From: Christine Ziebold <cziebold@ih.org>
To: MonticelloEIS MonticelloEIS <MonticelloEIS@nrc.gov>
Date: Tue, Aug 2, 2005 8:19 PM
Subject: Monticello EIS comments

6/2/05
70FR32381
(16)

Dear Ms Davis,
Please find my comments in the attachment.
Sincerely,

Christine Ziebold
3232 Bryant Ave S
Minneapolis MN 55408

SISP Review Complete
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Add = S. Lee (SSL1)
J. DAVIS (JXD10)

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Comments for the U.S. Nuclear Regulatory Commission re the Environmental Impact Statement for License Renewal Application, Monticello Nuclear Generating Plant

Submitted by Christine Ziebold, MD PhD MPH, Minneapolis MN

General comments:
The Nuclear Regulatory Commission's (NRC) relicensing process has dramatically deteriorated over the past decade.

a. NRC needs to clearly communicate, best establish a SEARCHABLE website, indexed on major search engines regarding Monticello. NRC's EIS scoping is a non-transparent process, EXTREMELY poorly communicated through the media. The search engine on NRC's website will not retrieve the website for Monticello on the first 20 hits, and neither will Google. If NRC wants to enjoy any credibility for its "seeking public involvement" it needs to fix this problem. I learned more about it on EPA's website than through NRC's portal. The ADAMS reading room is a book with seven seals even for the inaugurated and that includes NRC employees. In a telephone conversation with Jennifer Davis, NRC contact for Monticello on 8/1/05 at 3pm CST I learned that NRC has a generic EIS for all nuclear plants and that "2/3 of the issues contained therein won't be revisited". Even if true, this was not a great motivation to submit comment. This generic EIS however is NOT posted under "Documents Available for Comment" [1] which is the hyperlink provided for Public Involvement on NRC's Monticello website, which I only found today. [2] I learned that the Monticello-specific EIS is not drafted yet, but will be published 2/2006, and that NRC wishes to receive public comments about what *new information* NRC should consider for this EIS. A response to this desire clearly is *not* reflected in the 8 comments from residents of Monticello, which are posted on ADAMS at the time of this writing; All residents' comments ask for relicensure given their experienced beneficial socioeconomic impact, without even mentioning the scoping of the environmental impact statement. Obviously, I was not the only one confused.
b. NRC needs to honestly relate information about realistic health and environmental concerns due to the routine release of fission products to air, water and land and the unsolved long term storage situation, aside from issues due to catastrophic events. The NRC EIS scoping process as is and NRC communications in general keep the public *at large* uninformed. In my experience NRC meetings are tightly controlled and orchestrated. NRC's public relations have replaced solid information or even public health education. The process is virtually exclusive of the public *at large.*
c. I kindly request that NRC hold another EIS scoping meeting in the Twin Cities ASAP. The Monticello meeting on June 30, 2005 serves as a case in point. The public meeting (which really was one, not two as stated in the NRC press release, even though there might have been two basically back to back sessions within the same 12 hours) took place at the virtual exclusion of Twin Cities stakeholders, due to its location at Monticello and its timing. Twin Cities residents are stakeholders too, since a catastrophic event would affect a disproportionately larger number of us.

Specific comments:
I will limit my comments to the area of my expertise and the fact that environmental and health & safety issues are only within the federal jurisdiction and not the state's.

1. The EIS needs to acknowledge that there is no safe threshold for radiation exposure
2. The EIS needs to accurately reflect actual radiation exposure.

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[1] http://www.nrc.gov/reactors/operating/licensing/renewal/public-involvement.html#comment
[2] http://www.nrc.gov/reactors/operating/licensing/renewal/applications/monticello.html#public

3. The EIS needs to accurately estimate radiation-induced health risks in the general population
4. The EIS needs to account for differential effect on sensitive populations.
5. The EIS needs to detail how NRC is procuring safety and security at Monticello
6. The EIS needs to consider the socioeconomic impacts of license renewal
7. The EIS needs to detail effects on water quantity and quality
8. The EIS needs to quantify Monticello's effects on air quality
9. The EIS needs to present an accurate energy alternatives analysis

