

WISCONSIN ' S ENERGY NEEDS:

WHAT A GROWING ECONOMY WILL REQUIRE & HOW TO MEET THE DEMAND

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#### SUMMARY STATEMENT

Additional electric generation and transmission facilities are needed to meet the demands of Wisconsin ' s growing economy. Support for siting these facilities, including a proposed transmission line through central Wisconsin, is critical to meeting the state ' s future energy needs.

## I. OVERVIEW

Over the last century Wisconsin's energy industry has met the demands of Wisconsin business and has continually evolved in response to economic growth, customer demands, public policy changes, and technological advances. However, to continue to meet the needs of Wisconsin's vibrant economy, Wisconsin's energy industry must reinvest significantly in its infrastructure. It must do so in a way which meets landowner concerns, is environmentally responsible, and maintains reasonable costs for customers.

Improving Wisconsin's energy infrastructure will prove challenging. Currently the public is unaware of the significant need for new infrastructure and is skeptical about any energy infrastructure improvements. The public believes that Wisconsin's energy challenges can be met largely with a combination of conservation, energy efficiency improvements, and renewable resources. However, Wisconsin's expanding economy has caused energy demand growth to outstrip improvements that can be made with efficiency gains and renewable resources. Even when the need for additional facilities is recognized, siting these facilities is difficult because of public opposition.

Wisconsin is an energy island with poor integration with the surrounding region. Improving electric integration of Wisconsin's market into a wider regional or national market is critical to improving reliability for the state.

It is important for current customers and the economic prosperity of the state to keep prices low and stable. This will happen only by building both transmission and generation facilities. Fuel diversity in the construction of generation provides alternatives that help keep costs low.

Wisconsin's focus needs to be on actions that ensure and incent the construction of new generation and transmission facilities to meet Wisconsin's expanding power needs. A significant public education and awareness campaign is necessary to overcome the current public resistance to new energy production facilities. To encourage Wisconsin's utilities and other interested builders to build the needed energy facilities, Wisconsin's energy regulator, the Public Service Commission, will need to allow structures that ensure reasonable capital recovery and returns for those investments. Innovative capital structures and risk-sharing measures may need to be adopted to attract the significant capital necessary. New ways of making utility rate base investments or providing non-traditional incentives may provide the needed impetus for the investment of that capital. Improving Wisconsin's energy infrastructure to meet Wisconsin's economic demands is a multi-billion dollar proposition.

## II. THE WISCONSIN SITUATION

Seven simple facts are true about energy in Wisconsin . . .

1. The types of tools, appliances, instruments, etc., requiring energy have increased dramatically in the past decade and will continue to do so in the future.
2. The number of people using those tools, appliances, instruments, etc., has increased dramatically in the past decade and will continue to increase.
3. Energy demands in Wisconsin will continue to increase over the next ten years.
4. Wisconsin's existing infrastructure will not be able to meet increased future demand.
5. The public is unaware of Wisconsin's serious need for improved energy infrastructure and is skeptical about, or even hostile toward, infrastructure improvements; this allows the ANIMBY's (Not In My Back Yard) to triumph over good public policy since without this understanding a good public policy debate cannot take place.
6. Wisconsin is an energy island with highly concentrated incumbent suppliers and with no easy competitive solution to its shortages.
7. Large central station plants and transmission lines will still be needed since new technology to make energy is still in its emerging stage and will be so for at least the next decade.

These facts drive the need for energy expansion in Wisconsin.

1. The types of tools, appliances, instruments, etc., requiring energy have increased dramatically in the past decade and will continue to do so in the future.

In the 1940's energy demand in Wisconsin was driven by home appliances such as radios, phonographs, and lights, and by commercial and industrial process equipment. Today most households and businesses have multiple computers, large electric appliances, multiple televisions, and other new equipment demanding energy. Economic growth, the transition to a digital age, and increased air conditioning load caused by these appliances drives electric peak demand forecasts upward.

2. The number of people using these tools, appliances, instruments, etc., has increased dramatically in the past decade and will continue to do so in the future.

