

## Wisconsin's Lack of Energy Planning – Corrective Steps We Can Take

Prior to 1998, every time a Wisconsin utility wanted to build a new a power plant or expansion transmission line, utilities were required by state statute to prove to Wisconsin electric customers that their dollars would not be better spent on, “end user” investments such as energy efficiency, load management and developing local power. This cost-benefit assessment called, “Advance Planning” remains in wide use across the United States today; the discontinuation of comparative analysis in WI has greatly altered energy spending emphasis.

Since 2005, WI electric customers have assumed costs of seven, high capacity expansion transmission lines (shown as A-G in Figure 1). Utilities promised they would lower Wisconsin electric bills and reduce state CO2 emissions.

Commenting upon the rate and fee increases that occurred as customers began paying for these facilities, the Wisconsin PSC explained, “Beginning in the late 1990s, Wisconsin entered a construction cycle with significant investment in electric generation and transmission facilities. This construction cycle continued for over two decades, and utilities are now recovering associated construction costs [from electric customers] in rates.” [WI, PSC, SEA, Fall 2016]

Today, U.S. Department of Energy records clearly show that the promised electricity cost reductions claimed for the seven, added expansion transmission lines never materialized. See Figure 2.

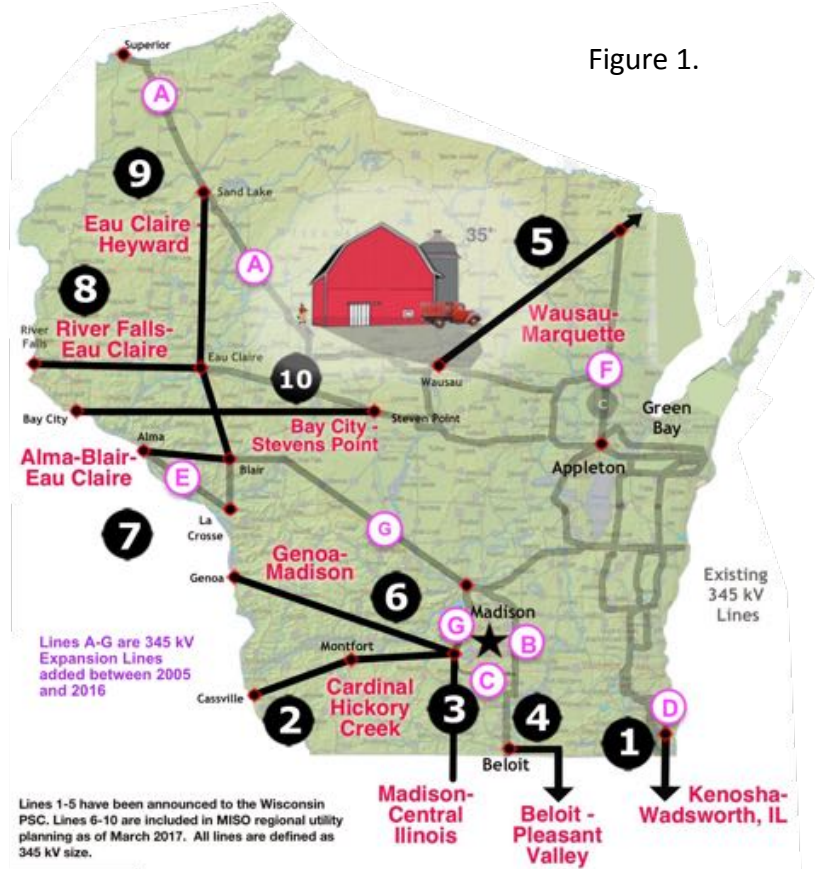


Figure 1.

