

KEEPING THE LIGHTS ON

Securing Minnesota's Energy Future

*A legislative proposal by the Energy Division of the Minnesota
Department of Commerce*

September 6, 2000

“California's electric system is no longer consistently reliable.”

**-- Michael Kahn, Chairman, California Electricity Oversight Board
Loretta Lynch, President, California Public Utilities Commission**

¹ Summer 2000 Report to Governor Davis regarding California's Electric System, August 2, 2000.

Section 1. Introduction

The Changing Electric Industry

The electric industry in Minnesota, as well as the rest of the country, is experiencing fundamental change. New federal regulations have resulted in a phenomenal increase in the number and complexity of wholesale transactions, by forcing utilities to open their transmission lines to competitors at non-discriminatory rates. Mergers and other business combinations are a common occurrence. In addition, due primarily to higher than average electric rates and pressure from large industrial and commercial customers, twenty-four states have authorized “retail competition” for electric supply.² Retail competition or “electric restructuring”³ would allow consumers to purchase electricity from a supplier of their choice, at prices set by market forces, as opposed to purchasing electricity from the utility in whose exclusive service territory the customer is located, at rates established by a regulatory authority.⁴

Minnesota’s Response

In Minnesota, energy industry restructuring has been and is being reviewed and analyzed intensively by policy-makers, both regulatory and legislative.⁵ Throughout

² States that have passed final legislation ordering retail competition to be implemented are California, Illinois, Maine, Massachusetts, Montana, Nevada, New Hampshire, Pennsylvania, Rhode Island, Oklahoma, Connecticut, West Virginia, Arizona, New Jersey, Virginia, New Mexico, Maryland, Delaware, Arkansas, Texas, Ohio and Oregon. In addition, the state regulatory commission in New York has issued final orders ordering retail competition to be implemented. The regulatory commissions in Michigan and Vermont have also issued final orders, but require final legislative approval to proceed with retail competition, although some utilities in Michigan are moving ahead voluntarily.

In addition, both bodies of the 106th U.S. Congress considered and the Clinton Administration supported, restructuring legislation; however no restructuring legislation was successful in either body. There was a great deal of legislative attention paid to stand-alone reliability legislation this past session, but it too did not pass. One important note from this session of Congress: the debate over whether Congress should mandate a date certain for retail competition appears to be over for the time being, with the states’ rights advocates, such as the National Association of Regulatory Utility Commissioners (NARUC), prevailing.

³ Also referred to as “customer choice,” “retail wheeling,” or “direct access.”

⁴ See Appendix A for additional discussion of retail competition.

⁵ In March 1995 the Minnesota Public Utilities Commission (PUC) instituted an investigatory docket entitled "In the Matter of an Investigation into Structural and Regulatory Issues in the Electric Industry."

the past year, the Energy Division of the Department of Commerce (DOC) undertook an exhaustive process to analyze retail competition & restructuring issues – why to do it, how to do it, whether to do it. The DOC sought, received and analyzed input from every conceivable sector of the industry – utilities, large consumers, small business consumers, senior citizens and other residential consumers, energy marketers, environmentalists, alternative energy providers, and others.

The DOC developed a set of principles for energy policy, to guide and focus its restructuring analysis. Those principles are as follows:

It is the mission of the Minnesota Department of Commerce to ensure access to reliable, reasonably priced, efficient, economically sound, and environmentally responsible energy services for Minnesotans now and into the future.

- ❑ **Universal Service** : All Minnesota energy consumers must have access to a reasonable level of affordable energy services.
- ❑ **Energy Security** : Energy services to Minnesota consumers must be reliable based on adequate supply and distribution that relies on diverse production and/or generation sources, efficient operation of the system, efficient consumption based on maximum conservation, and adequate contingency planning.
- ❑ **Environmental Protection** : Energy services to Minnesota consumers must be designed, operated, managed, and utilized to minimize adverse environmental effects to the greatest extent feasible and prudent.

Docket E-999/CI-95-135. In this docket, the Commission adopted principles by which the electric industry in the state should be restructured. In addition, the Commission created a working group of representatives of large, small, and low-income consumers, utilities, power marketers, environmentalists and regulators to analyze restructuring issues and report its recommendations to the commission. This working group issued a number of reports and recommendations to the PUC, the majority of which are available on the Commission's website at www.puc.state.mn.us.

On June 30, 1995 the DOC published a critical issues paper "Competition in the Electric Industry: Policies to Serve the Public Interest." In the paper the DOC stated its position that "introducing competition in the electric industry is pertinent and desirable." The department held a number of workshops and meetings at which various electric industry stakeholders presented their views.

In progressively detailed legislation passed in 1997 & 1998, the Minnesota Legislature charged its Legislative Electric Energy Task Force (LEETF) to review and analyze these and many other issues related to electric industry restructuring. The task force has issued several reports on restructuring issues, but has not proposed or approved any energy reform initiatives.

- **Economic Efficiency** : Minnesota consumers should be able to choose energy services and energy service providers in a competitive market to the extent that the market can ensure universal, reliable, environmentally sound service where prices reflect costs over the long term.

The DOC came away from that demanding process agnostic about whether retail competition would benefit Minnesota consumers in the current environment, and unsure about whether any state has figured out how best to implement retail competition.⁶ While the DOC remains committed to exploring the benefits of retail competition for Minnesota consumers, the Department cannot currently support authorizing retail competition in Minnesota, given the chaos that retail competition is causing in the states that are experimenting with it, and given the looming reliability dilemma facing the Midwest region.

Reliability Crisis in the Midwest

Generation: According to the North American Electricity Reliability Council (NERC)⁷, “Generating system adequacy for the MAPP-U.S. Region is judged to be inadequate over the 1999-2008 period.”⁸ The region may need over 5000 megawatts of new

⁶ For a detailed review of the problems that other states have experienced in implementing retail competition, see “THE ELECTRICITY DEREGULATION EXPERIENCE”, issued August 11, 2000, by the Residential and Small Business Utility Division of the Office of the Minnesota Attorney General (available at the OAG’s website: www.ag.state.mn.us). To quote from the executive summary of that report, “The experience of deregulation in states like California and New York has been:

- The doubling of consumer prices for electricity
- Emergency power interruptions, such as blackouts, brownouts and reduced power quality
- Unregulated monopoly prices charged by a handful of dominant firms that control the market
- The transfer of state and local regulatory authority to private boards
- Fraudulent and deceptive business practices by unregulated utility companies, including the inability to provide the low-cost electricity promised new customers.”

⁷ NERC is a voluntary not-for-profit association of utilities and other industry participants that promotes the reliability of electricity supply on this continent. NERC consists of nine regional reliability councils. Minnesota utilities belong to the Mid-Continent Area Power Pool (MAPP) reliability council. The MAPP membership includes 102 utility and non-utility systems, and the MAPP region covers all or a portion of Iowa, Minnesota, Nebraska, North and South Dakota, Michigan, Montana, Wisconsin, and the provinces of Manitoba and Saskatchewan. MAPP itself is evolving, and is in the process of transferring its responsibilities to two new organization, the Midwest Reliability Organization (MRO) and the Midwest Independent System Operator (MISO).

⁸ NERC 1999-2008 Reliability Assessment at page 71.

generation capacity by the year 2006.⁹ Given that the planning and construction of a new facility can take several years, this capacity shortfall is significant.

Transmission: In addition to this generation capacity deficit, the region faces a growing need for additional transmission infrastructure. NERC judges the MAPP transmission system to be “adequate to meet firm obligations of the members systems.”¹⁰ However, NERC also states that:

MAPP has seen a tremendous increase in power marketing activity resulting from open access and available low cost energy in the Region. This high level of activity has *stretched the existing transmission system to its reliability limits* (emphasis added).¹¹

Instituting retail competition in the teeth of these supply and delivery constraints would likely result in the kind of chaos and negative consumer impacts that Californians are currently experiencing, leading that state to try to put the regulatory genie back in its bottle.¹²

⁹ To put this 5000 MW shortfall into perspective, the region would need 5 generation stations the capacity of Xcel Energy’s (was Northern States Power Company) Prairie Island generating facility to cover the deficit.

¹⁰ Provided, however, that “the local facility improvements identified in the ten-year transmission plan are implemented.” Reliability Assessment at 72.

