stern's warning comes on the heels of last week's Asia-Europe or ASEM meeting in Beijing, where China indicated in talks it was committed to seeking a climate change pact in vital end-game talks in Copenhagen at the end of next year.

Leaders at the summit also urged countries not to use global economic upheaval as a reason for delaying a deal. Partly as a result of the darkening global economic outlook, Italian Prime Minister Silvio Berlusconi recently warned that 10 other EU nations backed his efforts to block an EU climate plan, prompting further doubts over European action on global warming.

Yet Stern remained optimistic, saying while talks would be "very tense" the likelihood of a deal in Copenhagen to reduce carbon emissions by 50 percent by 2050 remained "very high". Any deal would have to iron out differences between the United States, historically the largest greenhouse gas emitter, and rapidly developing countries like China, which by some accounts has surpassed the United States on emissions.

China, with its bulging output of carbon dioxide, the main greenhouse gas behind global warming, was singled out by Stern along with the U.S. as pivotal in the talks, with the next U.S. president likely to be much more proactive than George W. Bush.

"The U.S. and China will be the key leaders for a global deal. Either one of them could kill it, and I don't think either one of them will kill it." Fresh from a trip to China, Stern said China's next national economic blueprint or five-year plan would acknowledge its key role to stave off a big rise in global temperatures, the melting of ice-caps and destructive rises in sea levels the world over. "I think we'll see the 12th five-year plan focus on low carbon growth," he said.

(Editing by Jeremy Laurence)

Attachment B

The New York Times

http://www.nytimes.com/2008/08/28/business/28energy.html?_r=1&adxnnl=1&oref=slogin&partner=rssnyt&pagewanted=print&adxnnlx=1225213479-Dc1YYiKZcR22vrHZA2Qblg

August 28, 2008

Xcel to Disclose Global Warming Risks

By NICHOLAS CONFESSORE

ALBANY — One of the country's largest builders of coal-fired power plants will give investors detailed warnings about the risks that global warming poses to its business under a deal with New York's attorney general.

The agreement Wednesday between the attorney general, Andrew M. Cuomo, and the company, Xcel Energy of Minneapolis, is the first of its kind in the country. It could open a broad new front in efforts by environmental groups to pressure the energy industry into reducing emissions of the greenhouse gases that contribute to global warming.

Until now, advocates have largely relied on shareholder resolutions as a way of pushing the companies to reduce their carbon dioxide output and invest more aggressively in renewable energy sources like wind or solar power.

That effort has picked up pace, according to Ceres, a coalition of investors and environmental groups, with dozens of shareholder resolutions filed during the 2008 financial reporting season.

"This really takes it another step, by making it a settlement agreement that should have an impact across the industry," said Dan Bakal, the director of electric power programs at Ceres.

Mr. Cuomo subpoenaed Xcel and four other companies last September, seeking to determine whether their efforts to build new coal-fired power plants posed risks not disclosed to investors, like future lawsuits or higher costs to comply with possible regulations restricting carbon emissions.

The attorney general's office is still negotiating with the four other companies — the AES Corporation, Dominion, Dynegy and Peabody Energy. But Mr. Cuomo hopes that the agreement will help persuade other companies to follow in the footsteps of Xcel, which supplies natural gas and electricity to customers in eight states. Among utilities, Xcel is one of the nation's largest producers of greenhouse gases and a major provider of wind energy.

Many coal-fired power plants have been proposed or are under construction across the country and environmental advocates have made it a priority to reduce their impact.

"This landmark agreement sets a new industrywide precedent that will force companies to disclose the true financial risks that climate change poses to their investors," Mr. Cuomo said in a statement. "Coal-fired power plants can significantly contribute to global warming, and investors have the right to know all the associated risks."

The agreement represents another novel use by Mr. Cuomo of the Martin Act, a powerful tool that allows the attorney general to bring criminal as well as civil charges. Mr. Cuomo's predecessor, Eliot Spitzer, used the law to vastly expand the office's investigations of suspected Wall Street malfeasance.

Now Mr. Cuomo has turned it into a de facto form of environmental enforcement, too. For energy companies, including those based far from New York, he is able to claim jurisdiction because they issue securities on Wall Street.

The agreement with Xcel requires the company to analyze the likely effects on its business of current and future legislation or regulations in the states and countries where it operates and to disclose that information in its investor filings with the Securities and Exchange Commission.

Congress and many states are considering global warming legislation. Ten states stretching from Maryland to Maine, including New Jersey, New York and Connecticut, have struck a deal to cap emissions and allow trading of pollution allotments among producers.

