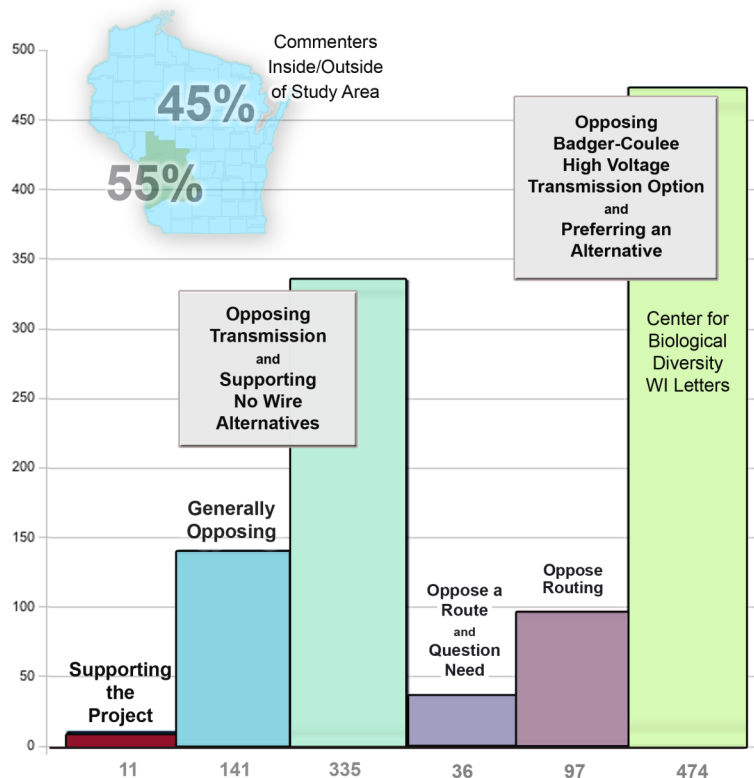


The PSC must deny approval of the Badger-Coulee proposal for these (and other) reasons:

- I. Despite four years of requests from unprecedented thousands of ratepayers, more than 90 municipal governments, PSC staff and 12 state legislators, the applicants failed to provide evidence of commensurate return from the high voltage transmission investment.
- II. Despite declining energy use and demand projections officially filed by the utilities that American Transmission Company and Xcel Energy serve and requests made by PSC Staff reinforced by outside experts, the applicants refused to re-examine any potential benefits from Badger-Coulee under projected no load growth conditions.
- III. Through all phases of the public information and application review process, the applicants obstructed ratepayers' fundamental right to evaluate all energy investment options both in terms personal choice and in accordance with Wisconsin Energy Priority Law.
- IV. Long Term Energy Planning Implications. Alternatives to transmission expansion in WI presented in the case by Mr. Powers and Mr. Lanzalotta demonstrate that any possible reliability needs that could occur far in the future can be met with much smaller investments in load management, energy efficiency and local power.



In record response of more than 1500 suggestions and comments, 1,094 were made on line and mailed in. 45% if these came from ratepayers outside of the Badger-Coulee study area. Only 9 percent foregrounded routing concerns without questioning need. Of 335 supporting No Wire Alternatives, more than two-thirds cited the engineered solution by name. 1 percent supported the Project. (Tabulation data available).

I. The applicants failed to provide evidence of commensurate return from the high voltage transmission investment.

- A) No returns are guaranteed by Wisconsin law. In order to weigh any return on the investment, ratepayers must know the upfront investment costs over 40 years and amount returned in terms of their current utility payments. The applicants refuse to provide this fundamental information
- B) Potential energy and other savings were calculated under different energy “futures” that the applicants designed and performed all analysis for. As can be seen in **Figure 1.1**, *potential* energy savings rise with higher load assumptions and range from a few cents to about 26 cents per month—meaning that any significant potential energy savings from B-C are dependent upon energy use increasing. (Critique of applicants’ assumption it will under II.)
- C) Through cross-examination, five witnesses for the applicants including the head of economic planning and two financial experts refused to state *potential* energy savings as an average monthly amount for Wisconsin ratepayers. They provided only aggregate numbers saying rate payer level refinements had not been done and were too complex. Laura Rauch, MISO's witness, later acknowledged that MISO had provided average costs and returns to ratepayers for the “MVP” or Multi-Value (Transmission) Projects in 2011. The MVP publication cites \$11 invested with \$23 returned each year from all MVP projects at 1000 kWh/mo. average use under higher than present energy demand conditions. At 7% of MVP costs, and the WI average use of 700 kWh/mo., Badger-Coulee works out to 9 cents per month-- matching the results of the simple arithmetic division method used in our figures. The applicants criticized these pennied results as not accounting for discounting but refused to provide more accurate numbers].

“This is not an analysis that the Applicants are capable of conducting, (Applicants' ReplyBrief pg5)..”.. there is no statute or regulation requiring the Applicants to do so.” , (Applicants' ReplyBrief pg6)..”

- D) To put these *potential* savings in perspective investing 75 cents in one 13 watt CFL light bulb to replace a 75 cent 60 watt incandescent one used 3 hours per day *guarantees* more than 50 cents in energy savings per month. [$3 \times 13 \times 60 / 1000 = 1.17$ kWh/mo. - $3 \times 60 \times 30 / 1000 \times = 5.4$ kWh per mo = - 4.23 kWh $\times .134$ or $.56$ saved each month.]
- E) Dropping energy use (**Figure 1.2**), solar, rapid improvements in efficiency – key factors have changed since utilities first drew up Badger-Coulee in 2005 as the premiere savings maker. If Badger-Coulee is the best example and utilities refuse to state actual bill impacts, the advice of retiring PSC Commissioner, Eric Callisto becomes very applicable: "I think we should slow down...and open up a generic investigation...[to] evaluate placing a fair and transparent value on distributed generation, and at least start down the discussion path of the role of regulated utilities in a future with flat load growth, increased distributed generation and more robust consumer involvement in energy choices .

- F) Since the late 90's, WI ratepayers have been increasingly strapped with rates increases and fees (**Table 1.3**) resulting from the WI PSC's acknowledged "construction cycle" with guaranteed "cost recovery" (40 year debt) for high capacity transmission, generation and distribution additions. (See Section IV for PSC strategy for repaying WI ratepayers for these additional costs over time).