Ad 1: **The EIS needs to acknowledge that there is no safe threshold for radiation exposure.** The widely acknowledged absence of a "safe" threshold for radiation exposure should provide a strong reason for NRC not to renew Xcel Energy's reactor license. Its routine operations cause radioactive pollution. "The fact that humans cannot escape exposure to ionizing radiation from various natural sources, is no reason to let human activities increase the exposure."[3]

Ad 2: **The EIS needs to accurately reflect actual radiation exposure.**

a) The EIS needs to consider the so-called "routine radioactive releases" for Monticello specifically. During Monticello's operation radioactivity is both continuously emitted and periodically batch-released to air and water. It is unclear in what quantities, and how often. These data should be presented in concise table format for the past two decades of operation. Dilution with large volumes of station circulating water into reservoirs, rivers and lakes makes the releases "disappear". This is *not* "natural background" radiation.

b) The EIS needs to consider that NRC does not tightly regulate radioactive releases. NRC only asks Xcel Energy to "make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as low as reasonably achievable" (ALARA, 10 CFR 20). This is unacceptably vague and not considered a standard procedure for health risk limit settings in regulatory toxicology.

c) The EIS needs to consider, and if none is available or found, fund the collection of up-to-date, in vivo radiation exposure data. NRC's generic EIS at 4.6.2 "Public Radiation Doses" presents unacceptably outdated, crudely modeled and ultimately uninformative data of "maximally exposed individuals" from 1985-87[4]. NRC's so-called "latest" report, Population Dose Commitments Due to Radioactive Releases from Nuclear Power Plant Sites (1989), is 16 years old. None of the data are actual in-vivo measurements.

d) The EIS must not exclusively rely on projections of radiation exposures. NRC needs to review the population density around the plant. NRC need to review and reference *recent* health studies that would confirm any low cancer incidence it assumes in the generic EIS.

e) The EIS for Monticello needs to use a dose commitment that integrates radiation dose over time. NRC calculates radiation exposure only for the year of radiation release. In contrast, most European nations use a dose commitment that integrates dose over time, rather than only a one-time release. This non-dynamic modeling is akin to determining the cost of a loan merely on the basis of the principal.

b) The EIS needs to consider the effects and costs of long-term exposures by several radionuclides including tritium. While most radionuclides emitted from Monticellos' nuclear power reactor are relatively short-lived, there are some with long half-lives (like C14), and some with infinitely long half lives (Ur238, 4.5 billion years) that can deliver

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[3] Dr. John Gofman, Professor Emeritus of Molecular and Cell Biology, University of California, Berkeley

[4] http://www.nrc.gov/reading-rm/doc collections/nuregs/staff/sr1437/v1/part04.html#_1_111

harmful exposures for months, years, thousands and millions of years. Despite of its relatively short half-life (12 y) tritium is of high concern. It is a highly mobile radionuclide moving anywhere hydrogen does. While it is a relatively weak beta emitter, humans can inhale, ingest and absorb tritiated water and food, where it becomes an internal hazard, irradiating the tissue. Tritium can bioaccumulate through the aquatic foodchain. However, NRC 's generic EIS at 4.6.1.1 (Radionuclide Deposition) argues on the one hand that Tritium is not known to build up, but admits on the other hand that buildup is not explicitly accounted for in the aquatic food pathway. NRC 's tritium release limits remain lax, despite animal, human cell and DNA studies indicating its toxicity. Paragraph 4.6.1 on public exposure falls woefully short on what needs to be considered at Monticello, and seems more intent to deliver assurances than science based information.

f) The EIS needs to consider physiological or ecological interactions that would mitigate exposures. Radionuclides can unite with carbon in the human body, plants, or animals. Even though Tritium passes through the human body in 12 days, some becomes organically bound and can remain in a person for much longer (450 to 650 days). One study even found traces of tritium in the body 10 years after exposure. Similar processes happen in the natural environment: As released radioactive gases decay, some form particulate and join other persistent radioactive isotopes released as fallout. Long-lived isotopes persist, accumulate and "bio-magnify" in biota through the food chain.

g) The EIS needs to consider indefinite radioactive waste storage at Monticello. Highly radioactive nuclear waste at Monticello will need to be isolated from the environment for thousands of years with the ever-present possibility of contamination and fatalities without there being long-term U.S. nuclear waste repository.