Under the agreement with Mr. Cuomo, Xcel will disclose the financial risks of lawsuits and of federal or state court decisions that would affect its business. The company will also analyze and disclosed the "material financial risks" to itself associated with global warming, like drought — coal plants are prodigious users of water — or rising sea levels. In a statement, the chairman of Xcel, Richard C. Kelly, said the company had already voluntarily reduced carbon emissions and planned to continue to do so.

"We previously provided detailed information concerning the expected impact of climate change and greenhouse gas emissions regulations on our operations, and under this agreement we will make even more detailed disclosures," Mr. Kelly said. "This agreement will enhance our already aggressive efforts to be responsible environmental stewards."

Xcel officials said their reductions of greenhouse gases had totaled 18 million tons since 2003. They added that the company planned to build an additional 6,000 megawatts of renewable energy generation by the end of the next decade.

Justin McCann, an energy analyst at Standard & Poor's, said that the company had included more detailed information on climate change risks in its most recent filing, since Mr. Cuomo's investigation began. But the new agreement will require even more disclosure, he said, and probably encourage other companies to follow suit.

"Utility lobbies are very strong, but they have read the writing on the wall in terms of greenhouse gas reductions," Mr. McCann said. "They know it is extremely popular with the public, and so they have wanted to get ahead of the curve, so they can have some input."

But some of the companies that Mr. Cuomo scrutinized might be less amenable to adopting the new requirements than others. When Mr. Cuomo issued his subpoenas last year, Vic Svec, a spokesman for Peabody Energy, described the attorney general's inquiry as "outrageous" and suggested that Mr. Cuomo's use of the Martin Act was a form of legal harassment. Reached Wednesday, Mr. Svec said: "We're confident that our disclosures around CO₂" — carbon dioxide — "have been and continue to be adequate."

Attachment C

Colorado Energy/Climate Survey: Most in State Oppose More 'Subprime' Investments in Coal, Nuclear Power

<http://www.marketwatch.com/news/story/colorado-energyclimate-survey-most-state/story.aspx?guid=%7b61939086-8683-40B5-A821-8A650E2285B7%7d&dist=hppr>

Last update: 1:30 p.m. EDT Oct. 16, 2008

DENVER and WASHINGTON, Oct 16, 2008 /PRNewswire-USNewswire via COMTEX/ -- 86 Percent Want Limits on Subsidies for Oil Shale Production, **76 Percent Support Moratorium on New Coal-Fired Power Plants**; Strong Back Shift to Clean Wind and Solar Power.

If elected officials in Denver and Washington, D.C. are going to continue investing in energy through subsidies, tax breaks and other incentives, the focus should shift from coal and nuclear power to promoting wind and solar energy, enhanced energy efficiency, and highly fuel-efficient vehicles, according to a new survey of **600 Colorado adults** conducted for www.TheCLEAN.org and the Civil Society Institute (CSI) by the leading U.S. survey firm Opinion Research Corporation (ORC).

The CLEAN/CSI survey was released today with Western Colorado Congress (WCC) and findings include:

-- A halt to construction of new coal-fired power plants is supported by most Colorado adults. Just over three out of four respondents in Colorado (76 percent) and 73 percent of Americans would support "a five-year moratorium on new coal-fired power plants in the United States if there was stepped-up investment in clean, safe renewable energy -- such as wind and solar -- and improved home energy-efficiency standards. The moratorium on new coal-fired power plants is favored in Colorado by **57 percent of Republicans, 89 percent of Democrats and 82 percent of Independents.**

-- Nearly **nine out of 10 Colorado residents (87 percent)** believe that "**natural gas companies should have to provide information to nearby communities and residents about hazardous chemicals used and produced in natural gas production.**" Only about one in 10 (11 percent) disagree on the grounds that "disclosure of hazardous chemicals would give information to competitors and harm the gas company."