¹¹ Ibid.

¹² See e.g. “In Reverse, California Acts to Cap Some Electric Bills,” New York Times, August 22, 2000’ and “California Lawmakers Vote To Limit Power Costs,” Wall Street Journal, August 31, 2000.

Section 2. Keeping the Lights On

Overview of the Initiative

The DOC proposes a set of policy responses to the reliability problems the state is facing. Titled “Keeping the Lights On: Securing Minnesota’s Energy Future,” the DOC proposal utilizes a combination of market forces and efficient regulation to ensure safe, reliable, environmentally sound and universally available energy services. The four elements of this proposal are:

Item One: Comprehensive Energy Planning in the New Environment

establish a statewide energy resource plan; and
streamline approval process for generation and transmission projects.

Item Two: Greater Efficiencies in Energy Conservation

increase efficiency in the administration of conservation programs.

Item Three: Promote Modern Energy Technologies

eliminate barriers to installation of distributed generation resources; and
promote increased utilization of renewable energy resources.

Item Four: Encourage and Enforce Wholesale Competition

require competitive bidding for new generation capacity additions;
eliminate personal property tax on new generation facilities and on new
equipment at existing facilities;
protect competitive market for generation through behavioral and structural
remedies for abuse of market power; and
ensure efficient, effective and reliable operation of the regional transmission
grid and local distribution wires in a manner that protects the interests of
Minnesota consumers.

In addition to ensuring Minnesota’s energy future, addressing these issues will also prepare the state for retail competition, should policy makers decide to take that step, by creating the conditions necessary for a retail market to function efficiently. Promoting markets and introducing competitive forces into the regulatory system remains a keystone principle for the DOC.

Item One: Comprehensive Energy Planning in the New Environment

Streamline Infrastructure Approval Process

Presently, a proposal to build a generation or transmission facility of some size has to obtain several state government approvals, through several onerous procedures. These processes include an Integrated Resources Planning (IRP) process, a utility-specific process before the Public Utilities Commission, a Certificate of Need (CON) process, a project-specific process, also before the Commission, and an Environmental Review process, a project-specific process before the Environmental Quality Board (EQB).

Despite this intensive micromanaging of energy projects by the state, public confidence in these approval processes is low. One reason for this lack of confidence is the feeling by the public that utility projects are primarily for the private interest of the utility, not the public interest. This lack of confidence is one critical reason that new transmission lines and baseload generation facilities are not being constructed in the state. In addition, these state approval processes themselves can act as a barrier to the construction of new facilities.

Integrated Resource Planning

In 1990, the legislature required certain utilities to file a resource plan with the PUC. This plan is defined as

a set of resource options that a utility could use to meet the service needs of its customers over a forecast period, including an explanation of the supply and demand circumstances under which, and the extent to which, each resource option would be used to meet those service needs. These resource options include using, refurbishing, and constructing utility plant and equipment, buying power generated by other entities, controlling customer loads, and implementing customer energy conservation.

Minn. Stat. § 216B.2422, subd. 1(d).

One of the goals of the integrated resource planning requirement was to ensure that utilities think about and plan for managing their portfolio of electric supply resources to

achieve the least-cost portfolio, as well as to increase the reliability of electric supply by increasing the diversity of the supply mix. Of course, utilities have always engaged in resource planning, but the IRP requirement forced utilities to do this planning publicly and to adhere to certain policy goals.

This planning requirement as presently structured, is incompatible with a more competitive environment. In this environment, utilities need flexibility if they are to be efficient participants in the market. Micromanaging each utility's portfolio is not in the best interests of the utility or the best use of state or private resources. However, it is critical that integrated resource planning not be abandoned altogether. There are a number of reliability benefits that are derived from such planning, most notably:

- 1) identifying resources to meet forecasted needs and
- 2) ensuring resource diversity.

Long-run planning: Currently, a utility is required to forecast energy demand ahead 15 years or more and to plan how it will meet that demand. This is one aspect of the current regulatory structure that has led to the remarkable reliability of electric service in the region. In today's more competitive environment, utility planning horizons have shrunk to a few years, due to an increased emphasis on a quick return from capital investments, and to uncertainties regarding the future. To continue to preserve reliability in the face of long lead times, long-run planning must continue in some form.

Resource diversity: Market participants, in order to compete, will rely on the single lowest cost generation technology (presently natural gas combustion turbines) to meet demand for new capacity. This reliance by markets on a single technology may decrease the reliability of electric supply by decreasing its diversity. Continuing to encourage the use of a number of diverse fuels, and a number of diverse generation technologies, in facilities of varying sizes, will ensure a more robust generation system.

Certificate of Need

Currently, a person who proposes to build a new large energy facility in the state is required by statute to obtain a CON from the PUC prior to construction. A large energy facility is defined to include:

- any electric power generating plant or combination of plants at a single site with a combined capacity of 80,000 kilowatts or more, or any

facility of 50,000 kilowatts or more which requires oil, natural gas, or natural gas liquids as a fuel;

- any high voltage transmission line with a capacity of 200 kilovolts or more and with more than 50 miles of its length in Minnesota; or, any high voltage transmission line with a capacity of 300 kilovolts or more with more than 25 miles of its length in Minnesota; and
- any nuclear fuel processing or nuclear waste storage or disposal facility.

Minn. Stat. § 216B.2421, subd. 2.

In order to obtain a certificate of need for a generation facility, an applicant must “show that demand for electricity cannot be met more cost-effectively through energy conservation and load-management measures and unless the applicant has otherwise justified its need.” In other words, the PUC is required to assess the need for the facility, and may not grant a certificate if the applicant cannot show that the facility is necessary to meet forecasted electricity demands. The purpose of the CON proceeding is to ensure that unneeded facilities are not built, or at least the costs for such facilities are not recovered through a utility's rates.

Critics of the certificate of need requirement for generation facilities argue that power markets should determine whether additional generation capacity is needed, not the MPUC. These critics point out that merchant plants to be built in the state to serve out-of-state electric demand may have difficulty meeting the current CON requirements. In addition, critics of this process argue that a merchant facility, one that is not intended to be placed in a utility's rate base, should not be required to go through a needs analysis.

However, the more impact a facility, either generation or transmission, has on the environment or humans in the area, the more opposition the facility will encounter. One question that the public will demand an answer to is whether the facility will address some public need, or is it primarily for the private benefit of the utility. Those facilities that are demonstrated to be needed to promote some public interest will be more readily accepted by the public than those that are not. Some kind of need determination will continue to be useful, if new generation or transmission facilities are to be constructed in Minnesota.

Environmental Review

Minnesota Statutes, sections 116C.51 to 116C.69 require the Environmental Quality Board to site and/or route large electric power facilities. Although there is some overlap in the definitions, large electric power facilities for the purposes of the Power Plant Siting Act are not the same as large energy facilities for the purposes of the certificate of need statute. Large electric power facilities include:

- high voltage transmission lines, which is defined as a conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of 200 kilovolts or more; and
- large electric power generating plants, which are defined to mean electric power generating equipment and associated facilities designed for or capable of operation at a capacity of 50,000 kilowatts or more.

The goal of the power plant siting process is to have the state evaluate and critique the impacts on the environment and human health of alternative routes and sites for a proposed facility, and to determine the best overall route or site. This determination preempts all other local zoning requirements that would otherwise apply to the facility.

Many believe the siting process will still be necessary for siting and routing transmission facilities in a more competitive electricity market, primarily due to

- the large distances a transmission line may need to traverse;
- the probability that a single route is clearly the best route for the line;
- the fact that transmission will remain a regulated natural monopoly; and
- the local protest that such a line may engender all along the proposed route.

However, critics of the power plant siting process argue the process may not be as necessary for the siting of natural gas generation facilities because such facilities typically raise much smaller land use issues and may potentially be located in a number of places. Still, some public process to allow citizens to discuss potential impacts of such facilities and to develop and consider alternatives is needed. Without a thorough environmental review with extensive opportunity for public input, public confidence in a particular project will be exceedingly low, making construction of the project very difficult.

The environmental review process, in and of itself, is not a barrier to new facilities. The most difficult aspect of the review process is the consideration of the “no-build” alternative. This alternative becomes a de facto needs analysis, the result of which is

that the EQB gets bogged down in the details as to whether a project is needed or not, rather than concentrating on the environmental impacts of the proposed project.

