ALTERNATIVES ANALYSIS

1. The ALJ failed to recognize that many of the various adjustments to the costs of DG alternatives and renewable alternatives are also applicable to the central station alternative that contains wind that is part of this record. The ALJ applied the various cost adjustments only to DG and the all-renewable option. As explained below, adjustments for wind capacity factor, avoided transmission investment, and production tax credits can and should be applied to Community Based Energy Development (CBED) approach to the “Gas CC + Wind” scenario identified by Dr. Rakow (Table 12, Exh. 45, p. 61).

2. The ALJ misinterpreted Dr. Rakow’s wind capacity factor PVRR adjustments. He interprets Dr. Rakow’s calculation as applying the capacity factors recommended by Mr. Michaud. In fact the analysis done by Dr. Rakow referenced in Finding #83 only adjusted capacity factors to “historical values” of 26% and 36% recommended by Mr. Haase. (Rakow rebuttal, p.17). Mr. Michaud recommended use of
up to 38% for “off ridge” projects and up to 45% for “on the ridge” facilities. (Michaud Rebuttal p.6).

3. The ALJ failed to recognize the meaning of the Department of Commerce new wind resource data, and did not take this into consideration as a cost reduction component for alternatives with wind generation. (83)

The Department used historical data for older types of wind energy technology, to reach its conclusions. This data was derived from historical performance of “small” (less than 2 MW) projects, that are located on and off of the Ridge area that participate in the Minnesota Renewable Energy Production Incentive Program administered by the Department of Commerce. (Exh. 40, p. 11, lines 21-23). It is not reasonable to assume that developers installing hundreds of megawatts of wind systems today, and in the next five years, would invest in older technology. It simply doesn’t make financial sense for anyone to make an investment of this magnitude that doesn’t optimize the return on investment. (Michaud Rebuttal, P.6). Most new developments are utilizing wind turbines that have hub heights of 80 meters to take advantage of greater wind resources (Exh. 40, p. 14, lines 7-9).

4. The ALJ erred by not accepting Exhibits # 54 and # 55. These were accepted twice by the ALJ before finally being rejected as untimely. (Tr. Vol 5, p.23 and p. 40). The Exhibits were not new information but rather a recalculation of Dr. Rakow’s exhibit SRR-3 to his direct testimony incorporating the more likely capacity factors consistent with the new wind resource data and new wind technology. These exhibits show a reduction in PVRR for the 45% capacity factor to be $274 million from the Strategist modeling base of 32% C.F., and $149 million for the 38% C. F. used in the certificate of need methodology for the “Gas CC + Wind” analysis.

5. The ALJ failed to recognize the cost reductions to wind alternatives from the likely renewal of federal production tax credits. The ALJ’s order is silent on this issue. The record contains information that indicates that the probability of renewal of the production tax credit beyond 2007 is just as likely as not. The choice to ignore this significant cost reduction parameter for wind energy is arbitrary and ignores the history of renewal of this tax credit over and over again by the congress. Xcel witness Ms. Engelking indicates that if production tax incentives are included in wind cost calculations that it reduces the costs by 40% (Tr. Vol. 1, p. 28, lines 6 – 10). Exhibits # 54 and # 55 also contain calculations that quantify this cost reduction in PVRR. These exhibits inform the record on this important issue and should have been admitted if only for this purpose. These exhibits show a combined benefit from the production tax credit and the capacity factor increases of $986 million to $1.1 billion PVRR.

6. The Commission specifically ordered Xcel to provide a CBED scenario evaluation at the start of this proceeding. (Exh. 3, p.8, par. 11) There is also a statute requirement to consider CBED projects. (Exh. 32, p. 9, lines 5-14). Governor Pawlenty also created a goal for Minnesota of installing 800 MW nameplate capacity of community based wind energy systems by 2010. (Michaud Direct, p. 9). The PA Group report developed by Xcel
states explicitly that the concept of Community Based distributed technologies was not included in the scope of their analysis (Exh. 19, IR # 11, report p. 1-3). Also, in the Supplement to the Application Xcel admits it did not explicitly include consideration of this concept in its analysis (Exh. 5, p. S-55). The ALJ failed to recognize the need to address this type of development in this record. The ALJ failed to recognize that the “Gas CC + Wind” central station scenario can be implemented by utilizing CBED type wind plants. Given that there are 960 MW of new CBED proposals available to Xcel (Tr. Vol. 4, p. 164, lines 13-16), this is therefore a likely implementation option for the “Gas CC + Wind” scenario.

7. The ALJ failed to recognize that CBED projects are often sized in the same range as “distributed generation” technologies. (Tr. Vol 5, pp. 43-44). Xcel has stated that DG technologies can have additional value if they allow a utility to avoid expenditures on transmission and/or distribution (Exh. 5, p. S.55). Thus these CBED facilities are capable of creating the same savings from avoided transmission and distribution costs as DG facilities. Dr Rakow calculates the value of these T&D savings to be $265 million PVRR. (Exh. 47, p. 12. Line 22).