-- Most Colorado residents want to see **government aid for wind and solar power put on the same or better footing than coal-fired and nuclear power plants. Over half of Colorado residents (52 percent)** and the same number nationwide want the government to "**evenly divide**" any **subsidies, tax breaks or other incentives for new construction "between nuclear power and coal-fired power plants and energy sources such as wind and solar."** About a third (32 percent) of those in Colorado and 30 percent of Americans would go further, having

the government "shift all or most of them from nuclear power and coal-fired power plants to energy sources such as wind and solar." Only 11 percent of those in Colorado and one in 10 Americans would **"keep the incentives for nuclear power and coal-fired power the way they are today."**

- **Wind and solar are seen by Colorado residents as the future of energy for America.** In Colorado, 71 percent of respondents see oil and **68 percent coal as power sources of yesterday.** This compares to more than two out of three Americans who now see coal (70 percent) and oil (67 percent) as the "power sources of yesterday." By contrast, **solar and wind are seen as "power sources of tomorrow" by 92 and 93 percent of those in Colorado and 92 percent and 88 percent of Americans, respectively.**

- Colorado residents pick clean energy over coal and nuclear power. Two out of three Americans and **68 percent of those in Colorado would ask for wind, solar and other renewable energy technologies if they could "tell your power or utility company where to get the power to run your house."** By contrast, only 8 percent nationally would pick nuclear power (10 percent in Colorado) and just 3 percent would pick "coal-generated power" nationally versus 3 percent in Colorado.

- Most Colorado residents know that time is running out to deal with global warming. **More than two thirds of those in Colorado (67 percent) and a similar proportion of Americans (63 percent) believe that "global warming is a problem and we have limited time to figure out the solutions to it."**

- The vast majority of those in Colorado see a positive or neutral economic impact from dealing with global warming. **Fewer than one in five in Colorado (18 percent) and the nation as a whole (17 percent) believe that "action on global warming will hurt the U.S. economy,"** while over half (57 percent in Colorado and 51 percent in the US) believe "action on global warming will create new jobs and investment." About a quarter (23 percent in the state and 28 percent nationwide) says that such action "will neither help nor hurt the economy."

- **Today's politicians are not seen as likely to act on climate issues. Two out of five in Colorado and in the nation as a whole, have "only a small degree of confidence" or "no confidence" (27 percent in US and 33 percent in Colorado) that "our current elected officials in the United States will act decisively on global warming issues."**

- Energy issues will figure prominently at the ballot box in November in Colorado. About nine out of 10 respondents in Colorado (89 percent) and 91 percent in the nation as a whole say that "the views of candidates on energy-related issues -- such as gasoline prices, home heating oil prices, global warming and energy independence" will be important as they vote in 2008. Of this amount nearly **three in five (59 percent in Colorado and 58 percent in the US) say that energy issues will be "very important" to how they vote.**

- More than three out of four Americans (78 percent) and even more in **Colorado (84 percent) agree with the following statement: "The effects of global warming require that we take timely and decisive steps for renewable, safe and clean energy sources. We need transitional technologies on our path to energy independence. There are tough choices to be made and tradeoffs. We cannot afford to postpone decisions since there are no perfect options."**

- **Nine out of ten Colorado residents agree with the following statement: "The reliance on fossil fuels is the product of the industrial revolution of the 19th and early 20th centuries. Do you think it is time for our nation to start thinking in terms of the concept of a 'new industrial revolution,' one that is characterized by the orderly phasing out of fossil fuels and the phasing in of clean, renewable energy sources -- many of which are available now, such as wind and solar for electricity..."**

For complete survey findings, go to <http://www.TheCLEAN.org>.

SURVEY METHODOLOGY

The TheCLEAN.org/Civil Society Institute poll conducted by Opinion Research Corporation's CARAVAN Services was a telephone survey conducted among a sample of 600 adults (300 men and 300 women) aged 18 and older living in private households in the state of Colorado. Interviewing was completed October 1-5, 2008. The survey was weighted by age and gender to ensure reliable and accurate representation of the total population. The margin of error for surveys with samples of around 600 respondents, at the 95 percent confidence level, is plus or minus 4 percentage points. Smaller sub-groups in any survey will have larger error margins.

ABOUT CSI AND THECLEAN.ORG

The nonprofit and nonpartisan Civil Society Institute (<http://www.CivilSocietyInstitute.org>) is a think tank that serves as a catalyst for change by creating problem-solving interactions among people, and between communities, government and business that can help to improve society.

ABOUT WCC

Based in Grand Junction, the Western Colorado Congress is an alliance for community action empowering people to protect and enhance their quality of life in western Colorado. For more information, go to <http://wccongress.org/> on the Web. CONTACT: Ailis Aaron Wolf, (703) 276-3265 or aaaron@hastingsgroup.com.

Attachment D

Ontario Ministry of Energy and Infrastructure

http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&back=yes&news_id=96&backgrounder_id=70

Backgrounder Benefits of Replacing Coal-Fired Electricity in Ontario

An independent study on the hidden costs of coal-fired generation confirms that coal replacement will reduce health and environmental costs in Ontario. These hidden costs mean that the true cost of coal-fired electricity is very high, and more expensive than other options for Ontario.