WI RATES

"Rates can vary widely based on factors such as whether a state is in a construction cycle for generating facilities or transmission infrastructure. ... Wisconsin remains ahead of many other states with respect to its investment in new electric generation and transmission facilities... This required generation plants and transmission facilities to be constructed beginning in the late 1990s and continuing through recent years for which utilities now seek to obtain cost recovery. (PSC 2020 SEA, page 31. PSC ref # 220557)

- G) The PSC observes that in comparison with other Midwest states, Wisconsin ratepayers have been responding to the increased rates/fees in part with voluntary conservation measures (**Table 1.4**)

"[De]spite slightly [?!] higher than average electric rates, Wisconsin residential customers have the third smallest monthly electric bill when compared to neighboring Midwestern states. The average Wisconsin residential customer's monthly bill has consistently fallen at or below the Midwest average."

Figure 1.1

Relation of Assumed Future Load Growth to Potential Energy Savings

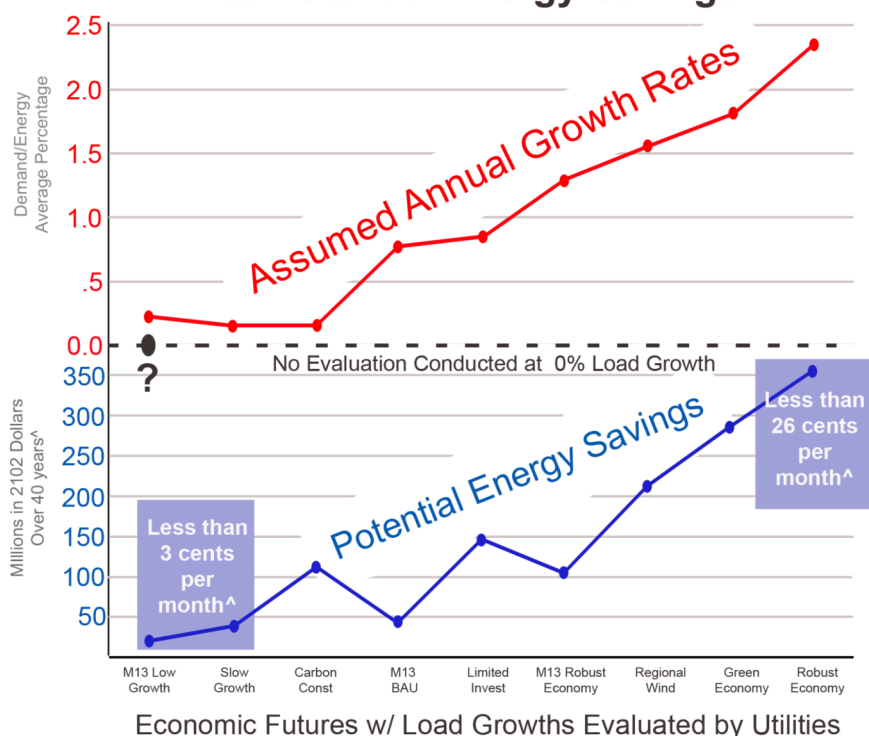
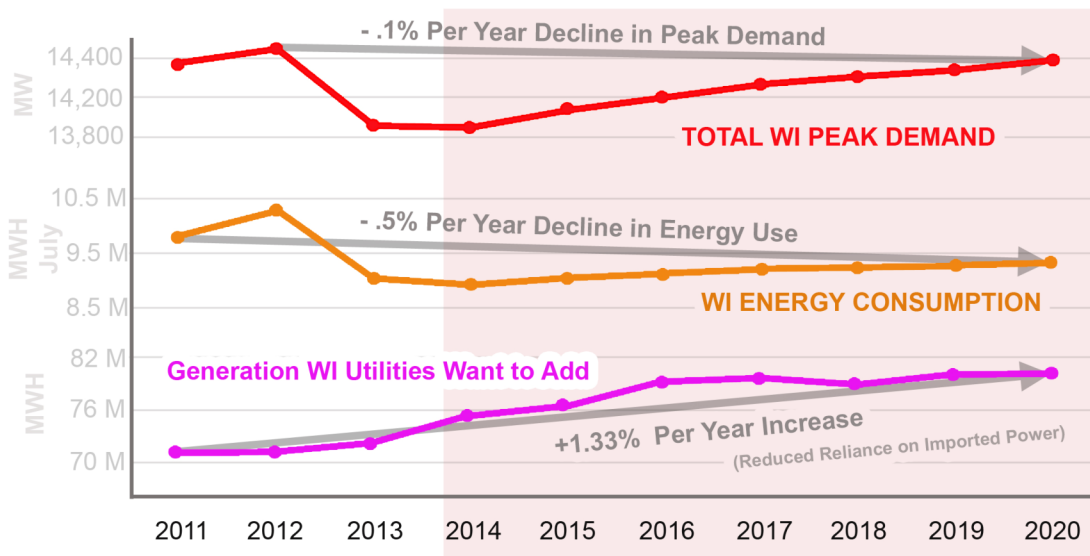


Figure 1.2

WISCONSIN UTILITIES PROJECTIONS 2014 - 2020

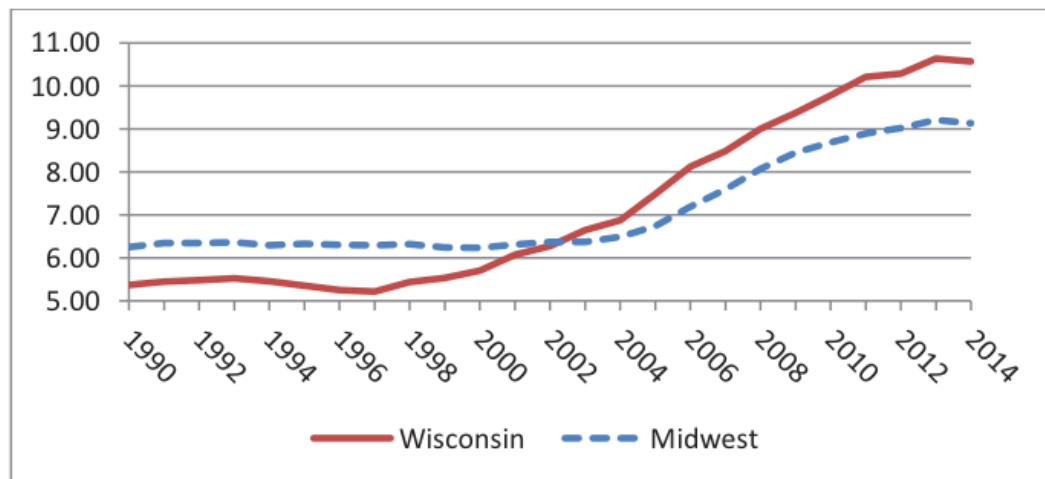


WI Utility data filed Fall 2013 on PSCW Docket 05-ES-107 for 2020 Strategic Energy Assessment