Proposal: Establish Statewide Energy Resource Planning Process

The DOC proposes to create a statewide planning process, and streamline remaining infrastructure approval processes, to:

- 1) increase public confidence;
- 2) reduce barriers to facility construction;
- 3) reduce micro-managing of utilities and projects;
- 4) provide policy makers with critical information; and
- 5) reduce barriers for public interest advocacy.

Integrated Resource Planning : Under this proposal, mandated integrated-resource planning by individual utilities would be eliminated. IRP would be replaced with a statewide energy planning process that assesses statewide need and ways to meet that need (conservation and supply-side resources). This State Energy Policy Plan (Plan) will be developed by DOC and Minnesota Planning (with extensive input and modeling by utilities and other interested groups), and presented to the PUC for approval.¹³ This planning process will provide policy makers with statewide, aggregated energy data about needs and resources. Presentation to, and adoption by, the PUC will ensure the opportunity for public participation and input. In addition, the public and stakeholders will have extensive opportunity to participate in the development of the Plan. Further, a single planning forum will make intervention by the public much easier than under the present procedures, by reducing the number of potential forums.

Generation: The plan will identify additional generation needs -- how much, where and what type, from a statewide perspective, based on identification of local, state and regional needs, recognizing the substitutability of generation and transmission.

Transmission: To maximize the efficient use of the transmission system, the grid must be planned and constructed on a regional basis. The transmission portion of the Plan should reflect, to the extent consistent with state interests, the planning done by a regional transmission entity, such as the Midwest

¹³ Utilities will continue to be responsible for forecasting customer needs, and procuring resources to meet those needs in a timely manner.

Independent System Operator (MISO). Regional transmission planning will be incorporated into the State Energy Policy Plan, provided the regional entity's plan and planning process:

- incorporates similar environmental standards as our state siting statutes;
- incorporates local input;
- is developed on a sub-regional basis;
- recognizes the substitutability of generation and transmission; and
- is otherwise consistent with the State Energy Policy Plan.

Public Participation and Confidence: One of the primary goals for the State Energy Policy Plan is to make it easier for the public to know whether or not a project is in the public's interest, rather than the private interest of the entity proposing the project. Public input into the development of the Plan, as well as into the adoption of the Plan by the PUC, will be crucial to the success of the plan. Since this single forum will replace, to a large extent, a multitude of individual IRP and CON proceedings, the ease of participation by citizens and small interest groups will increase.

Certificate of Need: Since analyzing the need for new facilities will be a focus of the State Energy Policy Plan, a separate certificate of need process for a project that is consistent with that plan is redundant. The requirement for a CON for new generation and transmission facilities, as well as upgrades at existing facilities, that are consistent with the State Energy Policy Plan should be eliminated. In order for the Plan process to effectively substitute for a CON process, and provide the appropriate baseline for the subsequent routing process, the Plan should:

- identify specific end points for near-term transmission projects;

- identify general siting opportunities and criteria analysis for near-term utility generation projects;

- for all near-term projects, identify and analyze all feasible and prudent system alternatives and other alternatives such as generation, load management and conservation, and include a macro-scale routing/siting constraints and opportunities analysis;

- analyze the implications on reliability and the environment of not implementing one or more of the projects in the plan, and specifically for merchant plant

generation, consider the probability that independent power producers will actually construct needed capacity; and

include reasonable notice and opportunities for participation by potentially affected local jurisdictions, state agencies, and the public.

Environmental Review: Proposed projects that are consistent with the State Plan will qualify for streamlined siting and routing procedures by the EQB. For instance, the EQB will not consider the “no build” alternative for projects that designated as critical to ensure reliability in the Plan. The goal of such reform would be a more efficient process, without reduction in environmental review or public input.

With regard to the suggestion that relatively benign gas peaking plants be exempted from the environmental review process, policy makers should consider:

- whether, and to what point, state policy will continue to support commitment of natural gas to the generation of electric power, relative to alternatives of conservation and renewables;
- how incremental capacity additions at one site may result in cumulative effects that trigger state environmental policy standards;
- the basis for determining the regulatory thresholds which would exempt those which are appropriate for local jurisdiction and still capture the large, conventional plants for which the power plant siting act was clearly intended;
- if exempted, local permitting authorities probably can properly address land use issues, but will they have the resources to manage a lower level of environmental review for air emissions, water appropriation and noise effects? All other state permits would remain in effect. Improperly managed, local review can result in litigation and other delays that could be more onerous than the state siting process; and
- whether the state will retain an interest in how these facilities are connected to the electric system and the operational implications, particularly for merchant plants, specifically: as an example, should short 345kV plant-to-grid lines also be reviewed exclusively by local jurisdictions and can the state adequately determine that a new load connection on an existing transmission line is acceptable and will not singularly stimulate the need for new transmission elsewhere that may have significant routing problems.

Establish Energy Planning Goals

The State Energy Planning Process will allow policy makers to establish energy policy goals for the state. Currently, Minnesota utility law and regulation embodies a state commitment to conservation, universal service, environmental protection and renewable energy development, among other public interest principles. However, implementation of those commitments is haphazard, disjointed and generally ad hoc.

Drawing on the expertise with the administration of the agencies that have authority in certain areas that affect energy policy, the Plan will establish specific, measurable goals in these and other policy areas. Such goals will help rationalize Minnesota's energy policy, and allow the public to hold policy makers accountable for progress.

Examples of the types of goals that the DOC would be interested in establishing include:

- a conservation/DSM goals, based on technically achievable and economically feasible conservation savings;

- environmental emissions goals, developed with the Pollution Control Agency;

- renewable development goals, based on an analysis of potential renewable resources in the state and region, and the amount of new capacity needed; and

- universal service and affordability goals. To be truly reliable, energy services have to also be affordable and available.

The DOC will partner with the appropriate agencies, and with affected interests, to develop strategies to implement the energy policy goals established in the Plan. Many such strategies will be based on voluntary participation by various stakeholders. To the extent that voluntary participation and compliance would be insufficient to meet policy goals, the DOC will present proposals to the Minnesota Legislature or the PUC as appropriate, for approval by those bodies.

Item Two: Greater Efficiencies in Energy Conservation

Conservation and energy efficiency are often the cheapest source of capacity available. For every \$1 spent, Minnesota saves \$3 to \$4 in electric system costs and more than \$3.50 in natural gas system costs. Maintaining or increasing Minnesota's commitment to conserving energy will be a critical component of solving the looming capacity shortfall. One of the fundamental errors that California made on their way to the current chaotic situation in that state was to abandon the state's commitment to conservation.

Minnesota's conservation program (the Conservation Improvement Program or "CIP") is designed, implemented and administered by individual utilities, subject to varying levels of oversight by the DOC. The statutory responsibility requiring a utility to promote energy conservation is in direct conflict with the utility's fundamental function, to sell energy. Elimination of this structural flaw should lead to increased conservation for a given level of investment.

What is Demand-Side Management?

Demand-Side Management (DSM) measures meet future energy needs by analyzing customer use of energy. DSM measures consist of three types of projects: energy savings projects (conservation); energy efficiency projects (better industrial processes); and load management projects. In general, energy-saving projects reduce the need for electricity over a broad period of each day usually without a corresponding increase in energy use at different times. Energy-saving projects are a resource that can be substituted for (reduce the need for) interruptible or baseload electric generation sources. Electric peak load-control (a.k.a., peak control, load management) measures don't necessarily save energy, but they do reduce society's need for peaking capacity because they reduce electric use at peak times. Energy-efficiency measures (e.g., many large industrial projects), reduce the amount of electricity or natural gas used per unit produced, but still result in the use of more electricity because output is increased.

Is Intervention in the Market for DSM Services Needed?

DSM is a desirable product because it can minimize society's energy and environmental costs. Load control is especially desirable in the short-run when it can help reduce the increasing need for expensive and hard-to-site electric transmission lines, generators and natural gas pipelines, all of which require long lead times.