Electricity Generation Scenarios

The study examines the financial costs and health and environmental damages associated with four electricity generation scenarios. These scenarios cover a range of electricity generation alternatives for replacing the province's coal-fired generation facilities. The four electricity generation scenarios include:

1. The status quo, which is a mix of coal, nuclear and natural gas generation
2. Building new natural gas plants to replace coal-fired electricity
3. A combination of refurbishing the nuclear plants and building new natural gas plants to replace coal-fired electricity
4. Using clean-coal technology on the existing coal plants.

Health and Environmental Costs

Ontario's coal-fired plants are the largest industrial source of greenhouse gas emissions, sulphur dioxide (SO₂) and oxides of nitrogen (NO_x) in the province. Greenhouse gas emissions are subject to the Kyoto treaty on climate change, while SO₂ and NO_x are contributors to smog.

	Scenario			
	1 Status Quo	2 All Gas	3 Refurbished Nuclear/ Gas	4 Emission Reducing Technology
Financial Costs	\$ 985 a	\$ 2,076	\$ 1,529	\$ 1,367
Health Damages	\$3,020	\$388	\$365	\$1,079
Environmental Damages	\$371	\$141	\$48	\$356
Total Cost of Generation	\$4,377	\$2,605	\$1,942	\$2,802

a: All values are expressed as annualised costs/damages in 2004\$ Millions.

The study found a relationship between increased air pollution due to coal-fired electricity generation and up to 668 premature deaths, 928 hospital admissions, 1,100 emergency room visits and 333,600 minor illnesses annually. These health costs amount to \$3 billion annually.

In addition to the health costs are economic damages due to environmental effects. The cost of greenhouse gas control and carbon sequestration from coal-fired emissions is \$371 million annually.

The Path Forward

The study favours scenario three, which is a combination of refurbishing the nuclear plants and building new natural gas plants to replace coal-fired electricity. The total cost for Ontario would be \$1.9 billion per year, a net benefit of \$2.4 billion when compared to coal .

Producing power from a mix of refurbished nuclear and natural gas sources could reduce the cost of health damages by \$2.7 billion or 88 percent, the study finds. This mix of refurbished nuclear and natural gas sources could also avoid environmental damages of \$323 million per year. No other scenario can match this performance.

The provincial government has announced a number of new projects to meet Ontario's electricity needs, while improving the air Ontarians breathe by actively pursuing a diverse range of electricity generation. The projects include refurbishing nuclear plants, increasing natural gas and renewable generation capacity, developing cleaner, greener, conservation programs and seeking contracts to import hydroelectric generation from other provinces.

The study released today was undertaken by a team of experts in emissions modeling and cost-benefit analysis including, DSS Management Consultants Inc., RWDI Air Inc. and Peter Victor, Professor and the former Dean in the Faculty of Environmental Studies at York University.

The complete study is available on the Ministry of Energy's website at www.energy.gov.on.ca/english/pdf/electricity/coal_cost_benefit_analysis_april2005.pdf

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Attachment E

BIO SKETCH Kristen Welker-Hood, DSc, MSN, RN.

Dr. Welker-Hood, a nurse and environmental health scientist, joined PSR in September, 2007. She previously served as Senior Policy Fellow in the Center for Occupational and Environmental Health of the American Nurses Association, where her work focused on nursing exposures to hazardous chemicals in the acute care setting. She holds a BS in Nursing from the State University of New York in Binghamton, an MS in Nursing from Johns Hopkins University, and a Doctorate in Environmental Health Science from Boston University School of Public Health. From 2003 to 2006 Dr. Welker-Hood served on the faculty of the University of Texas Medical Branch (UTMB) School of Nursing in Galveston. Her clinical experience has been in oncology and pediatric public health. Dr. Welker-Hood's environmental research has focused on indoor air pollution, and she is an expert on community-based participatory research. Her recent publications include *Global Climate Change and the Nurses Role* in *American Nurses Today* and *Regulatory, Institutional and Market-Based Approaches Towards Achieving Comprehensive Chemical Policy Reform* in *Online Journal of Issues in Nursing*.

Attachment F

Closing Coal-fired Power Plants Improves Cognitive Development Of Children, New Study Suggests

<http://www.sciencedaily.com/releases/2008/07/080714151525.htm>

ScienceDaily (July 15, 2008) — Closing coal-fired power plants can have a direct, positive impact on children's cognitive development and health according to a study released by the Columbia Center for Children's Environmental Health (CCCEH) at Columbia University's Mailman School of Public Health. The study allowed researchers to track and compare the development of two groups of children born in Tongliang, a city in China's Chongqing Municipality -- one in utero while a coal-fired power plant was operating in the city and one in utero after the Chinese government had closed the plant.