Spreadsheet data available

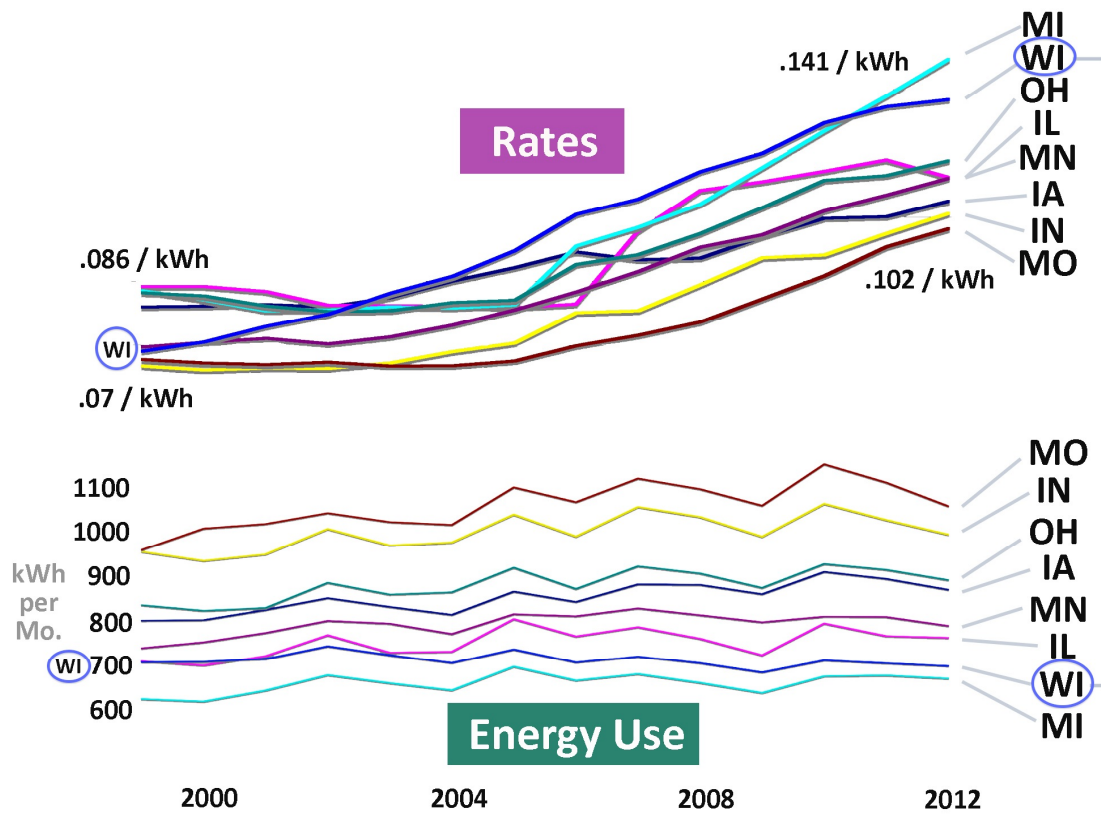
Figure 1.3 (From WI 2020 SEA)

Figure 15: Average Rates in Wisconsin and the Midwest¹⁴ 1990-2014



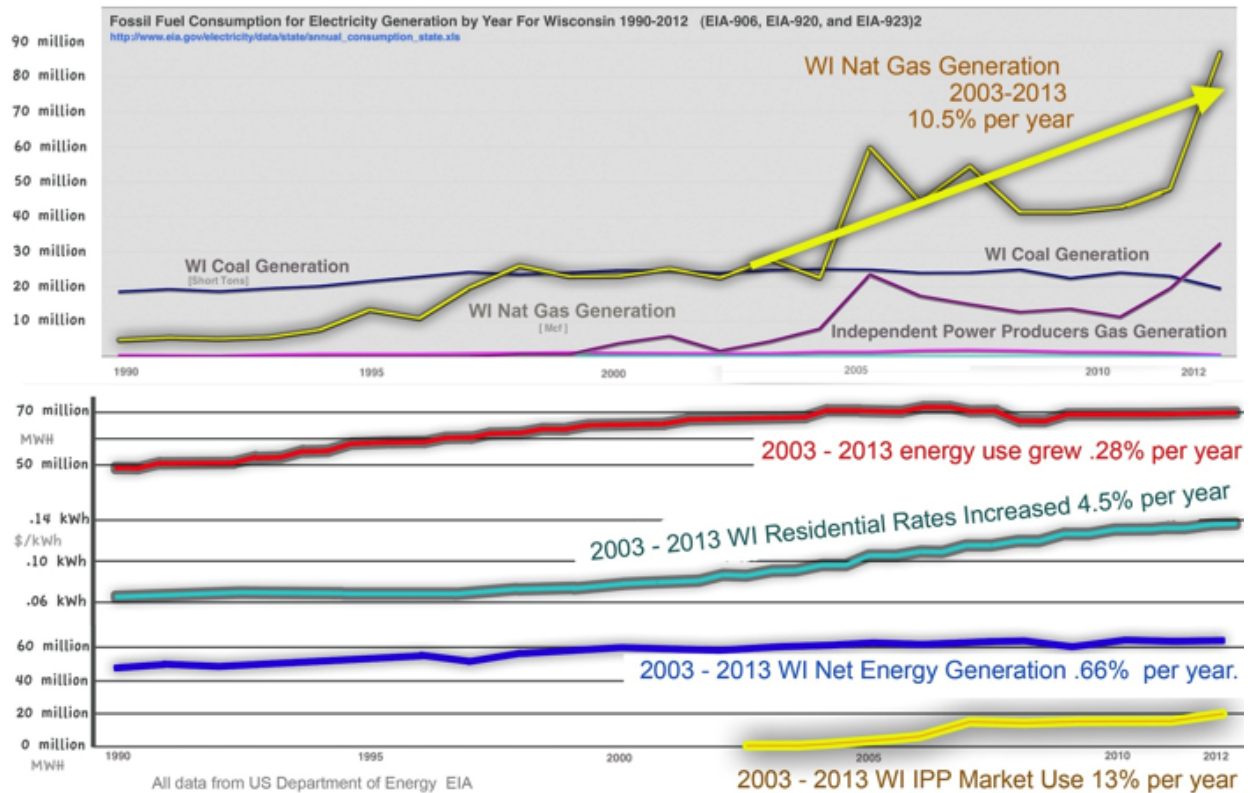
Source: U.S. Department of Energy, Energy Information Agency

Figure 1.4



Data from U.S. Department of Energy - EIA

Figure 1.5



II. The applicants refused to re-examine any potential benefits from Badger-Coulee under current and projected no load growth conditions.