Ad 3) **The EIS needs to accurately estimate radiation-induced health risks in the general population both at Monticello and the larger region**

NRC needs to include emerging evidence on health effects in its EIS. More specifically the 1992 Energy Policy Act requires EPA to set public health and safety standards "based upon and consistent with" the recommendations of the National Academy of Sciences. NAS just published their latest report on radiation risk in June 2005 (BEIR VII report). Sixty years after Hiroshima, the full scope of effects of radiation on human beings is still incompletely understood, but progress has been made in the past 10 years since writing of NRC s generic EIS. The uncertainty of the true scope of radiation related health and environmental impacts from continued or expanded storage of dry casks at Monticello needs to be weighed in by erring on the side of caution in the specific EIS. The EIS needs to consider that NRC's radiation protection standards are not protective of the majority of the US population.

a)The EIS needs to consider that cancer risks from radiation exposure are higher than previously estimated. The BEIR VII report is an improvement in so far as it estimates cancer incidence and mortality according to age of exposure, gender and by cancer type. The average risks to the population are estimated to be 10-15 % higher than the reference value currently used for radiation protection of the general population (565 cancer fatalities per million rem exposure in BEIR VII compared to 500).

b) The EIS needs to consider non-cancer health risks. Newly emerging evidence points to the fact that radiation can cause a spectrum of effects, such as reproductive and cognitive impairment. We now know that certain life stages and situations exist, when exposure to both radiation and hormonally-active compounds pose an increased risk to human health. As the BEIR VII report does not touch on publications after 2000, it is likely still underestimating the true health impact. See below.

c)The EIS needs to show how NRC intends to monitor for health effects in the general population. The EIS needs to specify how NRC would achieve the monitoring rather than

relying on projections assisted by third parties with significant interest in a downplaying of effects. In the absence of other tracking systems in Minnesota this should include at a minimum an annual review of data from the state's cancer surveillance and birth defect registry, and the specification as to who would pay for the monitoring of health effects.

Ad 4: **The EIS needs to account for sensitive subpopulations.**
NRC models still use a hypothetical 154-lb. adult white male for dosimetric modeling and protection standard setting. This does not take sensitive or divergent populations into account, such as

a) women
b) infants and children
c) the unborn
d) the elderly
e) immunocompromised

ad a) The EIS needs to account for women's increased vulnerability. Women's critical organ doses and effective doses (as defined in International Commission on Radiological Protection 60) are about 25% higher than for men. Women's gonad doses may even be as much as factors of 10-30 higher than in men.[5] The risk for women to contract solid tumors like lung, breast, kidney, and liver cancer due to radiation exposure is about double those for men. The cancer mortality risks for females are 38% higher. Only for a few cancers, including leukemia, the risk estimates for men are higher[6].
The special hormonal status of females increases cancer risk from exposure to ionizing radiation. Pregnant women appear to have an increased risk of cancer. Furthermore, research in both humans and animals has shown that interactions between hormonally-active chemicals and ionizing radiation may increase some types of cancer. For instance, low doses of neutrons were more effective in inducing breast cancer in female rats in combination with prolactin than without it[7]. Hence radiation during pregnancy, when prolactin is increased is adding to the cancer risk.
Ad b) The EIS needs to account for infants and children's increased vulnerability. Current NRC standards and models do not consider newborn's special vulnerability to radiation. Many radionuclides are excreted in breast milk, providing a special exposure pathway for infants. The brain continues to develop during the first 2 years of life. Numerous studies show that ionizing radiation can impair the developing human brain and affect cognitive processes. Further evidence is from children treated for leukemia or brain tumors, although confounding factors cloud the issue somewhat. A recent study from Sweden examined 3000 men who received irradiation for a skin problem as young children. It clearly demonstrated a significant dose-response relationship for all cognitive tests at doses equivalent to those from computed tomography of the skull [8]. IQ loss is a lifelong health effect. Several longitudinal birth cohort studies have shown that optimal brain development in utero and in the first years of life are a determinant for how well cognitive