Among the first group of children, prenatal exposure to coal-burning emissions was associated with significantly lower average developmental scores and reduced motor development at age two. In the second unexposed group, these adverse effects were no longer observed; and the frequency of delayed motor developmental was significantly reduced. The study findings are published in the July 14th Environmental Health Perspectives.

"This study provides direct evidence that governmental action to eliminate polluting coal-burning sources benefits children's neurodevelopment," said Frederica Perera, DrPH, professor of Environmental Health Sciences at the Mailman School of Public Health, director of the Columbia Center for Children's Environmental Health, and lead author of the study. "These findings have major implications for environmental health and energy policy as they demonstrate that reduction in dependence on coal for energy can have a measurable positive impact on children's development and health -- in China and elsewhere."

To conduct the study, researchers from CCCEH partnered with physicians and scientists from the Children's Hospital of Chongqing Medical University, the School of Public Health at Fudan University in Shanghai, and the School of Environmental Science and Engineering at Shanghai Jiao Tong University. The researchers followed two successive cohorts of Chinese newborns through age two. Children in both cohorts were born in Tongliang, a city with a coal-fired power plant that operated seasonally until it was shutdown by the government in May 2004. The first cohort involved 107 women whose children were born in 2002, prior to the plant closing. The second involved 110 women whose children were born in 2005, when the coal plant was no longer in operation.

"This is a unique environmental intervention study using molecular techniques to demonstrate the relationship between a cleaner environment and healthier children," added Deliang Tang, MD, DrPh, associate professor of clinical Environmental Health Sciences at the Mailman School, director of the Tongliang Project, and co-author of the study.

Prenatal exposure to plant emissions was measured by a biomarker of polycyclic aromatic hydrocarbon (PAH) exposure in umbilical cord blood. The investigators controlled for exposures to other pollutants, such as tobacco smoke and lead, which might have contributed to neurodevelopment problems.

Children in the first cohort had varying exposure prenatally to PAHs emitted by the coal-fired power plant. This exposure was recorded by monitoring the levels of PAHs in air during the mothers' pregnancies and in measuring a marker of PAH exposure in cord blood-- specifically the levels of PAHs bound to DNA, known as "PAH-DNA adducts". Among these children, the researchers found significant associations between the marker of exposure in cord blood and delayed motor and average development at age two. The second group of children, who were conceived after the closure of the plant, had significantly lower levels of the marker in cord blood and their incidence of delayed motor development was one-third that of the first cohort.

Coal-fired power plants provide the majority of the energy for China's industry, as well as the electricity needs of the U.S. The Chinese government has ordered the closure of older, more polluting coal-fired power plants such as the one in Tongliang.

The study is one of four parallel international cohort studies being conducted by the CCCEH that examine the health effects of exposure of pregnant women and babies to indoor and outdoor air pollutants in urban areas. Additional studies are being conducted in New York City and Krakow, Poland.

The Center's prior research findings have shown that exposure to air pollutants are associated with an increase in risk for developmental delays among children living in New York City. Today's findings contribute to a further understanding of how air pollution impacts child health.

Other investigators on the study include Tin-yu Li, Zhi-jun Zhou, Tao Yuan, Yu-hui Chen, Lirong Qu, Virginia A. Rauh, and Yiguan Zhang.

Attachment G

Autism Risk Linked To Distance From Power Plants, Other Mercury-releasing Sources

<http://www.sciencedaily.com/releases/2008/04/080424120953.htm>

ScienceDaily (Apr. 25, 2008) — How do mercury emissions affect pregnant mothers, the unborn and toddlers? Do the level of emissions impact autism rates? Does it matter whether a mercury-emitting source is 10 miles away from families versus 20 miles? Is the risk of autism greater for children who live closer to the pollution source?

A newly published study of Texas school district data and industrial mercury-release data, conducted by researchers at The University of Texas Health Science Center at San Antonio, indeed shows a statistically significant link between pounds of industrial release of mercury and increased autism rates. It also shows—for the first time in scientific literature—a statistically significant association between autism risk and distance from the mercury source.

“This is not a definitive study, but just one more that furthers the association between environmental mercury and autism,” said lead author Raymond F. Palmer, Ph.D., associate professor of family and community medicine at the UT Health Science Center San Antonio. The article is in the journal *Health & Place*.