Some experts argue that a move towards retail competition will result in more DSM because customers will receive proper price signals to indicate when customers can truly save money by not using energy. Thus, an industrial customer that pays real-time prices for peaking capacity in the summer will be given the proper signal to cut back on and/or change the timing of its energy use. If retail competition does result in better real-time pricing, then retail competition should result in more efficient use of peak capacity.¹⁴ However, even if this were true, it would take years for the market to mature to that point. There are many reasons why the market will not result in the optimal amount of energy-saving measures, including:

First, electricity generation has significant environmental costs that are external to market decisions. Markets, as they are currently structured, cannot take these costs into account. Thus, a market's DSM output is lower than is socially optimal. (Conversely, society's consumption of energy is greater than optimal.)

Second, markets alone will produce less DSM research and training than is economically efficient because some of the resulting benefits are external to market transactions.

Third, the high transaction costs associated with energy efficiency will cause unaided markets to achieve less socially-efficient outcomes than could be achieved by assisting the market.

Fourth, consumers often lack the capital to invest in energy efficiency, which is reflected in great weight given to upfront costs and high discount rates for future savings.

Fifth, consumers often lack information about the economic and environmental benefits of energy efficiency.

It is possible that large power users could overcome the high transaction costs and possess the capital necessary to make some cost-effective investments. However, large power users cannot capture the environmental benefits of DSM and, therefore, still make an investment less than the amount that is societally optimal.

Consequently, the DOC concludes that government intervention in the provision of conservation services continues to be necessary to ensure that DSM continues to be an

¹⁴ There are many issues that complicate this conclusion. Load-management projects that result in the use of diesel generation are less efficient and more polluting than the construction of larger-scale, natural gas peaking plants. In addition, the deregulation of the phone industry has not always resulted in peak-time pricing as evidenced by calling plans which offer flat rates regardless of the time of use.

integral part of Minnesota's energy mix. The majority of states that have restructured agree with this conclusion: 17 of the 24 states that have restructured have included provisions to fund energy efficiency.

What Types of DSM Projects?

Growing electric demand and the growing number of wholesale transactions have coupled to stress the present electric system infrastructure. The quickest, least expensive and most environmentally responsible way to reduce the stress on the electric system, or at least the growth in the stress, is through changing customers' demand for electricity. Currently, CIP is Minnesota's primary vehicles for influencing customer demand and energy usage. Historically, three types of projects have been approved as part of the CIP process:

- energy-saving projects,
- energy-efficient, load-building projects; and
- peak-reducing load management projects.

Energy savings projects. Energy-savings projects can be designed to reduce the states demand for electricity at all times of the year, including peaks. This type of DSM should be the first step in relieving long-run reliability concerns. Energy savings projects are along run solution because the impact of any one measure (ex-installing an efficient AC unit) is small. After a period of years, the accumulation of these small measures can have a significant impact on consumers energy and demand usage.

Energy saving, load building projects. CIP dollars should no longer be used for projects that result in more efficient use of energy but higher energy use. Although these projects (often called electrotechnologies) have an economic development benefit in that they improve economic efficiency, they do not help reduce the stress on the electric and gas infrastructure, and may actually increase the stress. By diverting the resources used for these types of projects, the state can ensure that conservation dollars contribute to the reliability of the state's electrical system.

Load management projects. Load-management projects can be designed to quickly reduce the need for electricity at the summer peak which is when the present system stresses are occurring.¹⁵ This type of DSM should be the first step in relieving short-run reliability concerns.

¹⁵ One (non-CIP) example is the series of customer buyback tariffs recently approved by the PUC.

Utilities have strong incentives to implement load management projects, especially if they are able to recover the direct costs incurred (e.g., load-control equipment.)¹⁶ Public policy should continue to strongly support load-management, but incentives for this activity are not needed. Since utilities are in the best position for determining when load reductions are needed, they should maintain control of and, if possible, expand their load-control capabilities. Minnesota's energy-savings projects have been successful to date. However, there may be limits to the innovation that can be expected from utilities for which energy savings means lower revenues. Minnesota should encourage greater use of energy-saving technologies to increase reliability and reduce environmental emission by ensuring that energy-saving projects are designed and administered by an entity that is motivated to save the most energy possible.

¹⁶ Load-management projects enable utilities to preserve reliability while lowering total costs with no real down side because their energy sales do not decline significantly (and could increase) thus their profits are not hurt. In addition, the utilities face strong penalties from organizations like the Mid-Continent Area Power Pool if they do not maintain adequate reserves, thus providing a strong incentive for load-management technologies.

Proposal: Transition Conservation Away from Control by Utilities

The DOC proposes to develop and transition to a conservation program that:

- 1) eliminates the current inherent conflict utilities face to encourage both consumption and conservation of energy;
- 2) introduces competitive forces into the provision of conservation services; and
- 3) enhances the opportunity for the market for such services to develop, thereby reducing the need for government involvement.

The DOC proposes a two-step process to accomplish these goals.

Step one. In this upcoming session, legislation would be proposed to begin this transition. The CIP statute currently allows a utility the option to place some or all of the utility's mandated conservation spending in a state CIP account. The DOC proposes to amend the CIP statute to give the DOC the authority to direct a utility to place a portion of the utility's mandated spending in the state CIP account. Over the course of a transition period of 3 or 4 years, that percentage will increase to 100 % of the mandated spending amounts. The DOC would then put an increasing amount of CIP projects out for competitive bid, and will use funds in the state CIP account to fund those projects. Competitive bidding for these projects will introduce market forces into the provision of conservation services. This reform should result in efficiencies gained through competition and through eliminating the inherent structural conflict of having utilities promote both consumption and conservation.

Step two. The DOC will work with interested parties to develop and present to a future legislature a proposal to replace the existing CIP program. That proposal would also be based on competitive bidding for implementation of conservation projects, but would also include competitive bidding for the design of such projects. Currently, utilities are responsible for both design and implementation. The mandated conservation spending that is currently recovered through energy rates would be eliminated, and replaced with an explicit conservation fee on consumers' bills. The new program could also include using tax incentives and other incentives to promote conservation.

Item Three: Promote Modern Energy Technologies

Regardless of other actions taken, transmission lines and large base load generation facilities will continue to be notoriously difficult to site and construct. In addition, constraints in the state's natural gas supply may limit the amount of new, larger gas-fired generation facilities. Renewable energy resources and high-efficiency distributed generation sources will be a key to ensuring Minnesota's energy security.

These modern generation technologies have been supported with public funds in the past for three main reasons:

- Promoting energy sources, with fewer air emissions,
- Promoting diversity of resources to protect against price increases; and
- Ensuring that future generations have access to energy resources.

Renewable Energy

Although Minnesota is the envy of many renewable energy advocates, the states' projected growth in electricity, the expectation of future regulation of greenhouse gases and other criteria emissions, and the potential for Minnesota to be a place where a lot of the region's renewable electricity production takes place means that the state must continue to foster alternative energy development. As with DSM, energy markets do not properly value avoided air emissions and thus some public investment is needed to ensure that society procures larger amounts of renewables than it would otherwise. Renewable energy sources are alternative energy sources that can be replenished. This list of resources that fit this description are many and varied, but include wind, photovoltaics (solar), biomass and hydro-power technologies.

Distributed Generation

Distributed generation (DG) generally refers to generation facilities built close to consumer load. These facilities range from small renewable installations, like small wind turbines and photovoltaics, to micro turbines using natural gas to fuel cells that use natural gas to make hydrogen, but that can use hydrogen produce through renewable methods as well. There is quite a bit of experience in the state with distributed generation, mostly as backup generation capacity provided by diesel generators, and with co-generation facilities supporting industrial loads.

DG provides reliability benefits, both transmission and generation. DG provides additional generation capacity, reducing the strain on utility generation facilities. In addition, since DG facilities are built close to load, turning on a DG facility has little impact on the transmission grid, freeing up transmission capacity for other transactions.

With the difficulty in siting additional transmission lines, the ability to substitute DG for transmission will be important.

In addition, DG offers many environmental benefits. Over the coming years, new environmentally friendly technologies, such as photovoltaics, fuel cells, micro-turbines and small-scale wind facilities, will become more commercially feasible.

As DG becomes a more commercially viable option for Minnesota energy consumers, DG will also provide competitive benefits, in that it gives consumers an additional choice to purchasing power from electricity providers. This fact may provide additional competitive pressures for those providers, as well as providing a potential anti-dote for the attempted exercise of market power over generation.