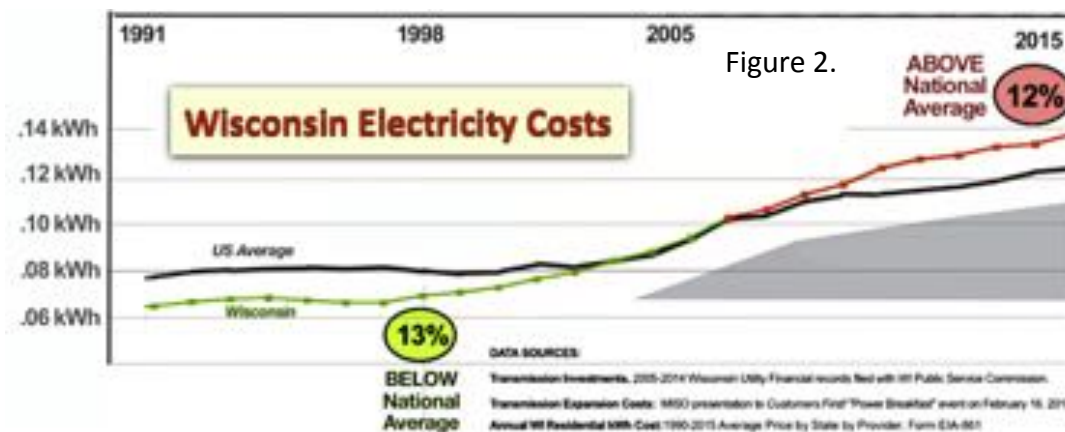


Figure 2.

To the contrary, a strong parallel exists between the 30-40 year amortized debt on transmission spending (Figure 3) and accelerated rate increases. Customer costs surged when the WI PSC began adhering to expansion planning by unified regional utility interests under the auspices of the Midwest electricity market (MISO, 2005)-- even as WI electricity use flattened and dropped.

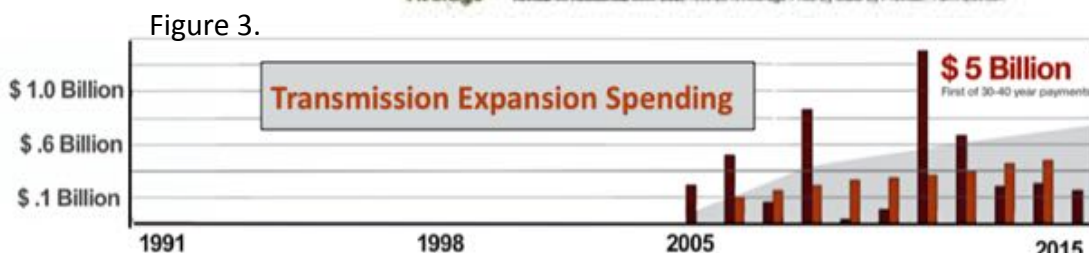


Figure 3.

Figure 4.

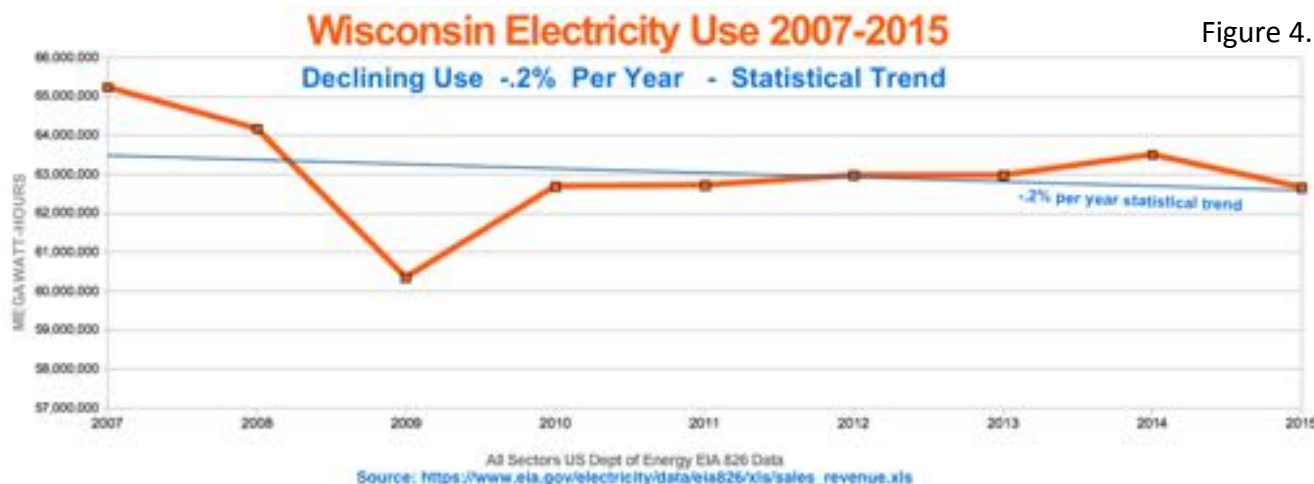
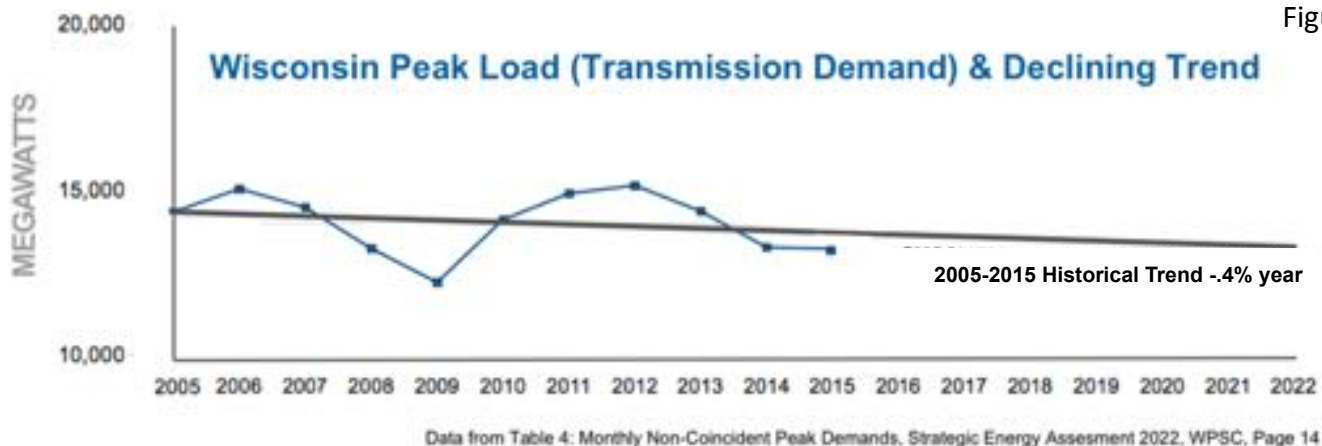