Dr. Palmer, Stephen Blanchard, Ph.D., of Our Lady of the Lake University in San Antonio and Robert Wood of the UT Health Science Center found that community autism prevalence is reduced by 1 percent to 2 percent with each 10 miles of distance from the pollution source.

“This study was not designed to understand which individuals in the population are at risk due to mercury exposure,” Dr. Palmer said. “However, it does suggest generally that there is greater autism risk closer to the polluting source.”

The study should encourage further investigations designed to determine the multiple routes of mercury exposure. “The effects of persistent, low-dose exposure to mercury pollution, in addition to fish consumption, deserve attention,” Dr. Palmer said. “Ultimately, we will want to know who in the general population is at greatest risk based on genetic susceptibilities such as subtle deficits in the ability to detoxify heavy metals.”

The new study findings are consistent with a host of other studies that confirm higher amounts of mercury in plants, animals and humans the closer they are to the pollution source. The price on children may be the highest.

“We suspect low-dose exposures to various environmental toxicants, including mercury, that occur during critical windows of neural development among genetically susceptible children may increase the risk for developmental disorders such as autism,” the authors wrote.

Study highlights

Mercury-release data examined were from 39 coal-fired power plants and 56 industrial facilities in Texas.

- Autism rates examined were from 1,040 Texas school districts.
- For every 1,000 pounds of mercury released by all industrial sources in Texas into the environment in 1998, there was a corresponding 2.6 percent increase in autism rates in the Texas school districts in 2002.
- For every 1,000 pounds of mercury released by Texas power plants in 1998, there was a corresponding 3.7 percent increase in autism rates in Texas school districts in 2002.
- Autism prevalence diminished 1 percent to 2 percent for every 10 miles from the source.
- Mercury exposure through fish consumption is well documented, but very little is known about exposure routes through air and ground water.
- There is evidence that children and other developing organisms are more susceptible to neurobiological effects of mercury.

Implications

“We need to be concerned about global mercury emissions since a substantial proportion of mercury releases are spread around the world by long-range air and ocean currents,” Dr. Palmer said. “Steps for controlling and eliminating mercury pollution on a worldwide basis may be advantageous. This entails greener, non-mercury-polluting technologies.”

The U.S. Environmental Protection Agency (EPA) estimated environmental mercury releases at 158 million tons annually nationwide in the late 1990s, the time period studied by the Texas team. Most exposures were said to come from coal-fired utility plants (33 percent of exposures), municipal/medical waste incinerators (29 percent) and commercial/industrial boilers (18 percent). Cement plants also release mercury. With the enactment of clean air legislation and other measures, mercury deposition into the environment is decreasing slightly.

Limitations

Dr. Palmer and his colleagues pointed out the study did not reflect the true community prevalence rates of autism because children younger than school age are not counted in the Texas Education Agency data system. The 1:500 autism rates in the study are lower than the 1:150 autism rates in recent reports of the U.S. Centers for Disease Control and Prevention.

Furthermore, the authors note that distance was not calculated from individual homes to the pollution source but from central points in school districts that varied widely in area.

Data sources

Data for environmentally released mercury were from the United States Environmental Protection Agency Toxics Release Inventory. Data for releases by coal-fired power plants came from the same inventory and from the Texas Commission for Environmental Quality. Data for school district autism came from the Texas Education Agency.

Journal reference: Palmer, R.F., et al., Proximity to point sources of environmental mercury release as a predictor of autism prevalence. *Health & Place* (2008), doi:10.1016/j.healthplace.2008.02.001.

Adapted from materials provided by University of Texas Health Science Center at San Antonio.

Attachment H

Times Union (Albany, N.Y.)
October 26, 2008

Fly ash: Culprit at Lafarge? Residue of coal-burning is being examined as possible source of mercury pollution

By Brian Nearing, Staff Writer

COEYMANS -- It's possibly the biggest environmental mystery in the Hudson Valley: Why does the smokestack at the Lafarge cement plant release more toxic mercury than any other place in the state? A suspect getting a closer look is coal fly ash, a fine gray powder residue of distilled pollution produced by coal-fired electric power plants and used in cement-making around the nation.

If you've never heard of fly ash, there's a simple yet disturbing reason: **For almost 20 years, state and federal regulators have treated the substance as if it is less hazardous than household garbage.**

Now, experts suggest that an **unintended consequence of a clean air push through stricter mercury rules at power plants makes ash more dangerous by concentrating heavy metals such as mercury**, a potent neurotoxin that causes developmental problems in children and fetuses.