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[5] Health concerns related to radiation exposure of the female nuclear medicine patient. Environ Health Perspect. 1997 Dec;105 Suppl 6:1403-9.
[6] BEIR VII report prepublication copy, Table ES-1 on page 28
http://books.nap.edu/books/030909156X/html/28.html
[7] Kenjiro Yokoro, Toshio Seyama, and Kazuyoshi Yanagihara, "Experimental Radiation Carcinogenesis in Rodents" in Cancer in Atomic Bomb Survivors, edited by Itsuzo Shigematsu and Abraham Kagan, GANN Monograph on Cancer Research ; 32 (Tokyo: Japan Scientific Societies Press: New York: Plenum, 1986), pp. 89-112.
[8] Hall P, Adami HO, Trichopoulos D, Pedersen NL, Lagiou P, Ekbom A, Ingvar M, Lundell M, Granath F. Effect of low doses of ionising radiation in infancy on cognitive function in adulthood: Swedish population based cohort study. BMJ. 2004 Jan 3;328(7430):19.

abilities are preserved in old age. In other words brain development impaired through radiation exposure during infancy and early childhood predicts cognitive decline in old age. Therefore costs from this health effect accrue over a long time.
The risk for children to contract radiation-induced cancer is high, even higher than for women. For instance, the same radiation in the first year of life for boys produces 3-4 times the cancer risk as exposure between age 20 and 50. Female infants have almost double the risk as male infants[9]. A study in the August 2003 issue of the Archives of Environmental Health showed that children growing up in regions with nuclear power plants develop cancer twice as frequently as controls/ the national average. Milk teeth from the 47 cancer-stricken children contained higher levels of Sr-90.
Radiation induced child health effects that need to be considered in the EIS are not merely loss of life and cancer, like leukemia later in life, but also chronic health conditions, such as an increased chance of birth defects, impaired fertility or IQ loss. The societal impacts and costs due to lost earning potential and mental retardation deserve NRC's special consideration. Unfortunately NRC de facto ignores the risk of low dose radiation in its protection standards.

Ad c) The EIS needs to account for the increased vulnerability of the developing fetus. Since the bombing of Hiroshima and Nagasaki it is well known that the unborn child is very sensitive to the effects of radiation. One reason is that the cells of the embryo are rapidly dividing and growing into specialized cells and tissues. This is accomplished through a complicated orchestration of high-level hormonal activity. A growing body of literature informs on synergism between hormonally-active compounds and radiation. The hypothalamo–pituitary axis is a major regulator for endocrine activities, which are increasingly impacted by ubiquitous endocrine disrupting chemicals. There is general support for the view that development and programming of this axis during fetal life is the most sensitive window to permanently alter the homeostatic mechanisms of the endocrine system, including the mature reproductive system [10]. Prenatal radiation exposures clearly are causes of endocrine-related cancers or susceptibility thereto. Low doses of X-rays to the fetus, especially during the last trimester, cause an increased risk of leukemia and all other types of cancer during childhood [11]. Even use of therapeutic X ray of infants is associated with thyroid and breast cancer later in life[12]. It is my understanding that current models to calculate internal radiation doses do not permit adequate modeling of the dose to individual organs within the fetus, even though this would obviously be quite important for safety assessments. Very few authors have attempted to make such individual organ dose estimates [13][14][15]. However, with each additional study it is becoming clearer that placental transfer and fetal dose estimates have

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[9] BEIR VII prepublication copy of the report, Table 12 D-1 and D-2, on pages 550-551 starting at http://books.nap.edu/books/030909156X/html/550.html
[10] IPCS 2002, Global Assessment of the State-of-the-Science of Endocrine Disruptors. http://ehp.niehs.nih.gov/who/preface.pdf.Eds T Damstra, S Barlow, A Bergman, R Kavlock & G Van Der Kraak.
[11] Doll R, Wakeford R. 1997. Risk of childhood cancer from fetal irradiation. Br J Radiol 70:130-139.
[12] Boice JD Jr, Miller RW. 1999. Childhood and adult cancer after intrauterine exposure to ionizing radiation. Teratology 59:227-233.
[13] Watson EE. Radiation Absorbed Dose to the Human Fetal Thyroid. In: Fifth International Radiopharmaceutical Dosimetry Symposium. Oak Ridge, Tennessee: Oak Ridge Associated Universities, 1992: 179-187.
[14] Stabin MG, Stubbs JB, Russell JR. Review of the fetal radiation doses received from 59Fe studies at Vanderbilt University in the 1940's. Health Phys 72(5):1-7, 1997.
[15] Stabin MG. Proposed addendum to previously published fetal dose estimate tables for 18F-FDG. J Nucl Med. 2004 Apr;45(4):634-5.