- A) In his direct testimony Peter LanzaLotta, CETF/SOUL's transmission engineer who has testified in more than 130 utility cases, observed the basic relationship shown in **Figure 1.2** between assumed load growth and benefits is MISO and applicant planning dating to 2009.
- B) Similarly, on November 21, 2013 in the first letter of application incompleteness, PSC staff asked the Applicants in Request 01.93 to reformulate any need for the project with corresponding low voltage transmission projects based on currently lower peak and energy projections,

“(Application p. 28; AFR Section 2.8.) Provide an updated reliability study to determine the base case reliability projects required. The study should reflect: lower currently projected peak and energy requirements;...” (PSC REF#:193819)

Data had been supplied to ATC and the PSC that Fall for the Strategic Energy Assessment. Demand, energy and generation data from the utilities' reports is totaled in **Figure 3** showing declines in both major factors plus an increase in planned WI generation indicating declining emphasis on wholesale power purchases.

- C) Through July 2014, the applicants complained that starting over would require too much work. In Sept, they finally extrapolated an updated set of reliability lines and energy savings estimates for four futures. The lowest future did not match current zero or negative load growth, in fact is used higher not lower energy and demand assumptions (.22 % /year vs .2 % /year demand; and .22 % /year vs .1 % energy). From changes in transmission and generation they did not previously account for, the higher demand assumptions still produced only half the potential net savings (first vs. second blue points on figure 3).
- D) In cross examination, the applicants could not explain why in 126 software “runs” using different factors they did not use conditions currently projected by the utilities they serve through 2020.
- E) As values of .22 percent produced only \$19 million of potential energy savings over 40 years spread across 2.9 million ratepayers, it is very reasonable to suspect that testing zero load growth would revealed the point at which potential return is less than the investment. The applicants' refusal to use the scientific tools at their disposal when called upon by the public intervenors and the PSC staff to increase confidence is unprofessional and disserving.
- F) After criticizing CETF/SOUL and the Environmental Law Center for cherry picking their data and stating that zero load growth have never been tested before, the applicants question the relevance of the useful of the information supplied by WI utilities (LDC's),

“Thus, while the Applicants could have modeled lower load growth rates, it would have been illogical to do so given the information provided to the

- G) The Environmental Law Policy Center replies to the Applicants' refusal to conduct sound science in service to the citizens of Wisconsin the Commission,

"The Applicants have not met their burden of proof to demonstrate that the proposed new Badger-Coulee transmission line and associated facilities will provide significant reliability and economic benefits to Wisconsin citizens in order to obtain the Commission's approval of CPCN under Wis. Stat. § 196.491. Unless the Commission requires Applicants to conduct a reasonable economic and reliability analysis that uses near-zero or negative load growth, the Commission cannot fulfill its statutory responsibility to determine whether or not the proposed new Badger- Coulee transmission line will, in fact, bring economic and reliability benefits that outweigh the line's very high costs." (ELPC reply brief page 2)

Table 1 of Utility data used for Figure 2 on page 2.

All Data from PSCW Docket 05-ES-107 Required Utility Reports for 2020 SEA										
WI Summer Peaks (Tab 5)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WPS	2343	2377	2359	2279	2339	2348	2363	2367	2371	2375
WE	5646	5737	5492	5481	5542	5601	5664	5687	5706	5742
NSP	1397	1275	1133	1283	1313	1328	1348	1357	1359	1371
DPC	648	648	601	582	587	593	598	603	609	615
MG&E	698	728	638	616	621	627	632	637	642	648
WP&L	2612	2702	2603	2531	2545	2563	2582	2603	2625	2648
WIPPI	994	1006	973	923	928	932	937	942	946	951
Superior	101	105	97	103	104	105	106	107	108	109
Manitowoc	109	112	19	110	111	113	114	115	116	117
Totals	14548	14690	13915	13908	14090	14210	14344	14418	14482	14576
<----- 2012 Peak Year to 2020 -.1% per Year Decline in Peak Demand ----->										
WI Generation (Tab 2)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WPS	14,053,836	14,104,043	13,411,523	12,712,475	12,473,365	12,566,268	12,968,638	12,419,369	13,106,218	13,051,413
WE	28,552,933	27,948,972	30,127,304	32,210,565	33,480,010	35,427,982	35,725,104	35,846,368	35,889,903	36,086,282
NSP	6,049,955	6,098,984	5,830,777	6,641,415	6,550,829	6,833,871	6,802,083	6,864,246	6,876,175	6,821,662
DPC	4,063,280	3,878,552	3,646,467	4,502,012	4,687,290	4,685,975	4,833,533	4,774,105	4,870,372	4,884,067
MG&E	2,194,997	2,142,715	2,176,596	2,050,117	2,029,534	2,149,789	2,162,766	2,176,256	2,219,478	2,206,930
WP&L	13,861,346	13,908,099	13,829,400	13,836,700	13,852,400	13,878,400	13,512,900	13,262,300	13,371,200	13,488,200
WIPPI	2,184,244	3,068,203	3,144,611	3,394,343	3,488,646	3,624,620	3,531,224	3,672,120	3,596,427	3,536,708
Superior	0	0	0	0	0	0	0	0	0	0
Manitowoc	189,405	85,956	80,193	80,193	80,193	80,193	80,193	80,193	80,193	80,193
Totals	71,149,996	71,235,524	72,246,871	75,427,820	76,642,267	79,247,098	79,616,441	79,094,957	80,009,966	80,155,455
<----- 2012- 2020 Projected Increase in WI Generation +1.33 % Per Year ----->										
July WI Consumption (Tab 6)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WPS	1,243,784	1,282,723	1,157,505	1,108,294	1,144,369	1,151,885	1,159,200	1,163,025	1,164,803	1,167,825
WE	2,649,352	2,799,117	2,421,572	2,439,219	2,466,454	2,493,559	2,521,686	2,527,602	2,531,173	2,545,406
NSP	733,293	747,551	646,089	664,051	669,450	673,344	677,181	680,287	684,006	686,534
DPC	284,154	285,419	252,239	255,291	258,195	261,543	264,928	268,501	272,204	275,851
MG&E	377,460	382,613	385,003	325,107	326,699	328,542	330,410	333,353	335,224	337,087
WP&L	1,316,457	1,410,404	1,230,293	1,182,071	1,188,872	1,197,051	1,205,978	1,215,154	1,225,344	1,236,188
WIPPI	504,394	526,305	474,160	474,556	476,929	479,313	481,710	484,118	486,539	488,972
Superior	2,649,352	2,799,117	2,421,572	2,439,219	2,466,454	2,493,559	2,521,686	2,527,602	2,531,173	2,545,406
Manitowoc	51,000	54,500	49,900	50,400	50,900	51,400	52,000	52,500	53,000	53,500
Totals	9,809,246	10,287,749	9,038,333	8,938,208	9,048,322	9,130,196	9,214,779	9,252,142	9,283,466	9,336,769
<----- 2011 2020 Projected Decrease in Energy Consumption -.5% per year ----->										