Considered "**recycled air pollution control residue**" by the U.S. Environmental Protection Agency, fly ash becomes airborne as coal is burned and would sail out of smokestacks if not trapped by modern pollution controls. Nearly two decades after relaxing rules on ash use by cement plants, New York officials appear poised to tighten up. Tests sparked by high mercury readings in 2003 from Lafarge's high-temperature cement kiln on Route 9W started this summer; results are due by the end of the year.

Other states also are giving ash a closer look. Officials in **Maryland** and **Virginia** are eyeing disposal rules after **groundwater was polluted by buried ash.** Outside of Norfolk, Va., wells for homes around a **golf course built atop some 3 million tons of ash were tainted with boron -- a toxic heavy metal linked to low birth weight.**

Industry favored?

Environmentalists charge EPA resisted mercury rules on existing cement kilns so power plants keep key customers for an increasing stream of ash. **Plant owners save money by shipping ash -- sometimes free of charge -- to cement companies that want it rather than paying to dump ash in landfills.**

"The feds don't want to step on the toes of the power industry, who are more powerful than they are," said Jeffrey Stant, executive director of the Indiana-based Hoosier Environmental Council and a consultant with the Clean Air Task Force, a Boston nonprofit.

Ash use in cement kilns nationwide skyrocketed this decade, from about 1 million tons in 2001 to more than 4 million tons in 2006, according to industry figures.

This year, EPA acknowledged seriously underestimating mercury pollution from cement plants, projecting that kilns produce about 23,000 pounds of mercury -- nearly double the 12,000-pound agency estimate issued in 2006.

"Everyone has seen the **mercury going up in fly ash**," said Tom Gentile, chief of the air toxics center at the state Department of Environmental Conservation. "It is part of the technology to clean up coal. The metals are dropping out in the ash. We realize that we are concentrating these metals to a greater degree than ever before."

EPA has noticed. **A 2007 agency study found that mercury content in ash had jumped by up to 850 percent as power plants met tougher federal mercury rules.**

Eight years after a federal court ordered EPA to create mercury rules for cement plants, the agency expects to issue proposals this spring, according to spokeswoman Cathy Milbourn. EPA has demanded ash mercury content tests from Lafarge and 88 other plants of the 150 nationwide.

Ash into cement

To make cement, Lafarge blends ash with water, ground limestone, bauxite and iron ore. Called slurry, the mix is heated in a kiln to nearly 2,700° to make "clinker," which is then ground into cement. Fly ash contains alumina and silica, which strengthen cement, and is a much cheaper alternative to ingredients like shale or clay.

Lafarge uses between 30,000 and 60,000 tons of ash a year, according to a prepared statement from company officials. Ash comes from the Danskammer plant in Newburgh, the Mt. Tom plant in Holyoke, Mass., and the Hudson Generating Station in Jersey City, N.J. "Lafarge relies on the expertise of the DEC and will continue to work cooperatively with them as we share information about the ongoing voluntary mercury study," wrote John Reagan, environmental manager for the Coeymans plant.

Waste to commodity

The federal push to reclassify fly ash from waste into a reusable material started during the Reagan administration. In 1983, EPA adopted rules favoring cement made with fly ash, and in 1988 it reported that ash was not hazardous. **In 1993, the agency exempted ash from hazardous waste regulations.**

Nationwide, power plants produced nearly 72 million tons of fly ash in 2006, a 50 percent increase since 1993, according to the American Coal Ash Association, an industry trade group.

In New York, a dozen power plants created about 1.4 million tons of ash between 2005 and 2007, according to DEC records. About 900,000 tons were reused in New York and other states, although it could not be determined how much went into cement.

Into the air

The mercury that's floated out of Lafarge each year is equivalent to the state's four largest coal-fired power plants. Between 2003 and 2006, annual emissions totalled between 380 and 400 pounds, according to EPA's annual Toxic Release Inventory.

Ash has been used at the Coeymans plant (one of the state's three cement plants) since at least 1991, when the plant was owned by Blue Circle Cement, according to a Times Union review of DEC records.

"We have no way of knowing how much fly ash may have been used at the plant over the years. There has been no testing of ash on an ongoing basis," said Thomas Lynch, supervisor of the DEC's Beneficial Use and Special Projects Section, whose office is overseeing this summer's pollution tests at Lafarge.