Wisconsin's population has grown from 3.1 million to 5.3 million over the past 50 years and is projected to grow at almost one percent per year in the future. The number of Wisconsin households has increased from 1.8 million to 2.1 million over the past 10 years and is projected to continue to grow at 1.3 percent per year into the future. Commercial employment is projected to rise at about 2.5 percent per year as are commercial and industrial output. This increase in population and economic output increases the need for new energy

supply.

At the same time the per capita use of energy in Wisconsin has grown 13 percent over the decade of the >90s compared to less than 5 percent in the decades of the >70s and >80s.

3. Energy demands in Wisconsin will continue to increase over the next ten years.

Wisconsin's energy needs are projected to grow as a result of continuing economic growth and the increases in the amount of equipment and the number of people. Electric growth is projected at 2-3 percent per year which equates to 250-350 megawatts (MW) per year. This is equivalent to one moderate size power plant per year.

Recent surveys have shown that most people believe that they use about the same or less energy about five years ago. For example, energy use per residential customer has grown more than 20 percent in Dane County alone over the last 20 years, and energy use per business customer has grown more than 52 percent over that same timeframe.

While conservation and energy efficiency improvements have cut the energy growth rate, energy growth has still outstripped the ability of conservation and efficiency improvements to substitute for new facilities. Moreover, with currently available technology the cost of meeting growing energy needs entirely with all renewable resources would be prohibitively expensive. For example, solar energy production is still approximately 10 times more

expensive than conventional kinds of production.

4. Wisconsin's existing infrastructure will not be able to meet increased future demand.

Nearly 10 percent of Wisconsin's energy is generated at plants that are more than 50 years old. Another 10 percent is generated by nuclear plants that will have to be either retired or re-licensed early in the next decade. In all, 65 percent of Wisconsin's electric production depends on plants that were built more than 20 years ago.

In addition to aging generation facilities, Wisconsin has limited ability to import energy.

Wisconsin is an electrical island with two (and a half) undersized bridges that severely limit the electricity that can flow into Wisconsin from outside sources. Improving the transmission facilities necessary to import more energy has produced rancorous public debates.

The rest of the Midwest is better connected than Wisconsin. The competition for energy imports is stiff. Import capability to Wisconsin is sold out with standing room only. Energy imports into Wisconsin are interrupted a significant numbers of days a year because the transmission lines are full. These lines fill up not only as a result of imports into Wisconsin, but also when energy is transported from Minnesota and points north and west of Minnesota to St. Louis, Chicago, and other large markets south and east of Wisconsin.

The demand for energy in Wisconsin continues to grow. If no significant plants are constructed, by 2004 Wisconsin will be approximately 1,000 MW short of being able to meet its demands and by 2010 will be 4,000 MW short. Wisconsin is less than two years away from a problem and less than 10 years away from a crisis.

The cost of meeting new demand is also daunting. Assuming Wisconsin builds only 3,000 MW over the next 10 years, \$3-\$6 billion of capital must be raised. This exceeds the amount spent on energy infrastructure over the past century.

In addition, Wisconsin faces significant future energy price risks because most new generation facilities proposed to date (with the exception of a small amount of renewable generation) would burn natural gas. There is a serious question about the adequacy of Wisconsin's natural gas pipeline infrastructure to support significant electric generation additions. Moreover, given the dramatic increase in the cost of natural gas experienced recently, there is increasing concern about relying on natural gas for all new generation. Long-term price concerns and volatility make fuel hedging a significant issue to review.

5. The public is unaware of Wisconsin's serious need for improved energy infrastructure and is skeptical about, or even hostile toward, infrastructure improvements; this allows the ANIMBY's@ (Not In My Back Yard) to triumph over good public policy since without this understanding a good public policy debate cannot take place.

Despite consumption data to the contrary, most people believe that they use the same amount or less energy than they did five years ago and that they will not increase their energy use over the next five years. In addition, recent public survey data shows that most people believe Wisconsin utilities can generate all the power that is needed in Wisconsin or can ship in energy from out of state to meet all demand. Almost 3/4 of the people surveyed believe that this would be true five years from now. Most believe that Wisconsin utilities do not have a difficult time meeting Wisconsin's energy demands throughout the year.