III. Through all phases of the public information and application review process, the applicants obstructed ratepayers' fundamental right to evaluate all energy investment options both in terms personal choice and in accordance with Wisconsin Energy Priority Law.

- A) Wisconsin opened its utilities to the wholesale (MISO) market in 2005 and was soon presented several interstate transmission line proposals requiring new policy including the Commission Staff Final Report on Transmission Access, Docket 137-EI-100 March 23, 2006,

“Public Input: In order to strike the appropriate balance among competing interests, the interests of all involved parties must be brought to light. CPCN applicants should provide substantial, objective, public education on EHV proposals, including the opportunity for public input and feedback..” (PSC REF# 51295)

- B) Wisconsin § 1.12 (4) states these energy priorities:

In meeting energy demands, the policy of the state is that, to the extent cost-effective and technically feasible, options be considered based on the following priorities, in the order listed:

- (a) Energy conservation and efficiency.*
- (b) Noncombustible renewable energy resources.*
- (c) Combustible renewable energy resources.*
- (d) Nonrenewable combustible energy resources,...*

- C) On August 16, 2011 Vernon County was the first of more than 90 eventual municipalities (**Figure 3.1**) to adopt “Information Request” resolutions asking the applicants and subsequently the PSC for “clear, detailed information explaining the perceived needs for the high-voltage options, the low voltage options, the efficiency-only options and other options with supporting objective studies and cost benefit analysis for each” to be submitted to the municipalities during the public information phase “to evaluate and make formal comments about.” Each resolution also stated the municipality’s energy priorities as encouraged to investigate by state energy law. (PSC REF#:171353 and many others on the Badger-Coulee docket)
- D) Citizens in 61 of WI's 72 counties signed a petition supporting the cost benefit analysis of non transmission alternative requested by the municipal resolutions. Posted on the docket on June 12, 2012, the petition contains 1,357 signatures of which 1,282 are Wisconsin ratepayers residing in 228 municipalities within the following 61 counties: Barron, Bayfield, Brown, Buffalo, Burnette, Calumet, Chippewa, Crawford, Dane, Dodge, Door, Douglas, Dunn, Eau Claire, Fond du Lac, Grant, Green, Iowa, Jackson, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Lincoln, Manitowoc, Marathon, Marinette, Marquette, Milwaukee, Monroe, Oconto, Oneida, Outagamie, Ozaukee, Pepin, Pierce, Polk, Portage, Price, Racine, Richland, Rock, Rusk, Sauk, Sawyer, Shawano, Sheboygan, St. Croix, Trempealeau, Vernon, Vilas, Walworth, Washburn, Washington, Waukesha, Waupaca, Waushara, Winnebago and Wood.
- E) The extent of ATC's response was a form letter to only 8 Towns asking for cost benefit analysis including aggressive energy efficiency concluding,

*“These requests for analysis are beyond the scope of the project.”
(Ex.-Applicants-Justus-3 pg 13 PSC #229690)*

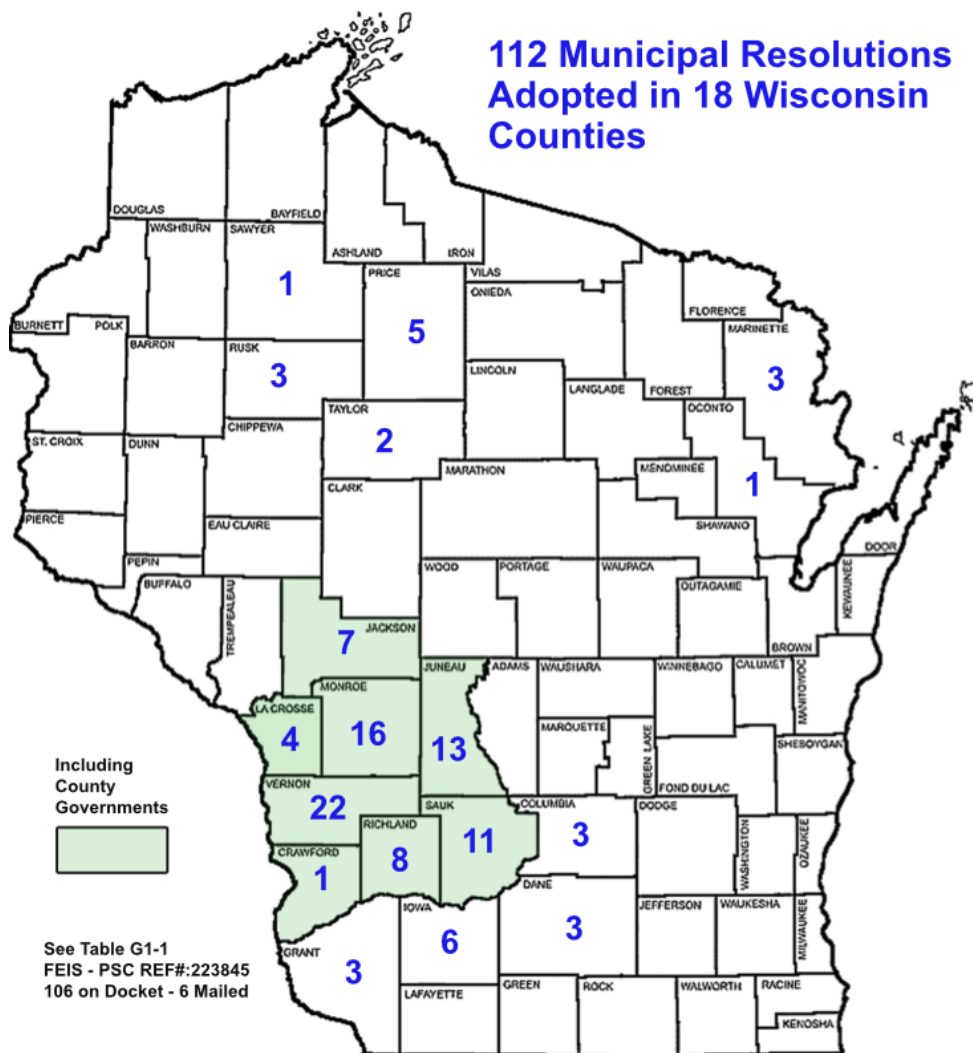
- F) As soon as the application was submitted lacking this information, on November 21, 2013 the Commission requested the Applicants to expand the appropriate section of their application to provide clear, public-friendly information regarding costs and benefits of the Project and its alternatives.