Lynch also said the state, which is considering renewal of Lafarge's air pollution permit, is preparing changes to its 1993 ash rules to require mercury testing and reporting by cement plants. In a cement kiln, mercury and other metals in fly ash volatilize at high temperatures, transforming metal into vapor that attaches to particles which rise out of the stack, said David Carpenter, director of the Institute of Health and the Environment at the University at Albany.

Mercury that falls into water converts into methyl mercury, which is consumed by aquatic life and concentrated up the food chain. Just one-70th of a teaspoon of mercury will contaminate a 25-acre lake, making the fish in it unsafe to eat, according to a 1991 study published in Science News.

Carpenter said mercury isn't the only concern in fly ash. Modern pollution controls at power plants are also capturing more carcinogens such as chromium and arsenic, and other "nasty metals" such as thallium, which Carpenter called "terribly dangerous."

Brian Nearing can be reached at 454-5094 or by email at bnearing@timesunion.com

Attachment I

THE WALL STREET JOURNAL

- WSJ.com
- NOVEMBER 7, 2008

Oil Supplies Will Tighten And Prices Jump, IEA Warns

By **NEIL KING JR.** and **SPENCER SWARTZ**

(See Correction & Amplification [below](#).)

The world faces mounting uncertainty and escalating costs on the energy front in the years ahead, as companies scramble to find new pockets of oil and squeeze more production from aging fields, the International Energy Agency says in a largely gloomy annual report.

More investment will be needed in oil exploration, production and power generation, the IEA says in a report released on Thursday. Above: Alberta, Canada, has large oil-sands reserves.

The agency says the recent slump in oil prices won't last and "current global trends in energy supply and consumption are patently unsustainable."

The report comes as the global economic downturn continues to shove down oil prices, which hit a high of \$147 in July. On Thursday on the New York Mercantile Exchange, U.S. benchmark crude closed down \$4.53, or 6.9%, at \$60.77 -- its lowest close since March 2007.

In its report, the Paris-based agency looks beyond the current economic slump to predict that oil supplies will grow tight again as soon as world energy demand picks back up. Oil prices could top \$200 a barrel by 2030, the agency concludes. The IEA represents the interests of consuming nations and often paints a relatively bearish picture of supply.

To keep abreast of rising energy demand and decrepit infrastructure, companies will have to invest over \$26 trillion between now and 2030, with over half of that going to increased power generation and distribution. Most of the rest of the investment will go to exploring and developing new sources of oil, which will remain the world's primary energy source for decades.

Rising demand and production declines in existing fields will require oil companies to add 64 million barrels a day in capacity over the next 22 years, more than six times Saudi Arabia's current production. Nearly half of that will be needed in the next eight years, the report warns.

The agency notes signs of chronic and widespread underinvestment in the oil sector. To keep abreast of natural declines and to bring on new supplies, companies will have to spend \$350 billion a year on new oil and gas projects through 2030. By comparison, the industry spent a total of \$390 billion from 2000 to 2007, the report says.

The current economic environment, meanwhile, is leading to delays or outright cancellations of investments meant to add significant new supplies of oil as well as refined products.

The agency on Thursday released a 15-page summary of its hefty annual study, the rest of which will come out next week. The study focuses on a detailed analysis of production rates and reserves within 800 oil fields around the world.

The world's oil challenge is compounded by the fact that so many of the principal oil fields are getting older and less productive, particularly in nations outside the Organization of Petroleum Exporting Countries, such as Mexico, Norway and Russia. Output from most non-OPEC nations has either topped out already or will do so over the next two decades, the agency said.

The rate at which production from existing oil fields is falling is accelerating as they age, the agency said. Although decline rates vary according to the size and age of the field, the average annual decline rate world-wide is 6.7% for fields past peak production, a figure that could rise to 8.6% by 2030. That means companies must spend more just to keep production from falling.

Falling output in countries outside OPEC means the big producers such as Saudi Arabia, Iran and Iraq will assume an ever-larger portion of world supply.

The agency strikes a more optimistic note on the renewable-energy front, saying electricity powered by sources such as wind, solar and geothermal will grow by over 7% a year. Renewable electricity generation, beyond hydropower, will amount to just 4% of the world total by 2030, up from 1% in 2006. Energy experts say the U.S., Europe and Japan will likely never use more oil than they did last year. All projected increases in oil demand will come from the developing world, mainly China, India and the Middle East.

Write to Neil King Jr. at neil.king@wsj.com and Spencer Swartz at spencer.swartz@dowjones.com

Correction & Amplification

International oil companies in recent years have invested around \$320 billion a year on upstream oil exploration and development. This article incorrectly states that the industry spent a total of \$390 billion from 2000 to 2007.