Currently, the price of most DG technologies, both the upfront capital costs and the operating costs, prevents the widespread implementation of such facilities. However, as these costs are reduced over time, it will be important for policy makers to have addressed other barriers to DG, such as the establishment of uniform interconnection agreements, standard contracts, and standard application processes for interconnection.

Options

Below is a brief description of several options for promoting modern generation technologies in Minnesota.

Renewable Portfolio Standard. A Renewable Portfolio Standard (RPS) requires a specific percentage of a state's annual electric use (or capacity) to come from renewable energy. The RPS requires all retail electric suppliers (or electricity generators, depending on RPS design) to purchase or produce a minimum amount of renewable energy, based on their total energy sales or capacity. For example, if the RPS is set at 5 percent, and a generator sells 200,000 kWhs in a given year, the retailer or generator would have to purchase or produce a minimum of 10,000 kWhs of renewable energy. Individual retailers or generators would be allowed to trade their renewable obligations through a system of renewable energy credits (RECs). Non-compliance with the RPS would trigger a penalty several times what it would have cost to purchase the RECs.

To meet the RPS requirement, retailers or generators have three options:

- 1) they may own and use their own renewable energy facilities;
- 2) they may purchase RECs bundled with renewable power purchases from independent renewable generation facilities, or
- 3) they may purchase RECs from a private REC market. The renewable energy generator, therefore, has two markets, one for the energy generated, and one for the RECs that represent energy generated

Investors and retailers (or generators) would make all decisions about how to comply, including: the type of qualifying renewable energy to acquire, what renewable developers to conduct business with, what price to pay, and contract terms.

Government involvement would be limited to:

- 1) setting the percentage standard and ground rules (including what technology/fuel source qualifies),
- 2) certifying RECs, and
- 3) enforcing compliance.

As of June 1999 seven states have adopted an RPS: Connecticut, Maine, Massachusetts, Nevada, New Jersey, Pennsylvania and Texas. The size of the RPS varies from 1 percent in Nevada to 30 percent in Maine. It has been estimated that the RPS in these seven states will result in the development of 3,500 MW of new renewables supply, the bulk of which will come from Texas (2,000 MW by 2010).¹⁷

While RPS may sound like a simple concept, the design and implementation of RPS programs raise a number of issues that would need to be decided prior to implementation (e.g. the level of RPS, technologies included, based on energy or capacity, geographical boundaries, etc.). A contentious issue in Minnesota will be whether existing renewables count towards the renewable portfolio standard.

Emissions Portfolio Standard. An emissions portfolio standard (EPS) is similar to a renewable portfolio standard in that suppliers of electricity are required to sell a mix of resources with specified parameters. Rather than a minimum amount of qualifying renewable resources, however, the mix cannot have emissions over a specified amount per unit of sale. Suppliers can comply with the EPS in one of two ways:

¹⁷ Wisser, Porter and Clamber

by procuring electricity from a variety of resources that, together, emit no more than allowed under the standard, or

by purchasing credits from other suppliers whose emissions are lower than the standard.

The EPS has been most widely discussed in the Northeastern United States. Massachusetts has EPS legislation which does not specify which emissions must be controlled. The Massachusetts Department of Environmental Protection is considering a standard based on CO₂ emissions. Connecticut, on the other hand, has EPS legislation that specifies emissions such as NO_x which should be limited.

Research and Development. This broad category of approaches involves the collection of funds and distributes them to promote a variety of programs, including:

- research on higher-cost, emerging technologies;
- research on resource availability (e.g., wind mapping);
- support for existing renewables/alternative technologies;
- identifying and removing barriers to renewables development, including financing, resource assessment (e.g., wind availability) and education;
- development of niche markets;
- incentives for marketing support, education, and training; and
- production tax incentives.

In all of the states that have funded these types of programs to date (10 states as of June 1999), the funds (sometimes referred to as a public benefits trust) have been collected by a volumetric systems benefit charge. However, the funding could come from general taxes.

Net Metering. Net metering is the process by which generation sources can interconnect with a transmission system and receive the retail rate for its net energy generation (amount by which electricity generated by owner for the grids exceeds that purchased from the grid by the owner). Net metered generators offset power at the retail rate and use the grid for backup. Under PURPA utilities are required to pay only the wholesale cost of power, effectively treating even tiny PV systems as independent power producers (IPPs). This IPP approach requires expensive installation of two separate meters for incoming and outgoing power, adding both costs and complexity. Net metering eliminates that requirement.

Green Pricing. Green pricing refers to the marketing of electricity generated from sources that are generally “environmentally better” than the customer’s present source of electricity. The purpose behind green pricing is to enable customers to contribute to the development and increased use of environmentally cleaner resources. People disagree on what “environmentally better” means, but in general, it refers to reduced air emission, and perhaps reduced soil erosion and reduced water pollution. Resources marketed under a “green power” label vary widely.

Information disclosure. Customers can be informed of the generation sources used to supply their homes and businesses with electricity, and the emissions associated with those sources. This consumer education could be used to help customers choose energy suppliers with cleaner energy sources, thus creating higher demand for renewable energy, and perhaps less demand for sources that pollute. The DOC supported legislation in the 2000 legislative session to require disclosure, and is currently supporting action at the Public Utilities Commission on this issue.

Tax incentives and direct subsidies. Tax credits can be given by the State to create incentives to build new renewable/alternative/more efficient generation plants.

Proposal: Reduce Barriers to DG and Renewables

In order to facilitate deployment of renewable and DG resources, the DOC proposes to:

Regulatory barriers: Reduce barriers to deployment of distributed generation through development of standard regulatory procedures, uniform interconnection agreements and standard offers.

Appropriate placements: Identify and implement, through State Energy Policy Plan process, appropriate placements for DG facilities, to maximize benefits to a local electric system, by relieving constraints or offsetting needs for additional transmission, distribution or plant construction.

Financial incentives and technical assistance: Provide direct and indirect financial incentives and technical assistance for DG deployment. In addition to expanded net-metering opportunities (see below for detail), these incentives include limiting exit fees and stand-by generation costs.

Net Metering: Specifically, the DOC proposes to amend the net metering statute and rules to extend this incentive to a broader range of facilities can connect under net metering. Current rules limit applicability only to those facilities classified as “qualifying facilities” under federal PURPA law and regulations.

The DOC proposes to increase the limit of systems qualifying for net metering from the current limit of 100 kilowatt or less, up to 2 megawatts. Presently, the net metering rules provide that the buy back rate the connecting utility must pay for the excess generation generated by systems less than 40 kilowatts is the average retail rate. Obviously for systems in the 2 MW scale the average retail rate would be too high and a burden on the connecting utility. The current rules require a power purchase agreement to be negotiated with the connecting utility for systems in the 40 to 100 kW size ranges. One option the DOC is considering is to require these systems (between 40 kW and 2 MW) to connect under a real time simultaneous purchase and sale arrangement. This option would provide data on the exact time when excess generation was put into the system. This would provide the owner of the distributed generation system a rate for their excess power that is the real time avoided market price of this power. If the utilities did not need to go to the market for purchases at the time the excess power was put into the grid then the price should be the generation costs for the last, and most expensive, generator to come on line to serve the load.

The DOC proposes also to amend the interconnection rules. The current rules require a second meter to determine the amount produced by the interconnected system for reporting and billing purposes. The DOC proposes to eliminate the reporting requirement. In addition, the DOC proposes a connection option for systems less than 10 kW that would not require the addition of a second meter. In addition, the DOC proposes that a provision be included in the rules that any excess generation from these small systems be donated to the connecting utility. Excess monthly generation from the systems targeted by this change should rarely if ever occur. If the facility owner found that they were donating a significant amount of energy to the utility they could opt for the second meter at a later date. The proposed rule changes also include eliminating the required lockable disconnect for these less-than-10 kW systems. The lockable disconnect is redundant since utility lineman could disconnect and lock-out these systems at the transformer or at the meter.

Renewable Development Fund. As part of the compromise allowing spent nuclear fuel to be stored at Prairie Island, the 1994 Legislature required Northern States Power Company (now “Xcel Energy”) to pay an annual fee of \$500,000 for each cask of spent fuel stored at the Prairie Island facility. That money was to be placed into a Renewable Development Fund, and used for the development of additional renewable generation resources. To date, none of that money has been spent developing renewable resources. In addition, Xcel is not placing the money in an interest-bearing account, but instead is carrying the obligation as an on-going expense.