historically been underestimated. For example, the fetus is cradled above and behind the mother's bladder, which concentrates radionnuclides and can provide additional radiation exposure, a source previously discounted.
Despite available evidence the quantification of the unborn child's health risks from exposure of parents to radiation is a task that NAS still has to tackle.[16] Yet, NRC cannot afford to wait another 15 years fort the next NAS report. NRC needs to err on the side of caution and consider birth defects, intellectual and reproductive impairment as radiation related health effect in its impact analysis.
Ad d) The EIS needs to account for the increased vulnerability of the elderly. Older age radiation exposures are associated with higher cancer mortality.
Ad e) The EIS needs to account for the increased vulnerability of the immunocompromised. Radiation-induced cell damages are less likely to be repaired by a person with an incompetent immune system.as can be gleaned from the secondary cancer rate in cancer survivors after radiation therapy The number of people whose immune system is compromised is rapidly increasing in our region due to immunosuppressive medical treatments and increased survival of people with infections and congenital immune deficiencies.

Ad 5) The EIS needs to show how NRC procures for safety and security at the Monticello plant

a) The EIS will need to address emergency preparedness: The generic NRC EIS does not address the issue under 4.7.3.3 Public Safety. To this date there are no NRC regulations requiring nuclear plants to prepare for an attack by aircraft, boat, or truck. [17]. The EIS needs to show how adequate emergency preparedness training would be performed, by whom and who would pay for it.
b) The EIS needs to consider transportation accidents involving nuclear material.
c) The EIS needs to address security planning and oversight with more transparency, not less[18]: NRC recently found significant weaknesses in more than half of the nuclear facilities it evaluated under its "Operational Safeguards Response Evaluation program". The United States General Accounting Office Report to Congress from September 2003 was aptly titled "NRC Oversight of Security at Commercial Nuclear Power Plants Needs to Be Strengthened". This is especially important at Monticello, since NRC recently relinquished oversight of security at Monticello: It allowed Wackenhut Corp. which guards the reactor, to test itself at the site. [19]
d) The EIS needs to show the intent of a strengthened inspection program: NRC almost never conducts unannounced inspections for safety and security problems. NRC regularly minimizes the significance of problems it finds in its annual inspections of the Monticello Plant by classifying them as so-called "non-cited violations". This means Xcel Energy is not required to respond in writing and NRC inspectors don't have to verify that the problem has been corrected.

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[16] BEIR VII prepublication copy page 20,, accessed 7/29/05 at http://books.nap.edu/openbook/030909156X/html/20.html
[17] Jane Wells, "Are Nuclear Plants Safe From Attack?" CNBC, http://msnbc.msn.com/id/3072967/, accessed 8/1/05
[18] NRC Modifies Availability of Security Information for All Nuclear Plants," NRC News Release, August 4, 2004; www.nrc. gov/reading-rm/doc-collections/news/2004/04-091.html
[19] Dave Lochbaum, Union of Concerned Scientists, in Leading Nuke Watchdogs: New US Nuclear Security Plan May Harm, Not Help Security ; http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/reactor_safety/articles.cfm?ID=12526 >

e) The EIS needs to calculate the impact of an armed attack. Guards at commercial nuclear power plants are prohibited by federal law to bear and use automatic weapons, although terrorists are likely to have them.

f) The EIS needs to consider the minimal deterrence effect of present lenient punishment for security violations: The maximum prison sentence for causing the death of a U.S. worker by willfully violating federal safety regulations is only 6 months[20] and in no proportion to its potential public health impact. The EIS needs to indicate that NRC will fix this, so that sentences for much smaller violations, like the 12 month-sentence for chasing a wild burro on federal lands does not make this law look out of proportion [21].

Ad 6) The EIS needs to assess the negative socioeconomic impacts on Monticello

a) The EIS should specify Monticello nuclear plant tax payments as the percentage of the total city and county revenue. The data under 4.7.2 Taxes in the generic EIS show tremendous variation and are not helpful (<1 –88%).

b) The EIS should specify how many jobs and how many families depend on the Monticello nuclear plant as the percentage of the total city and county population. This would better illustrate an impact that needs to be explicitly considered, not projected. Dependence on the nuclear plant is a risk factor to the region.

c) The EIS should provide actual details about the change in land use pattern since licensing of the reactor. The generic EIS paragraph 4.7.4 Off-Site Land Use is insufficient in judging whether sprawl with all its negative human and ecosystem health impacts is a result of the plant. The area to the immediate southeast of the reactor is one of the fastest growing communities in Minnesota.