“... In order to allow for the public to better understand the need for the proposed project, revise and expand Section 2.0 of the application to include a comprehensive discussion of the need for and alternatives to the proposed project. Include...a quantitative summary of the costs and benefits of the proposed project for both Wisconsin and the MISO footprint, with a clear indication of each in supporting tables and data files. In this expanded summary, specifically address areas of need and alternatives including: local and regional load serving capability; regional benefits; alternatives including energy efficiency and other alternative sources of supply; and, other areas as appropriate.” (Commission Staff Data Request No. 1.90 PSC Ref. # 193819).

- G) Letters from 12 state legislators were sent the Commission supporting the stated purposes of the resolutions, at least 6 of these on the docket. (ref #'s :210292; 206198; 206201; 206202; 206203; 208300-pg70)
- H) The Applicants did not respond to any of these requests. The updated section supplied four months later had no tables of options, no quantifications-- nothing to help ratepayers understand their energy investment options.
- I) The Applicants' failure to provide clear, detailed cost-benefit analysis of additional energy investment options obstructed municipalities and ratepayers' rights to provide meaningful opinions about preferred energy investment options and alternatives three months later during the Public Scoping phase for the Environmental and Economic Statement. WEPA statutes state that the EIS should not only contain full description of the alternatives to the project but recommendations as well. More than 40 of the public comments following the DEIS mentioned the failure of the review process to provide non- transmission alternatives as requested in the municipal resolutions. (Ref#'s 210310; 215557; 215728; 215750; 215899; 218504; 219757; 219784; 219807; 219822; 219823; 219833; 219835; 219858; 21987; 219881; 219882; 219887; 219889; 219895; 219943; 219946; 219949; 219951; 219972; 219983; 219986; 220010; 220078; 220087; 220181; 22031; 220327; 220334; 220415; 220486; 220495; 220519 ;220540 220564; 220582; 220615; 220627)
- J) In her testimony on December 10, 2014 during the public hearings, Sara Martinez characterized the failure of applicants to communicate in good faith and promote public understanding:

“It seems to me that this critical decision involves whether or not to commit ratepayer dollars like mine to a transmission plan for multiple decades... The applicant has failed to convince me that this massive, expensive project is a good investment. It repeatedly tries to silence the public condescending energy is really complicated, we are simply supposed to leave energy planning unto ATC.”(Cashton public hearing transcript 12-10-15, pg 55-56, PSC REF#:226337)

Figure 3.1



More than 90 of the Resolutions are "Information Request" type calling for Cost-Benefit Analysis with Non-Transmission Alternatives such as energy efficiency, load management and local renewable power during the Public Information phase-- before Notice of Proceeding and the beginning of the Scoping phase for the "Badger-Coulee" 345 kV transmission proposal.

IV. Long-Term WI Energy Planning Implications. The “No Wire Alternatives” presented in the Badger-Coulee proceeding by Mr. Powers demonstrate that any possible reliability needs that could potentially arise in the La Crosse-Winona area (and thus the entire state) can be met with much smaller investments in load management, energy efficiency and local power.

A) Inserted into a paragraph of its most recent 2020 Strategic Energy Assessment, the PSC reveals potential, overarching strategy to repay Wisconsin ratepayers for transmission and generation permitting since the late 90’s. The strategy implies there is a potential to repay ratepayers for their rate-increasing transmission and generation investments by selling newly enabled excess generation from WI utilities to other states:

”[T]he recent construction cycle has had rate impacts on customers in Wisconsin. To ensure that Wisconsin ratepayers benefit from this additional capacity, the Commission will continue to evaluate and promote the potential for selling energy into the MISO market. Selling excess energy or capacity is returned to retail customers in the Commission’s rate setting process.” (PSC 2020 SEA, page 31. PSC ref # 220557)

The very substantial fee increases approved by the Commission for WPS, WE and MGE are sufficient proof that the “rate setting process” is taking us to higher, not lower amounts. In fact, in the SEA executive summary, the PSC states that lower energy use (sales decline) is now contributing to rate and fee increases as payments for past investments (“fixed costs”) are due to debtors regardless of use. Rates rise when these guaranteed fixed costs are distributed over fewer units of energy sold than anticipated when the investments were permitted by the WPSC.

” Energy rates continue to increase across customer classes both in Wisconsin and the Midwest. Rate increases are generally driven by sales decline, transmission, generation, distribution and renewable investments, increased federal regulation of pollutants, fuel price volatility and purchased power costs, as well as the high fixed-cost nature of the utility business.” (PSC 2020 SEA, page 4. PSC ref # 220557)

The Badger-Coulee proceeding is a pivotal test for this assumption as regional energy use is now flat or declining (**Figure 1.4**) and the Badger-Coulee is part of Regional “MVP” transmission expansion planning leading to other WI projects --a package of 17 lines at the additional cost of \$3.49 billion to Wisconsin Ratepayers over the next 40 years.

“The MVP Portfolio,.. in MTEP 11 [2011] was justified based on its ability to... [p]rovide an average annual value of \$1,279 million over 40 years of service, at an average annual revenue requirement of \$624 million.” (page 10, MISO exhibit PSC Ref 218122)

Wisconsin ratepayer share of the “MVP” lines is 14%. (MISO Schedule 26A, PSC Ref #200029, pgs 3-4) Aside from the fixed cost of the MVP lines going up substantially and energy use dropping considerably since 2011 calculations, the \$624,000,000/year required revenue for the fixed cost of transmission expansion for Wisconsin ratepayers

comes to about \$2.46 cents per month-- more than twice that currently invested per customer for Focus on Energy for energy efficiency and renewable energy development. (\$624,000,000/year X 40 years X 14% (WI's share) = \$3.49 Billion over 40 years. \$3,494,400,000 / 40 years / 12 mo. / 2,960,000 WI ratepayers = \$2.46/mo). SOUL calculates that the claimed \$1,279 million / year in gross potential benefits works out to potential net savings of 5 cents per month per WI ratepayer when energy growth is not assumed but sustained.