Although many believe that Wisconsin's economic growth depends on our ability to meet Wisconsin's future energy needs, public opinion is evenly divided on whether or not new transmission lines are needed and whether new plants are being proposed only to sell energy outside Wisconsin.

Public intervention in pending PSC cases for the building of needed transmission lines is at an all-time high. Highly organized local landowner groups dispute the need for any new energy infrastructure in Wisconsin.

At the same time Wisconsin's communities are routinely rejecting siting requests for new generation facilities.

These actions are consistent with the survey data that shows the public is not aware of Wisconsin's significant energy infrastructure needs. On the other hand, the same surveys show that significantly more than half the customers surveyed desire more information and want to be involved in infrastructure decisions.

Without significant public awareness of the need, no responsible public policy debate can occur over the need for public infrastructure versus the concerns of local landowners and residents who bear the burden of being neighbors to those facilities. Without such a responsible public policy debate about the trade-offs necessary to accommodate growth, including new energy production facilities, the ANIMBY'S of the world win by default.

A concerted public education/public awareness campaign needs to be built to educate people on the serious challenge Wisconsin confronts for its energy future.

6. Wisconsin is an energy island with highly concentrated incumbent suppliers and with no easy competitive solution to its shortages.

Historically, Wisconsin's energy policy required Wisconsin utilities to build facilities that were necessary for Wisconsin's energy needs as a whole, but provided no significant surpluses compared to projected needs. As a result, Wisconsin finds itself in a market with extremely limited import transmission capability, relatively tight reserve margins, and high

concentrations of generation ownership among the incumbent Wisconsin utilities.

Recent studies about market power in the Wisconsin utility industry conclude that Wisconsin's energy supply shortage, constrained transmission system, robust and increasing demand for electricity, and lack of alternatives to electricity create an environment in which Wisconsin's electric producers could exercise significant market power if electric price regulation was eliminated in Wisconsin today. The studies suggest that for at least the near term price regulation of energy will be a necessary fact of Wisconsin life.

7. Large central station plants and transmission lines will still be needed since new technology to make energy is still in its emerging stage and will be so for at least the next decade.

New ways of producing energy, from sources other than burning coal and gas to spin generators, will not solve Wisconsin's immediate shortages. While photovoltaics (PV) may provide promise for new building development where the PV is integrated as part of the building's energy supply, commercially useful PV is still years off. Fuel cells may also provide opportunities to power individual buildings or even neighborhoods, particularly where the heat thrown off by the fuel cells can also be harnessed for heating or process applications. Like PV, however, fuel cell technology is still years away from being commercially competitive with central station generation.

For the foreseeable future, PV and fuel cells and other emerging technologies may fill a small but significant niche in providing Wisconsin's energy. However, the current evolution of these technologies does not suggest that they will replace central station electric production entirely. While they may help deal with Wisconsin's energy growth, the likelihood that they will replace Wisconsin's large generating infrastructure is remote.

Given this reality Wisconsin energy policy will need to find new ways to incent the construction of needed generation and transmission facilities to meet Wisconsin's expanding power needs.

Recent proposals by active participants in Wisconsin's energy policy debate may provide the catalyst for uncovering the necessary incentives. For utilities and their investors the magnitude of the necessary investment in energy infrastructure demands the need for more certainty on the return on those investments and the risks attendant to them.

### III. CONCLUSION

Avoiding the pitfalls that have plagued others in the country (notably California) while ensuring continued reliable, affordable energy supplies to drive Wisconsin's vibrant economy will require the active involvement on all sides of the debate. Wisconsin's energy policy should continue to build on the state's strong leadership which has produced reliable energy supplies for Wisconsin's customers at costs significantly below the national average for the last century.

Educating Wisconsin's citizens on the need for energy improvements and developing a consensus on the magnitude of those needs could overcome public apathy and build a workable plan to bolster Wisconsin's energy infrastructure. A high level energy summit of the Governor, Public Service Commissioners and major industry leaders could help educate the public regarding Wisconsin energy needs.

Support for the siting of needed facilities is crucial for getting these facilities built. An endorsement coming out of the Economic Summit of a proposal to build a transmission line through central Wisconsin can be a first step in supporting the facilities necessary to meet the needs of Wisconsin's growing economy for the next century.

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