8. The ALJ incorrectly concluded that consideration of externalities make renewables less advantageous than nuclear power because many renewables generate air emissions or other environmental harms that nuclear power does not. (82). However, many renewable technologies, such as wind do not have air emissions. Also, the requirements in law to consider externalities are not limited to air emissions. Minn. Rules Ch.7855.430, indicates the scope of consideration of externalities is more general than the Commission’s list of air emissions. Also, Minn. Rules Ch. 4410.2300, subp. H, requires consideration of Environmental, economic, employment, and sociological impacts in this proceeding.

9. The ALJ failed to recognize the externality value of economic development associated with CBED scenarios. DOC witness Dr. Rakow states that some externalities can be quantified in economic terms and to the extent they can they should be considered (Tr. Vol. 6, p. 74, line 22 – p. 75, line 4). Dr. Rakow calculates the economic value of CBED to be $121 million PVRR for each 200 MW of CBED projects. (Rakow Rebuttal, p. 28).

10. The cumulative impacts of these ALJ errors and omissions changes the relative ranking of the “Gas + Wind” scenarios as shown in the table below. (The initial excess cost values are taken from Rakow Direct, Tables 5 & 12).

<table>
<thead>
<tr>
<th></th>
<th>Gas/Wind 320 MW</th>
<th>Gas/Wind 600 MW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strategist Modeling</td>
<td>Certificate of Need Modeling</td>
</tr>
<tr>
<td>Initial Excess PVRR (High Externalities)</td>
<td>$779 million</td>
<td>$1978 million</td>
</tr>
<tr>
<td>Adjustment for Economic Development</td>
<td>$193.6 million</td>
<td>$363 million</td>
</tr>
<tr>
<td>Adjustment for PTC &amp; C.F.</td>
<td>$986 million</td>
<td>$986 million</td>
</tr>
<tr>
<td>Final Scenario Excess Cost</td>
<td>- $400.6 million</td>
<td>$629 million</td>
</tr>
</tbody>
</table>

The CBED based gas wind scenario is $400 million PVRR less than the option of granting the Certificate requested by the applicant.

**EXTERNALLITY COSTS OF ROUTINE OPERATIONS**

11. The ALJ finds that, “no large scale releases of radiation have ever occurred at the Monticello Plant.” (138) According to the “President’s Commission on the Accident at TMI Report Summary – Past Accidents, Yearly Airborne Releases 1970 – 1977” (Public Exhibit 16, Item 14), in 1974, Monticello released 1,570,000 Curies, up from 870,000 Curies in 1973 and 751,000 Curies in 1972. Either the ALJ has a perverse definition of “large” or else this finding is patently false. Either way, it exemplifies the corruption consuming this proceeding.

12. The ALJ mistakenly concluded that because the off-site radiation monitoring system does not detect radiation, there are no off-site exposure impacts and the externality cost of off-site exposure impacts and/or economics attributable to radioactive emissions from routine operations is zero. (94, 136)

There are routine and accidental radiation releases (TR. Vol. 2, p. 65 L 1-4; TR. Vol. 4, p. 58 L 18-22) and all Monticello radioactive releases have the potential to be biologically active. (Xcel Ex. 1, Appendix A, p.3-4) Each year, the Monticello Generating Station routinely dumps many tens to hundreds of Curies of radioactive waste into the air we all breathe. In some years, many times that amount of waste has been dumped into the atmosphere. (Public Exhibit 16, Item 13) The waste is out there. Just because the monitoring system fails to detect it does not mean it has vanished. The only conclusion that can legitimately be drawn from the failure of off-site monitors to detect waste that has been dumped, is that the monitoring system is not sophisticated enough to tell where the wastes go after they leave the stack. Because there is no knowledge about where reported radioactive releases go, there can be no legitimate conclusions about what they do as they circulate through the biosphere, or the cost of what they do while they circulate.

13. The ALJ failed to recognize the significance of the National Academy of Sciences BIER VII Report finding that there is no safe dose of radiation, and incorrectly found that no comparative information was introduced to show a correlation between radiation releases and certain diseases and syndromes (180). Such evidence was introduced (Public Ex. 16, Item 7). Further evidence of the ability of routinely released radiation to cause damage is the fact that, while many risk factors for breast cancer have been identified, 50% to 70% of women diagnosed with this disease do not have a known risk factor (TR. St. Paul Afternoon Hearing, p. 54-55).
As evidenced by Public Exhibit 16, Item 13, Monticello has released millions of Curies to the environment since coming on-line in 1970. Some of the released radioactivity, for example, is Tritium. As a physical reality, Tritium is a Beta emitter with a half-life of about 12½ years. This means that about 12% of the Tritium released by Monticello during its first year of operation in 1970 is still actively emitting Beta radiation while circulating through the biosphere today. The significance of the BIER VII Report finding, which the ALJ failed to recognize, is that each and every single emitter, once released, has the potential to cause cancers and other disease symptoms throughout its radioactive decay process. The amount of radiation that is routinely released, the time period of the radioactive decay process, and the ability of each emitter to cause biological destruction throughout the decay process combine to force the conclusion that the externality cost of routine operations cannot be zero regardless of the performance of the off-site radiation monitoring program. Considering that the biological destruction includes cancers, a more reasonable conclusion is that those who enable the air we breathe to continue to be used as a radioactive dump are complicit in the premature deaths of an untold but significant number of people.