The DOC proposes that, in order to maximize the impact of the Renewable Development Fund, and make the most efficient use of the annual fund payments:

Xcel should be required to pay the RDF funds into an interest-bearing account in the state treasury;

Program administration of the RDF funds should be transferred to the DOC;
and

The RDF statute should be amended to allow funds in the account to be used to develop high efficiency DGF resources, in addition to renewable resources.

Goals and Strategies. The DOC proposes to defer action on specific goals for renewable resource and DG development, and strategies to meet those goals (such as an Emissions Portfolio Standard or a Renewable Portfolio Standard), to be created during the development of the State Energy Policy Plan. The transition from the present IRP system and the new State Energy Policy Planning process will have to be carefully

considered, to ensure that no reduction in the state's commitment to, or implementation of, current State energy policy goals occurs.

Item Four: Encourage and Enforce Wholesale Competition

There is near universal agreement that the industry needs a robust, fluid and reliable competitive market for bulk power. Some believe that such a market would be a sufficient reform, others believe that it is a necessary component of a truly competitive retail market for energy. A robustly competitive whole sale market is critical to sending appropriate signals to investors regarding the need for new investment in generation and transmission resources.

Great strides taken in developing a competitive market for wholesale electricity – most notably, Order 888, which allows generation suppliers access to transmission on a non-discriminatory basis, and Order 2000, establishing criteria for, and encouraging membership in, regional transmission organizations (RTO's). Additional steps, such as those described below, can be taken to increase the competitiveness of the bulk power market, thus the effectiveness of the signals sent to investors. Such steps should be taken in conjunction with initiatives to increase the potential for demand responses at the retail level. Many retail response initiatives, short of retail competition, are being undertaken currently (described below) to enhance the effectiveness of such signals.

Retail demand response and education initiatives.

Currently energy consumers are not faced with the real-time costs of their energy consumption. In other words, during periods of peak demand when energy is scarcest and prices highest, consumers generally are oblivious to these market conditions. Increasing awareness of, and consumer opportunity to respond to, these market conditions will send appropriate signals to forward markets regarding the need for additional generation and transmission facilities.

Improving rate adjustments. Currently, Minnesota's natural-gas rates are adjusted on a monthly basis. The adjustments are typically forecasted based on expected wholesale prices in the upcoming month. These forecasts are later "trued-up" so that consumers pay for actual costs. This method is intended to give customers better information about their energy use than rates set only on historical energy prices, as in electric rates.

Electric rates of investor-owned utilities are typically adjusted on a monthly basis too. Current rules for electric utilities require the adjustments to be an average of the past two months of actual fuel costs. This approach worked in the past since it was simple, verifiable, and reasonably matched actual costs. However, since the wholesale market has been deregulated by federal initiatives, this method no longer works well. Consequently, one utility has implemented a pilot program in which its rate will be

adjusted based on a forecast of energy prices for the upcoming month, with a subsequent true-up, similar to gas utilities. It may be necessary to change the way all electric adjustments are calculated to match costs and rates better.

Alternatively, the adjustments to natural-gas and electric rates could be eliminated, with fixed seasonal rates used instead. The approach would both signal to consumers that rates are higher in peak season periods, and encourage utilities to minimize fuel costs.

Advance price signals. Even if rate adjustments are improved, consumers still need better information, in advance of their energy use, about when energy prices are increasing, and what they can do to decrease their energy use. Consumers may be somewhat aware that energy costs are seasonal, but they currently do not know that rates have increased until they get their bill for use in the past month. Energy is one of the few goods sold where consumers do not know prices until after they use it.

Since energy use by the largest consumers is significant, encouraging these consumers to decrease their energy use at peak times will have the greatest impact for both these and other consumers. While these consumers may be able to use buy-back rates, this option will not always be available since it is typically meant to be used only at the largest peak periods. There may be other times, however, when energy prices are relatively high, and these consumers could use less energy by making small changes in their operations, if they had advance warning that the next day were going to be a costly energy day. As such, developing a system to provide a day-ahead notice that costs are increasing, at least to the largest consumers, would help all consumers on the energy system.

In addition, since energy use is affected largely by weather, one way to get this information to all energy consumers may be through weather reports on television, radio and newspapers. Energy “watches” or “warnings” could be used to remind consumers to conserve energy on days that may be higher-price days. Accompanying these alerts with sources of information on conservation would give consumers more “real-time” information and choices about how much energy they use.

Generation Personal Property Tax

Utility personal property (“attached machinery”) is the only personal property subject to property tax in Minnesota. The tax itself is a relic from a time when the state taxed a wide variety of personal property. When the legislature exempted personal property from taxation in the late 1960’s and early 70’s, it did so for all types of personal property

but utility personal property. Today the tax on utility personal property acts as a barrier to construction of new facilities. In the past few years, the legislature has consistently granted exemptions from this tax on an ad hoc basis.

Investor-owned utilities (IOUs), such as Minnesota Power, are subject to this tax on almost all of their personal property, except that distribution lines providing electric service to farmers are exempt. Generation and Transmission Cooperatives, such as Great River Energy, are generally subject to the tax. Municipal distribution utilities are generally exempt from the personal property tax. Distribution cooperatives are also generally exempt, unless the co-ops' facilities are located within an incorporated area. Municipal Power Agencies (MPA's – the public power equivalent to Generation and Transmission Cooperatives) like the Southern Minnesota Municipal Power Agency, as well as municipal and cooperative distribution utilities, make payments “in lieu” of personal property taxes. MPA's are generally exempt from taxation, but are required to pay "to each taxing authority within whose taxing jurisdiction its property is situated, in lieu of taxes on its property, the amounts of the taxes which would be payable if its property were owned by a private person." Co-ops pay ten cents for each customer meter. Municipal distribution utilities often negotiate payments to their municipalities. In addition, since both cooperative and municipal distribution utilities buy their power at wholesale from taxed entities (IOUs, G&T Co-ops, MPAs), a portion of the tax levied on their wholesale suppliers is passed on to their retail customers.

Non-utility generation facilities, such as the cogeneration facility proposed by Koch Refinery, are subject to this tax, unless the facility qualifies for an exemption based on the facility's efficiency, or unless the state legislature elects to exempt the facility from the tax, as has been the case often in the past few years.

The possibility of paying a personal property tax in Minnesota may discourage proposers of generation facility projects from locating facilities in Minnesota. While most new generation plants have been exempted from paying this tax, the cost and uncertainty of obtaining the exemption itself is a barrier to locating new generation in Minnesota. To the extent that generation owners do not consider locating in Minnesota, choices in new generation plants shrink. Further, if this tax encourages generation to be located outside of Minnesota, further away from energy consumers, both transmission costs and outage risks may increase.

Proposal: Eliminate the Personal Property Tax on New Generation Facilities and New Equipment at Existing Facilities

In order to encourage construction of new generation facilities and retrofits/upgrades to existing generation facilities, the personal property tax on new generation facilities and new equipment at existing facilities should be eliminated. In addition, the DOC supports repeal of the tax on all utility personal property. The Department of Revenue is currently developing a tax reform proposal. If the Department of Revenue proposes greater reforms for utility personal property taxation as a property tax reform, the DOC will strongly support that effort.

Competition For Generation

Initially, the DOC considered proposing that all generation be functionally or structurally unbundled from distribution. Under this model, distribution utilities would be responsible for aggregating their customers' load and procuring a portfolio of supply to serve those customers. Thus, all generation to serve Minnesota consumers would be procured through a competitive process. Increasing the amount of generation subject to competition should increase the intensity of competition for those resources. (Note that this is essentially the model that cooperative and municipal distribution utilities operate under.)

Under this model, generation would be deregulated, and supply procurement by the utilities would continue to be subject to some form of regulatory oversight, by the relevant regulatory authority. IOU's might be subject to less intrusive regulatory oversight of supply procurement, to provide incentives to minimize procurement costs.

Thus, competition, electric generation would no longer be subject to rate regulation. Instead, regulation would focus on electric distribution utilities, who purchase power on behalf of their customers.