B) The Environmental Law & Policy Center on the Load Management component of No Wire Alternatives (**Figure 4.1**):

“There are also reasons to believe that peak load could be flat or negative due to load management resources, energy efficiency, and distributed solar over the next five years, as explained below....These load management resources reduce peak load by allowing the utility to curtail a customer's energy usage by shutting off a piece of equipment for a specified period of time. This curtailment, according to Mr. Powers, is “predictable planned action” that the Applicants should fully and fairly consider when designing their forecasting studies.” (Page 4 ELPC Brief. PSC Ref 230723)

C) Environmental Law & Policy Center on Energy Efficiency.

“Applicants also understate the potential impact of energy efficiency that will realistically reduce load growth. Applicants rely on static energy efficiency savings of 0.5% per year,... In fact, however, efficiency savings have not been static since 2012 in part due to technology improvements and increased market penetration of CFLs and LED lighting, more efficient ballasts, more efficient appliances and HVAC, and more efficient pumps and motors. These more energy efficient technologies and equipment are coming into the market and business and residential consumers' use independent of the Focus on Energy program. (Page 5 ELPC Brief. PSC Ref 230723)

D) Environmental Law & Policy Center on Distributed Solar

“Applicants have not adequately accounted for the potential for distributed solar resources to reduce load growth. Distributed solar generation operates primarily at peak load times during peak load months. If solar power panels on homes or at utility or rural cooperative installations expands over the next decade, distributed solar would reasonably have significant impacts in reducing load growth. For example, according to Mr. Powers, if the recently installed 822 kW solar capacity by Dairyland Power Cooperative and Vernon Electric Cooperative continues operation year-to-year through 2023, that would decrease peak load by -0.18% per year. (Page 5 ELPC Brief. PSC Ref 230723)

E) Concerning the applicants energy planning that assumes CO2 emissions will rise in 5 out of 6 options (**Figure 4.2**)

The presence of Badger-Coulee makes no significant difference in the rate of CO2 emissions growth. The rate of CO2 emissions rise is substantially higher in the Green

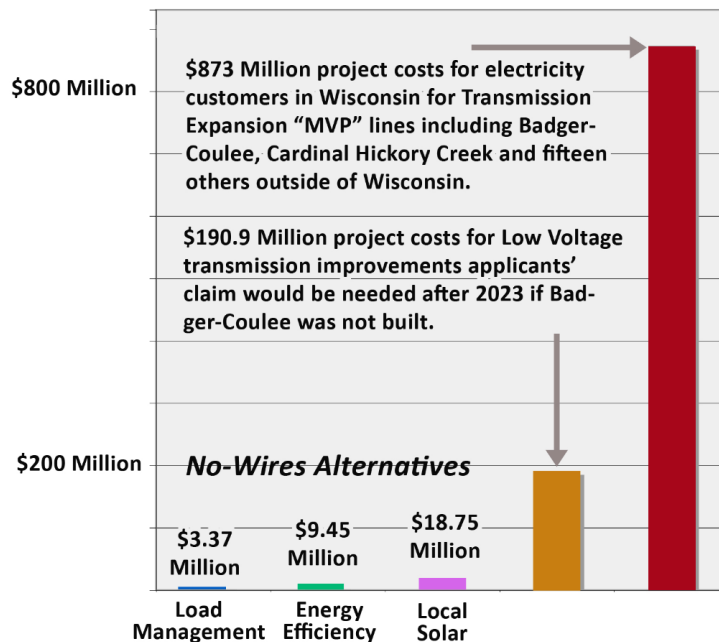
Economy and Robust Economy scenarios, about 2.4 and 3.0 percent per year through 2026.” (Bill Powers Direct pg 49 PSC Ref# 224737)

- F) On average, regional transmission expansion planning assumes 1% per year growth and rates and fees increasing at 3 to 4% per year. If Solar and accelerated energy efficiency are used to lock in energy cost and lower energy use over time, the profit and environmental gains for a household can be very considerable. The investment and savings factors of the community solar farm at Vernon Electric were applied to this model (**Figure 4.3**) resulting in more than \$40,000 saved over the first 30 years of the life of the solar panels.
- G) Retiring Commissioner Eric Callisto echoes the Environmental Law Policy Center in observing that distributed solar, energy efficiency and zero load growth are reasons to slow down and reframe our future options.

"I think we should slow down...and open up a generic investigation...[to] evaluate placing a fair and transparent value on distributed generation, and at least start down the discussion path of the role of regulated utilities in a future with flat load growth, increased distributed generation and more robust consumer involvement in energy choices.” --WI PSC Commissioner Eric Callisto, 12-23-14