EXTERNAILITY COSTS OF AN ACCIDENT

14. The ALJ mistakenly finds that the Department and NMC estimate of $21.6 million as the high-end accident–related externality cost value is acceptable (93). Evidence on the record suggests that a more realistic high-end cost may be over 2,000 times that amount, in 1980 dollars. (Public Exhibit 16, Item 1)

Un-rebutted evidence about how such an accident could occur due to metal embrittlement is also on the record, but is not even mentioned in the ALJ Report. While metal specimen samples are prepared and tested (TR. Vol. 2 p. 96-98), test specimens are not subjected to the same stresses as reactor components because neutron bombardment and thermal cycling is not uniform throughout the reactor. (TR. Vol. 2 p. 102) Stress is different at each discrete location on every critical reactor component. Test specimens can therefore only provide an indication of whether dangerous levels of deterioration has actually occurred at any discrete location, and the only way to tell for sure is to inspect each discrete location, which is not possible, or experience an event.

The Department and NMC estimate of $21.6 million, which was accepted by the ALJ, is based on a series of assumptions regarding, among other things, reactor component failure and operator error. There is no basis in fact on the record for accepting the Department and NMC assumptions instead of accepting a set of assumptions, including the potential for embrittlement failure for example, that would establish the high-end accident-related externality cost value at $20 billion or $40 billion. In fact, the record does not even establish the assumptions used by NMC and the Department. No probability values are established. No confidence values are set. The $21.6 million figure is nothing more than a convenient and arbitrary number propped up to help rationalize a foregone conclusion.
15. The ALJ recognized that the Monticello spent fuel storage pool is located on the refueling floor in the reactor building (33), and waited until Finding 194 to acknowledge that the pool is above ground. In fact, the refueling floor is at the top of the reactor building about 70 feet up in the air.

This fact does not concern the ALJ who buys the testimony of Douglas True regarding the robustness of the structure. (105) A primary component of True’s testimony, however, is that Monticello is too robust to entice terrorist activity and will therefore not be attacked. In accepting this testimony, the ALJ fails to recognize the destructive capacity of weapons systems (Public Exhibit 16, Item 19) that are readily available to individuals and organizations who have demonstrated a willingness to deploy them, and an ability to gain access to sites where an attack against Monticello could successfully be launched. If homeland security were something more than politics and contract scams, the ALJ Report would recognize that Monticello is a strategically located, world-class dirty bomb, and that its bodyguard of lies is not sufficient to ward off the detonator, should such intent become manifest.

16. The ALJ accepts the Department conclusion that no nuclear externality value adjustment is needed to reflect a potential terrorist attack because every option available includes storage of nuclear waste at Monticello for a period of time, so the hypothetical cost of such an attack would not affect the ranking of alternatives. (107)

This conclusion would be appropriate if the Deciders were foolish enough to continue pretending that Monticello security and robustness are adequate, and everything remains status quo until the event occurs. The ALJ, however, mistakenly rejects compelling evidence demonstrating that security and robustness are not adequate if motivated agents deploy available weapons.

Any reasonable externality value adjustment to reflect a potential terrorist attack would eliminate the dry cask option as an alternative for continuing nuclear operations at Monticello. Such an adjustment would cause Monticello to cease nuclear operations forthwith, and evacuate all waste in the pool as soon as possible into hardened, bunkered, below gradient, on-site casks.

CONCLUSIONS & RECOMMENDATION

The above Exceptions invalidate the recommendation of the ALJ, and each of the conclusions that prop up the ALJ recommendation is mistaken.

With all due respect

George Crocker. Executive Director
North American Water Office
The ALJ found that increasing the term of storage from 100 to 200 years adds $3 million to the cost of storage as decision-makers today balance alternatives, and that amount is not enough to alter the ranking. It is not possible to forecast anything out 100 years with any degree of certainty. It is also true that as time passes, there is more opportunity for systems to fail and for things to go wrong. If the storage system lasts the first 100 years, there is every reason to believe that the cost of maintaining its integrity the second 100 years will be much greater than the first. These costs have the potential to be as much higher as cleaning contamination out of groundwater is than preventing groundwater contamination in the first place. To foist these costs on our children’s children and their posterity, through a disingenuous misapplication of a present value calculation, in order to get for cheap, dirty power today, is sick.