Essentially, then, the electric system would mirror many aspects of the natural gas industry in many respects. Currently, the natural-gas industry is competitive at the wholesale level. Regulators annually review purchases made by natural-gas distribution utilities on behalf of retail customers, and there is price regulation of the infrastructure needed to deliver natural gas to consumers. However, instead of being determined by rate regulation, natural-gas fuel prices are determined by market factors.

If electric generation is restructured in this manner (through such means as addressing market power and subsequently removing price regulation), several results would be expected to occur:

Potential advantages:

- More facilities. Given the current high prices of electricity during Minnesota's peak summer period, more generation owners might build more intermediate and peak generation plants in Minnesota.
- Lower costs. This approach may give generation owners an incentive to keep their costs low so they can compete with other suppliers. In contrast to the current "cost-plus" system where electric utilities have high certainty that they will recover virtually all costs of generation facilities (and purchased power), the competitive pressure to keep costs low may be one of the benefits of a restructured electric system.

Potential disadvantages:

- Price. Currently, low-cost generation facilities are dedicated to serving Minnesota consumers. Divestiture and deregulating generation facilities eliminates this link, resulting in a bidding-up of the cost of power from those facilities. Consumers with some market strength, such as large power users, may be able to negotiate with their utility to evade these increased costs, but captive customers (residential and small business consumers) would likely have no such option. These consumers may disproportionately feel the short to mid term affects of the transition to a robust competitive wholesale power market.
- Market Power. There is strong evidence that the generation market is overly concentrated, allowing some utilities to enjoy a market position in the generation sector that would allow the utility to exercise market power in a deregulated generation market. Currently that market power is constrained by the regulatory oversight of the PUC and the DOC. In order to ensure that a robust wholesale market is created, the structure of the market must be carefully thought out. It is unlikely that a competitive market would result from simply requiring functional or actual unbundling (divestiture) generation from distribution. It would also require a re-structuring of the generation market, to ensure appropriate market structure and reduce the possibility of consumer harm through the exercise of market power.
- Discrimination and self-dealing. It would be critical to ensure that generation associated with a distribution utility within a larger corporation would not receive any preferential treatment from the distribution utility. Rules to ensure strict non-discriminatory practices and procedures would have to be

developed, increasing transaction costs. Alternatively, such corporate arrangements could be prohibited.

- Transaction costs. In the near term, as generation owners and distribution utilities develop a system to accomplish the transactions needed to deliver and pay for energy supplies, costs may increase, at least temporarily. The extent to which costs increase, and are sustained, depends on the complexity of the transaction system that is developed; the more simple the system, the more likely that cost increases will be kept to a minimum. It is possible that costs may decrease over time if more efficient systems than those currently in place are developed.
- Marketing. In addition to developing a system to buy electricity, distribution utilities will incur costs of obtaining information about prices and reliability of suppliers.¹⁸ These costs should decrease over time as distribution utilities learn about energy suppliers. However, there will be ongoing marketing costs as electric suppliers encourage distribution utilities to purchase power from them.
- Uncertainty. At least in the early stages of development, there would be uncertainty about how market entrants will perform. When generation is operated by entities that are not subject to jurisdiction by the Public Utilities Commission there may be less certainty that suppliers will always perform well for Minnesota consumers if these owners find more lucrative markets elsewhere. Contractual obligations and the need to maintain market credibility will encourage generation owners to meet their obligations to sell power in Minnesota. If these generation owners do not perform well, distribution utilities will purchase power elsewhere. This market pressure has been fairly effective in the natural-gas industry, which presently operates under such a market structure.

¹⁸ Currently, vertically integrated utilities rely primarily on their own generation, and supplement with purchases as needed. As such, while there are minor costs under the current system of tracking performance of wholesale purchases, the distribution part of a vertically integrated utility typically knows about the reliability of its generation system.

Proposal: Competitive Bidding for New Resources

In light of these significant disadvantages, the DOC proposes that a move to a fully deregulated wholesale market be undertaken slowly and with great caution. As a first step, the DOC proposes instead to intensify competition “at the margin,” at the point where the decision to dispatch the last power plant necessary to meet current demand is made. Microeconomic theory is based on the idea that prices in a market are set by the marginal cost of the last unit supplied to meet current demand. The value or price of that unit sets the price for all the units supplied before it. Therefore, if the marginal cost of the last power plant dispatched can be lowered or minimized through robust wholesale competition, the price for all the power produced to meet demand in that market is lowered or minimized.

Under the “wholesale competition at the margin” option, all generation that is currently under PUC jurisdiction would remain so, but all new resources needed to meet demand would be procured through a competitive bidding process. An IOU, G&T or MPA needing additional resources to meet forecasted load would issue an request for proposal to construct that facility and would acquire that additional power through a wholesale purchase power contract, thus introducing additional competition into the system. Currently, Northern States Power Company is subject to this requirement for all new resources needed by NSP. The bidding process must be simplified relative to the NSP bidding process.

This approach requires low-cost generation currently serving Minnesota consumers (and under the rate- regulatory authority of the PUC or other relevant regulatory authority) to continue to be dedicated to serving those consumers. Additionally, to the extent that market power in the generation sector of the regional industry is an issue, the opportunity to exercise that power remains constrained. Finally, this approach allows competitive forces to be introduced without losing the benefits of the current system.

Generation Market Power

Competition involves rivalry among firms for customers. Usually this rivalry involves providing better service, different services, or a better price. Mere rivalry in a market does not, however, make that market "competitive." A competitive market structure

generally requires a number of comparable suppliers in the market as well as a sufficient number of comparable customers.¹⁹

By "comparable" economists mean that several suppliers of generally equal size and market share participate in the market to serve several customers of equivalent demand characteristics. Otherwise, a dominant supplier (or group of suppliers) can exert market power over the market, meaning the dominant actor could raise prices without experiencing a decrease in revenues. A dominant customer can also have an adverse influence on the market. As a result the overall benefits of competition may not be realized. These benefits include

- Lower prices (or in technical terms, output prices approximating the marginal aggregate costs of inputs);
- More efficient allocation of resources;
- Increased innovation and differentiation of services; and
- Better quality products or services.

The distinction between the mere rivalry between competitors and a competitive market structure is important. Creating or developing a competitive market structure may be more important than merely allowing competitors to compete. A market in which ten suppliers compete, but which has a dominant supplier with 75 percent of the market, may not be a competitive market, even though the multitude of suppliers contend with one another for customers. Likewise, a market with two or three comparable suppliers, each with equal market shares, may also not be a competitive market.

As was discussed previously, the generation sector of the Minnesota electric industry is highly concentrated. The Herfindahl-Hirschman Index (HHI) is an indicator of market concentration. The federal Department of Justice presumes that markets with an HHI

¹⁹ Some economists have argued that actual competition among market participants is not necessary in order to achieve some of the benefits of competition. These economists contend that the benefits of competition can be derived from the ability of potential market participants to enter the relevant market and compete, should the current firms in the market attempt to increase prices. This theory, the contestability theory, is predicated on the expectation that current market participants will constrain their behavior and keep prices down in order to keep potential entrants out of the market, thus exacting certain of the benefits of competition, without actual competition. Other economists respond that this theory is not useful in actual practice because market barriers will restrain the potential entrants from entering the market, thus allowing current market participants to extract monopoly or oligopoly prices from customers. See Shepherd, William G. "Contestability vs. Competition-Once More," **Land Economics**, volume 71, number 3, August 1995, p. 299+.

below 1000 are unconcentrated; markets with an HHI above 1800 is presumed to be highly concentrated. The HHI for some firms in Minnesota exceeds 3000. If Minnesota is to move toward additional deregulation and greater reliance on market forces to set generation prices, this concentration in the generation market must be remedied.

Some argue that enforcement of anti-trust laws by the courts is a sufficient remedy for market power. However, as the Department of Energy stated recently

Anti-trust remedies are not well suited to address problems of market power in the electric power industry that result from existing high levels of concentration in generation. As noted in recent testimony from the Department of Justice, the anti-trust laws do not outlaw the mere possession of market power that is the result of skill, accident or previous regulatory regime.²⁰

²⁰ Horizontal Market Power in Restructured Electricity Markets, U.S. Dept of Energy, March 2000, at v.