Figure 5



Electricity use in Wisconsin is dropping due to increasingly energy efficient appliances, lighting, building practices and adoption of on-site solar. The decline in peak demand on Wisconsin transmission lines (-0.4% per year) will effectively increase the robustness of our state grid 6% over the next 10 years without having to add a single, high voltage transmission line.

As economic growth is no longer tied to increased energy use and because of increasing interest in controlling CO2 emissions, many states have shifted electric customer dollars away from new generation and transmission facilities to larger investments in energy efficiency and load management to dramatically lower use. The substantial reductions in energy use not only produce significant energy savings for customers but eliminate the need to add new transmission lines and power plants.

Since 2009, at least 9 proposals for new high voltage expansion transmission lines have been replaced by more cost effective solutions including accelerated use of **No-Wire Alternatives** based on targeted energy efficiency, load management, development of distributed generation and re-configuring of existing facilities.

| Cancelled Transmission Expansion Project                | States     | Reason   |
|---|------------|--|
| Bonneville Power Administration I-5 Corridor Project    | OR, WA     | Replaced by No Wire Alternatives                     |
| Duke Energy Western Carolinas Modernization Line        | NC, SC     | Replaced by No Wire Alternatives / New technologies  |
| Mark Twain 345 kV Line                                  | MO         | Reconfigured to use existing corridor                |
| Mid-Atlantic Power Pathway (MAPP)                       | MD, DE     | Replaced by Load Management/ New technologies        |
| Mountain States Transmission Intertie in Montana (MSTI) | MT         | Withdrawn due to public controversy in scoping stage |
| Potomac-Appalachian Transmission Highline (PATH)        | WV, VA, DE | Withdrawn due to reduced load, utilized existing ROW |
| Rock Island Clean Line (Merchant Transmission Line)     | IL, IA     | Builder Denied Condemnation Right                    |
| SE Wisconsin NE Illinois Reinforcement Project          | IL, WI     | Withdrawn due to reduced load                        |
| SWEPCO Kings River Project                              | AR         | Withdrawn due to reduced load, utilized existing ROW |
| Tehachapi Renewable Transmission Project (500 kV)       | CA         | Communities succeeded in having facility buried      |

Figure 6.