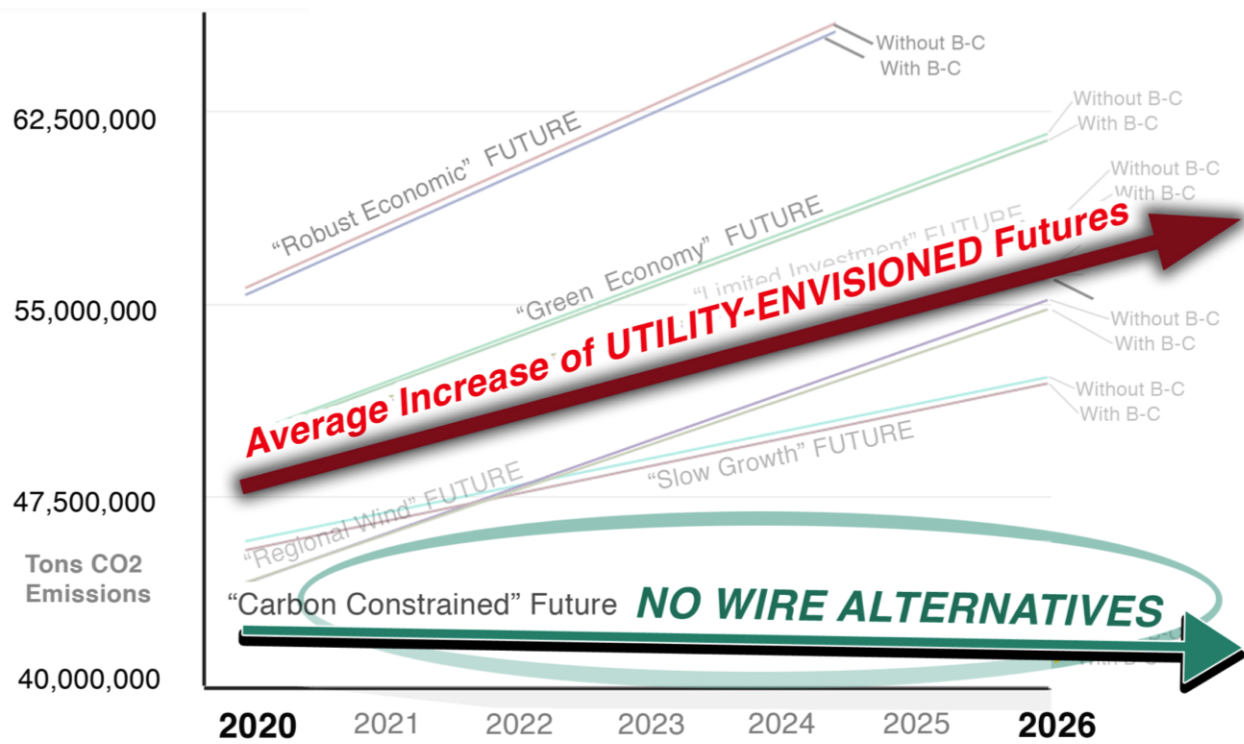
Figure 4.1

Comparing the Costs of Three, “No-Wire” Alternative Solutions to the Cost of Low Voltage Transmission upgrades utilities use to predict an eventual reliability need for Badger-Coulee.



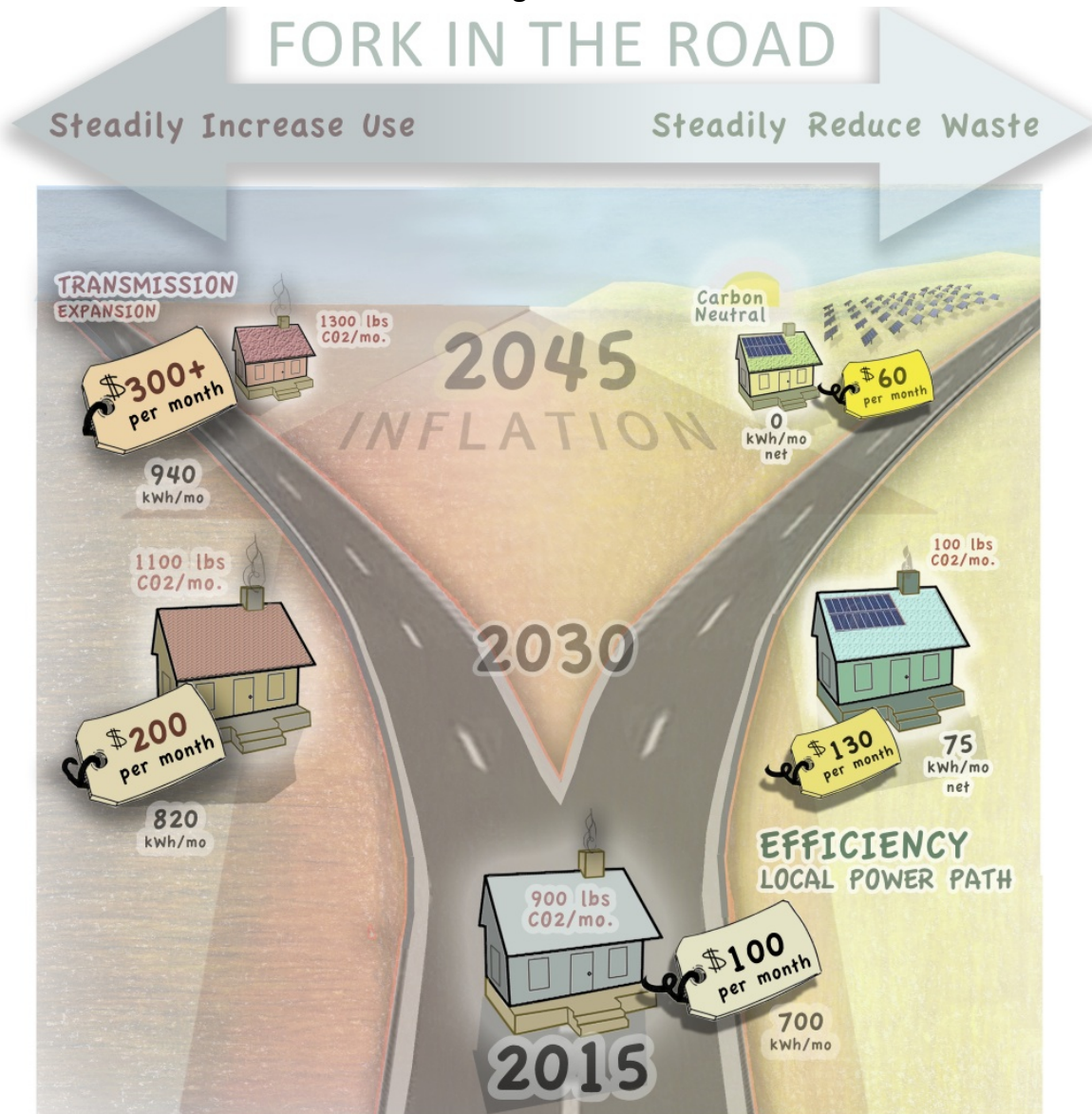
The above transmission “project costs” do not include considerable financing debt assumed by ratepayers for 40 years. In contrast, the “No Wire” solutions are debt-free local investments with higher returns with maximized carbon emission reductions.

Figure 4.2



Utility-supplied data (PSC REF# 200380, p.6) demonstrates that 5 of 6 Energy "Futures" utilities envision with and without Badger Coulee assume carbon emissions will dramatically increase.

Figure 4.3



Regional utility transmission expansion planning that features many large lines in Wisconsin and surrounding states ignores the option of comparable dollars being invested in energy efficiency and local power. The omission allows utilities to assume a rise in use of 1% per year averaged across their six energy future scenarios.

In contrast, a household energy taking the Efficiency-Solar path based on successful programs in other states can easily lower consumption at the rate of 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.

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