Proposal: Police Market Power Abuses

As a first step toward creating a competitive market structure for generation in Minnesota, the DOC proposes that it be explicitly charged with analyzing the structure of that market, and with monitoring the market behavior of participants in the generation market. In addition, the DOC proposes that the PUC be given explicit authority to address market abuses, to order both behavioral and structural remedies.

Operation of the Wires

Transmission – Regional Transmission Entities

On May 12, 1999, the Federal Energy Regulatory Commission (FERC) issued a Notice of Proposed Rulemaking on Regional Transmission Organizations (RTOs), and issued its final rule on RTO's ("Order 2000") on December 15, 1999. RTOs, according to the FERC,

. . . will alleviate stress on the bulk power system caused by changes in the structure of the industry, improve efficiencies in the transmission grid management through better pricing and congestion management, improve grid reliability, remove remaining opportunities for discriminatory transmission practices, improve market performance, increase coordination among state regulatory agencies, cut transaction costs, facilitate the success of state retail access programs and facilitate lighter-handed regulation.²¹

Although the FERC states that RTOs will bring all of these benefits to the wholesale power market, the Commission encouraged, but did not mandate, membership in RTOs. The FERC favored mandating membership in an RTO but was concerned that legal challenges to the Commission's authority to issue a blanket mandate would delay the implementation of the order. Instead, the FERC ordered utilities to either join an RTO by October 15, 2000, or tell the Commission why they have not.

The DOC agrees that these organizations will provide significant benefits to the reliability and efficiency of the regional grid. At the same time, the DOC is concerned about ceding authority and responsibility, now vested in regulated utilities and in the PUC, over to a regional entity.

²¹ FERC News Release, May. 15, 1999.

Proposal: Order Membership in Regional Transmission Organizations While Retaining Continuing Jurisdiction Over the Relationship.

The reliability of the regional transmission system is of critical importance to the state. Regional entities are currently evolving to operate the system and to ensure regional reliability. The success of these entities is critical to Minnesota consumers, but, at the same time, the state should not cede its obligations to those regional entities.

In order to create an environment in which reliability of the regional grid is enhanced while protecting the interests of Minnesota consumers, the DOC proposes to:

- Require all transmission owning entities in Minnesota to join a regional reliability entity and a regional transmission organization by December 31, 2001.
- Direct DOC, in collaboration with PUC, to aggressively advocate state concerns at the regional reliability entities, and to work with other affected state regulators to ensure the regional reliability entities address the public interest.
- Clarify state law to explicitly grant PUC continuing jurisdiction over the relationship between a regional reliability entity and any Minnesota member of that entity.

Distribution – Distribution Performance Standards

There are currently no standards by which to judge a distribution utility's performance regarding outages, maintenance or safety. As utilities begin to cut costs, consumers may see reduced performance in these areas.

Proposal: Establish Performance Standards for Distribution Utilities

To allow consumers and regulators to assess distribution utility performance, the DOC proposes that the state establish safety, maintenance, performance standards for distribution utilities. To be fair and effective, those standards must reflect differences among service territories, and treat similarly situated utilities in a like manner.

Once established, these performance standards can also be used as a basis for some form of performance-based regulation of rate-regulated distribution utilities.

Section Three. Conclusion

“California’s electric system is no longer consistently reliable”²²

- Michael Kahn, Chair, California Electricity Oversight Board
- Loretta Lynch, President, California Public Utilities Commission

The recent statement from the California regulators to Governor Davis serves as a stark reminder of the consequences of failing to act to forestall electric reliability problems.

The proposal detailed in this report will help ensure that no Minnesota regulator will ever have to make a similar statement. The Keeping the Lights On initiative is a prudent, necessary and measured response to the reliability issues facing Minnesota.

In addition to addressing these issues, the Initiative will also put in place mechanisms, such as the State Energy Policy Plan, to proactively and aggressively establish a rational, accountable energy policy for the state.

The Initiative is a work in progress, and the DOC seeks extensive input from interested parties over the next few months, as the DOC works to add additional detail to these proposals. It is clear that the Initiative does not embody the policy agenda of any stakeholder group – no one gets everything they want from this proposal. However, the DOC expects that all such stakeholders will recognize the value in supporting and enacting this Initiative in the upcoming legislative session, as a bold and important first step in securing Minnesota’s energy future.

²² Summer 2000 Report to Governor Davis regarding California’s Electric System, August 1, 2000.

Appendix A: What is Retail Competition?

Rate Unbundling + Deregulation of the Choice of Generation Supply

As used in this report, the term “restructuring” is used as a synonym for retail competition. Essentially, retail competition entails both: 1) “unbundling” the generation component of the electricity rate from other components and pricing generation separately; and 2) deregulating the choice of electricity supply.

I. Rate Unbundling

The retail rate for electricity sold by utilities in Minnesota is regulated or established by a regulatory authority charged with oversight of the utility. This is the case regardless of whether the power was sold by:

- 1) an investor-owned utility like Minnesota Power or Northern States Power (“IOUs”);
- 2) a municipal utility like Rochester Public Utilities or Willmar Municipal Utility (“Munis”); or
- 3) a rural electric association like Federated or Kandiyohi (“Co-ops”).²³

The regulatory authority reviews the costs incurred by the utility and establishes or approves a rate sufficient to allow the utility an opportunity to recoup those costs. Currently, this rate is a “bundled” rate. Included in this bundle are the costs of generating (producing), transmitting (transporting in bulk) and distributing (providing to a final consumer) the electricity to the consumer.

In addition to these costs, this rate also includes costs relating to:

- 1) oversight of utilities by regulatory authorities;

²³ The Public Utilities Commission (“PUC”) has primary authority over the regulation of IOUs, whereas municipal distribution utilities are regulated by the relevant municipal authority and cooperative distribution utilities are overseen by a board comprised of co-op members.

- 2) maintenance and operation of the infrastructure to transport and distribute electricity;
- 3) environmental protection;
- 4) universal service and other consumer protections;
- 5) research and development;
- 6) a return on shareholder's investment (IOUs only); and
- 7) the construction of additional facilities.

“Unbundling” refers to the separation of those costs specifically related to the generation of electricity from the other costs “bundled” within the current rate for electricity. This separation allows for the pricing of “generation,” or electricity production and supply, independently from the other costs of providing electricity.

II. Deregulation of Choice of Generation Supply

In Minnesota, each electric utility with distribution responsibilities has been granted an exclusive service territory. Each utility may serve only those retail customers located within its service territory. In turn, no other entity or electricity supplier may serve those retail customers.

Thus, a retail customer must take electric service from the utility in whose service territory the customer is located, and, except in certain limited circumstances, at the rate established or approved by the applicable regulatory authority. This obligation goes both ways; the customer has to purchase service from the utility and the utility has to provide it.²⁴

²⁴ The reciprocal nature of this relationship may be important in states like Minnesota, where electricity rates are low compared to the national average. Under a restructured industry, producers of low-cost power that currently sell their power to Minnesota customers may sell their power on the retail market to the highest bidder. Absent adequate competitive pressures, this could result in higher prices for consumers in this state, as Minnesotans may have to pay more for the same electricity, or purchase higher priced electricity elsewhere.

As part of its obligation to provide electric service, the utility is responsible for generating sufficient electricity, or must arrange for the generation of sufficient electricity, to meet its customers' power needs.

Most parties involved in the debate over restructuring agree that deregulation of generation would mean that:

these reciprocal obligations would be terminated;

a utility's exclusive service territory would be abolished with respect to electricity production and supply, allowing other entities to compete to provide generation services to the utility's former customers;

the responsibility for selecting an electricity supplier and arranging for sufficient generation to meet a customer's needs would shift from the utility to the customer; and

the price for electricity generation would be unbundled from the cost of other components of electric service, and would be set by market forces, not by a regulatory authority.

Note: Nearly all participants in this discussion agree that restructuring does not mean that the electric industry would be entirely deregulated. Under most restructuring proposals, generation is deregulated, but distribution and transmission remain subject to comprehensive regulation. Thus, deregulation of generation does not necessarily mean that other entities would be allowed to compete to provide distribution services and other electric services to retail customers in a utility's exclusive service territory. In general, these other services would continue to be provided by the customer's current utility, at rates set by a regulatory authority. In addition, the industry would remain subject to other forms of regulation, such as environmental standards, reliability requirements and anti-trust restrictions.