# SAMPLE NEWS ARTICLE

OVERHEAD TRANSMISSION

## Disappearing Demand is a Real Issue for New Infrastructure Projects

[http://bit.ly/NTA\\_Instead\\_of\\_Transmission](http://bit.ly/NTA_Instead_of_Transmission)

BPA has decided to cancel the I-5 Corridor Reinforcement Project

By Kent Knutson  
May 24, 2017

Kent Knutson | May 24, 2017

In a February 2016 news release, the Bonneville Power Administration (BPA) announced it had submitted its final Environmental Impact Statement (EIS) on the I-5 Corridor Reinforcement Project after six years of analysis and public involvement. The project involved more than 79 miles of 500-kV line [with] an estimated cost at \$460 million.

On May 19, 2017 BPA decided to cancel the I-5 project citing non-wire alternatives including grid management and energy storage options as the most economical alternative. BPA stated, "The outcome is much bigger than a decision to build or not build this line: We are transforming how we plan for and manage our transmission system and commercial business practices, region-wide."

Though not cited in the announcement, electric demand across most areas of the grid has slowed in recent years driven heavily by energy efficiency improvements including the rapid growth in LED lighting, demand side management & behind-the-meter distributed generation.

### Demand on the Decline

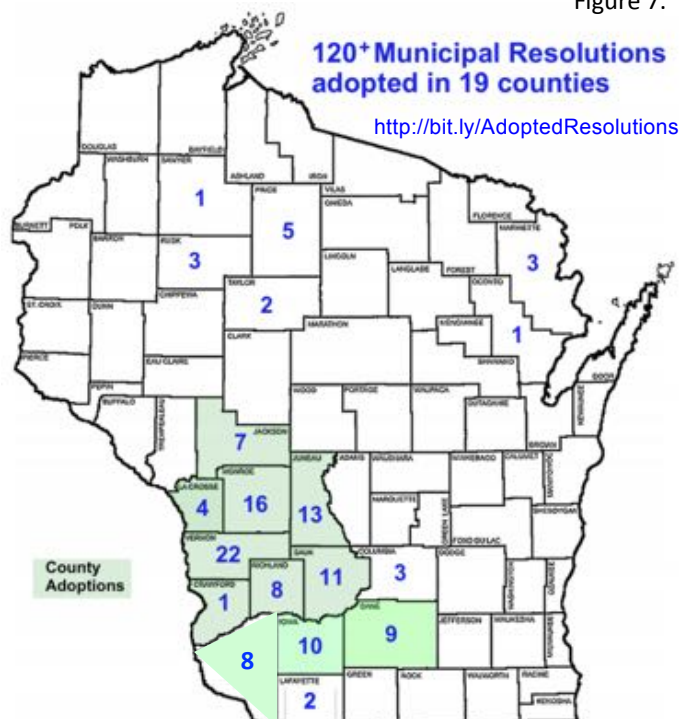
Take the March 22, 2017 New England ISO (NEISO) draft Annual Energy and Summer Peak Forecast as a case in point. In their forecast, gross energy demand is expected to rise by only 0.9% per year between 2016 and 2026. As cited in the report, when you consider regional energy efficiency and growth in residential and commercial solar, demand is expected to decline at a clip of nearly 0.6% per year. According to EIA data, since 2008, the average annual kWh consumption per residential customer has trended down from 11,042/kWh/year to a recent annual low of 10,736 kWh/year (down 2.8%) in 2016. The trend is more profound when you consider industrial demand (down 11.5%) per customer over the same period.

Given this backdrop of declining to flat electric demand growth and the long permitting and right-of-way securing process necessary for large new transmission projects, there could be more cancellations on the horizon. It creates a dilemma for utilities who need additional revenue to grow. Investment in transmission is considered an attractive regulated investment, but as interest rates increase and fuel costs tweak upward, it could quickly dampen the year-on-year spending that's been strong for several years now. My research indicates 143 projects have been suspended or canceled since 2014. Though some of these were highly speculative and enormous undertakings, the total projected spending they represent is \$66.9 billion. Of that forecasted spending \$48.0 billion (65.8%) was scheduled to come online over the two-year window 2018-19.

Fully aware that proposals for expansion transmission lines in Wisconsin were no longer being tested for cost effectiveness against **Non-Transmission Alternatives** based on accelerated energy efficiency, load management and local power, from 2011 to present, more than **110 Municipalities and 9 Counties** adopted "Information Request" resolutions requesting the transmission builders and the PSC to conduct the neglected cost-benefit analysis.