Ad 7) The EIS needs to define the impact on water.

a) The EIS needs to assess in detail how reactor operations impacts water contamination. Since water is the main path of radionuclide dispersal in the event of releases, the EIS must show how many people and jurisdictions, from Monticello to Prairie Island, and further south to Dubuque and beyond are affected by contamination of water supply due to dilution of ongoing releases and in the event of an accident /sabotage. The EIS needs to tabulate concisely how much of which contaminant is estimated to have been released for the past 2 decades of operation. The EIS needs to show water flow rates and respective volumes in which continuous and batch releases have and are expected to occur, and model the effects of these releases, taking into consideration latest scientific evidence (see 3,4,5)- not the references from 10 years ago as in the generic EIS. This modeling should include mitigating factors related to global climate change, such as volatile changes in available water quantity, especially of the Mississippi River. The EIS needs to show how adequate water monitoring would be performed, by whom and who would pay for it.

ad 8) The EIS needs to describe the impact on air quality and green house gas emissions.

a. The specific EIS needs to consider CO_2 production The EIS needs to include data on CO_2 production numbers by the nuclear fuel cycle. (how much has been released should be concisely presented in table format for the past 2 decades of operation). In comparison to renewable energy, energy from nuclear power releases 4-5 times more CO_2 per unit of energy produced[22]. Contrary to the generic EIS and public belief, CO_2 is emitted at every

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[20] *Harper's Magazine,*http://www.harpers.org/20040220-165204984683.

[21] *Harper's Magazine,* http://www.harpers.org/20040220-555730440010.

[22] Bill Dougherty, Tellus Institute, Stockholm. Nuclear Power and Children's Health Conference. Chicago, 15-16 October 2004

stage of the 7 stages of the nuclear fuel cycle: mining uranium milling, conversion, enrichment (90% of CO_2 production), fabrication into fuel rods, reactor operations and finally waste "disposal".

b. The EIS needs to quantify air releases, show how adequate air monitoring would be performed, by whom and who would pay for it. The generic EIS only admits that small amounts of ozone and smaller amounts of oxides of nitrogen are produced by transmission lines (how much should be concisely presented in table format for the past 2 decades of operation).

Ad 9) **The EIS needs to present a fair and accurate alternatives analysis.**

a. The energy alternatives need to be discussed in an impartial manner

The generic EIS has a definite inherent pro-nuclear spin. Could it be because the nuclear power industry has been given more taxpayer dollars for research and development than any other energy sector?[23]

b. The latest scientific evidence needs to be researched and referenced. The references of the generic EIS are testimony that the document is at the minimum 11 years old and largely outdated when it comes to renewable energy literature. The EIS needs to show, for example, that solar power holds tremendous promise in our region now, as there is increased PV efficiency, state governmental support, and PV panel costs continue to decline an average of 5% annually[24]. The argument of land use and solar is incredibly exaggerated, as PV-panels in urban areas are readily mounted on existing buildings. Solar energy has one of the highest job intensities per unit of output of any energy technology, and thus has huge benefits to the local economies that adopt them. In addition to jobs from the contractors that install systems, the Minnesota economy is projected to benefit from an expanding solar energy manufacturing industry including growth in such areas as semiconductors, plastic films, electronic equipment, instrument measuring, switchgear and switchboard apparatus, wiring, storage batteries, sheet metal, and flat glass.

c. The EIS needs to be sensitive to the issue of CO2 reduction

In conclusion: NRC currently gravely underestimates the risk of Monticello's operations to human and ecosystem health, uses outdated non-protective radiation standards, procures no tracking of health effects, provides lax oversight over safety and security, and by delivering a flawed alternatives-analysis seeks to ensure Xcel Energy's continued nuclear power operations.

Sincerely,

Christine Ziebold MD PhD MPH
3232 Bryant Ave S
Minneapolis MN 55408

[23] Data from Energy Efficiency: Budget, Oil Conservation, and Electricity Conservation Issues , CRS Issue Brief for Congress, Fred Sissine, Order Code IB10020, Updated September 22, 2004.
[24] http://www.solarminnesota.org/about/whysolar.asp