Dane County adopted the "Information Request" resolution in July, 2017 and failing to receive the over-looked analysis adopted a resolution completely opposing the Cardinal Hickory Creek transmission proposal (#2, Figure 1) by a vote of 33-0-2 (February, 2018). Grant Co. Admin Committee approved the resolution, 6-1, Mar. 13. Supervisors in Lafayette County have scheduled discussion of the resolutions in two committees.

Figure 7.



At present, Wisconsin electric customers are assuming an average cost of \$428 million per year in long term payments on previously approved transmission expansion lines (Figure 3). This on-going amount is approximately 7 times larger than that electric customers invest in rebates for the state's energy efficiency program, *Focus on Energy*. While US states increased allotments to energy efficiency programs an average 180% from 2008 to 2012, allotments in WI decreased making the annual amount committed to rebates per person in Wisconsin the lowest in the Midwest. ( Figure 8. Data from 2017 State Energy Efficiency Scorecard, ACEEE, Research Report, U1710, p.163)



Figure 8.

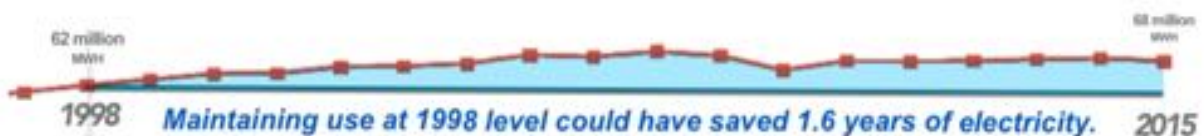
Had Wisconsin energy laws not been changed in 1998 and, instead, lawmakers chose to increase Focus on Energy rebates at the cost of 60 cents per month, our electricity use today would be the same today as it was in 1998. This reduction would have saved 1.6 years of electricity and associated CO2 emissions. At documented Focus on Energy program benefit rates, the \$870 million collected over 17 years would have produced more than \$3 billion in energy savings and more than \$10 billion in economic job creation.

Per capita annual spending towards state Energy Efficiency Program rebates in 2016.

As billions of dollars spent on new transmission and generation would have been prevented, the long term utility debt that has driven up our rates and fees would have also been avoided. The rate stabilizing effect of this *right-sizing* rather than utility expansion path over 17 years would have saved additional billions.

**Had WI legislators chosen to direct only 60 cents per month into Focus on Energy rebates starting in 1998,...**

- **1998-2015 Electricity use would have remained flat**
- **Customers would saved \$3 Billion in Electricity Costs**
- **\$10 Billion would have been channeled into local economies**
- **1.6 years of Electricity Use would have been AVOIDED**



DATA SOURCES: Electricity Growth Rate: 1990-2015 Retail Sales of Electricity by State by Sector by Provider, Form EIA-861  
 2014 Focus on Energy Evaluation - Volume 1 (FOEV1), 2014 ACEEE State Energy Efficiency Score Card (ACEEE)  
 Assumes flat energy use from 1998-2015 from increased investment in energy efficiency based on performance of 2014 \$58 million (FOEV1, Table 24, pg 28) and 2.51% /year inflation rate. Focus on Energy annual rebate pool resulting in .76% net incremental savings (ACEEE, Table 13, Page 31):

Figure 9.

Steadily Increase Use

Steadily Reduce Waste



Regional utility transmission expansion planning supposing many expansion lines in Wisconsin ignores the option of comparable dollars being invested, instead, into energy efficiency, modern load management and developing home and locally serving renewable power. While WI electricity use is already declining at the rate of about .2% per year, the utilities' failure to incorporate this alternative, *right-sizing* path into their planning allows them to assume electricity use will grow under all possible futures they.

Wisconsin's investment in the right-sizing path is the lowest in the Midwest. With considerably less money than expansion transmission lines, a Wisconsin household could be lowering consumption at the rate as much as 1.5% per year.

In this illustration, a Wisconsin household with average use in 2015 invests \$9000 in efficiency improvements and 15 community solar panels as recently offered in Vernon County. (Smaller investments in solar will also produce savings). The solar panels which offset electricity costs initially at 50% are paid for by 2030. From 2031 to 2045, the monthly utility bills for the increasingly efficient, solar and nearly carbon neutral home drop from \$70 per month to just the \$60 facility fee.

The savings returned over 30 years from the Efficiency-Solar path is about \$40,000 with \$20,000 gained from Energy Efficiency alone. An industry accepted inflation rate of 3.5% per year has been applied to both paths.