



2004 Access Initiative Decision Matrix

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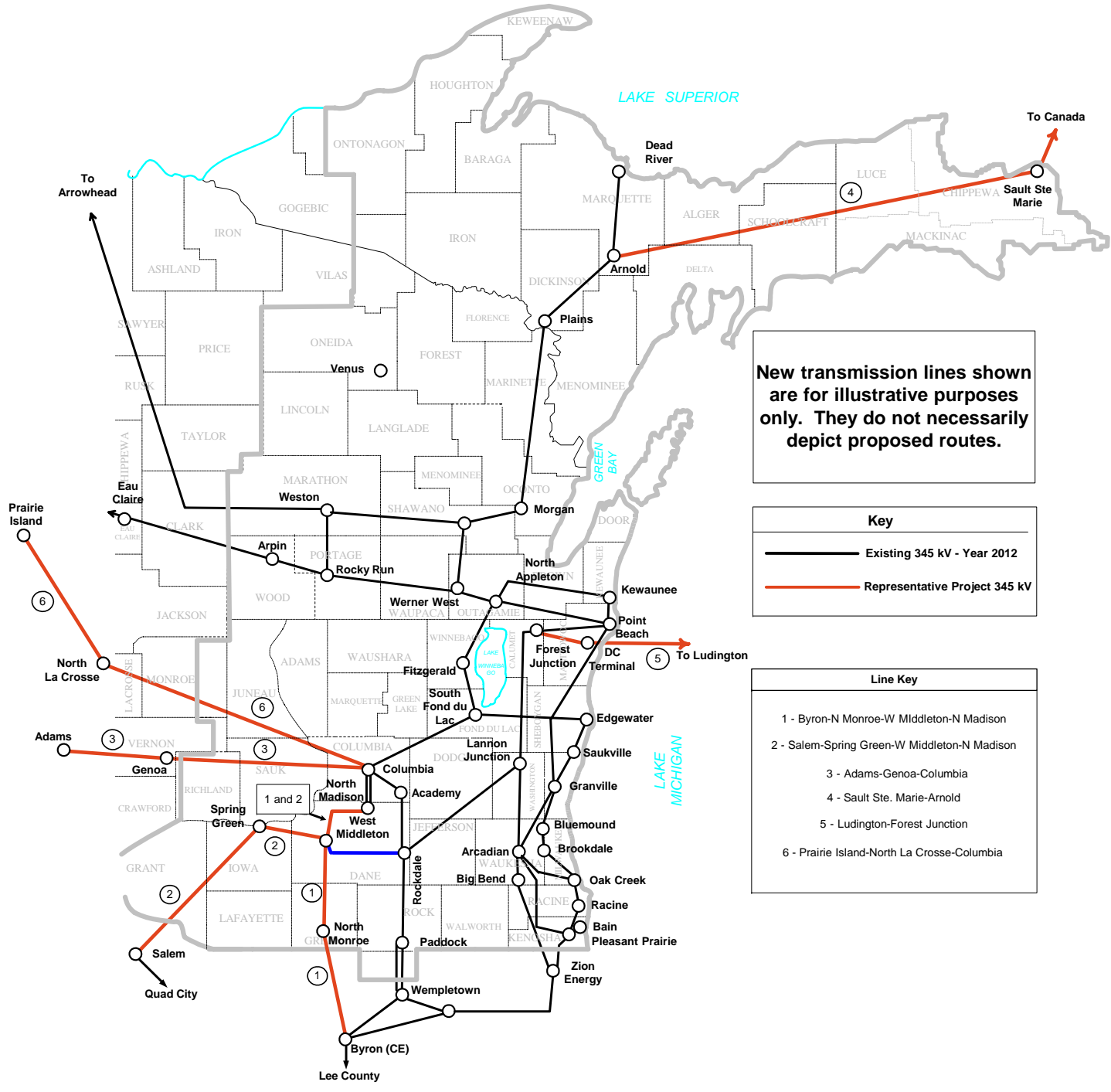
October 1st, 2004

Update



Alternatives

- Review of Alternatives studied:
 - Base Case
 - Base Case Plus Two Fixes (to relieve the 2 most limiting constraints)
 - Base Case Plus 3 Low Voltage Tie Lines (new)
 - Unconstrained ATC system (new)
 - Unconstrained ATC system with 3 new EHV tie lines (new)
 - South: Byron-North Madison
 - Rockdale-Paddock (new)
 - Southwest: Salem-North Madison
 - West: Adams-Columbia
 - West: Prairie Island-Columbia (new)
 - North: Sault Ste. Marie-Arnold
 - East: Ludington-Forest Junction



New transmission lines shown are for illustrative purposes only. They do not necessarily depict proposed routes.

Key	
	Existing 345 kV - Year 2012
	Representative Project 345 kV

Line Key	
1	Byron-N Monroe-W Middleton-N Madison
2	Salem-Spring Green-W Middleton-N Madison
3	Adams-Genoa-Columbia
4	Sault Ste. Marie-Arnold
5	Ludington-Forest Junction
6	Prairie Island-North La Crosse-Columbia



Decision Matrix

- Decision matrix incorporates quantitative and qualitative analysis for a comparison of various alternatives to increase import capability
- All categories ranked one through 10, 10 being the “best” of the alternatives
- Weighting of factors based on engineering judgment and customer / stakeholder input
- Decision Matrix updated since September 1st, 2004 meeting ... based on feedback at meeting
- Posted September 14th, 2004



Decision Matrix Feedback

- Five utilities provided feedback
 - Alliant
 - ACEC
 - We Energies
 - WPPI
 - MGE



Alliant

We reviewed the decision matrix and have the following comments:

- 1) In the "High Wind" scenario the savings for the Southwest are very similar to those for the South solution, even though the "High Wind" scenario is based on wind generation in NW Iowa and SW Minnesota. It would seem logical that the savings would be higher on the Southwest.
- 2) We would like to see why a "High Generation" scenario causes a negative net savings for the Southwest solution.
- 3) In the "Comparison of other factors" section, under "Strategic Benefits", we believe the "benefits to neighboring systems" should be much higher than it is listed for the Southwest solution.
- 4) It also appears that the LMP comparability might need some explanation, as the lack of UPPCO has a positive impact on the South solution and a negative impact on the Southwest solution. It would seem logical that the impact would be relatively the same.

We have some general concerns around what the details will look like as we go forward, but we will need to address them as we go forward and get in the next steps next year, with more detail.

Kenneth A. Goldsmith



ACEC

Great effort! It would be nice if there was consensus on the weighting factors, but I suppose that is too much to hope for. I missed the last meeting and I don't see any discussion in the notes about agreement on the weighting...just that it was discussed.

The only suggestion I would make is that the section on Other Factors should have the weighted totals carried over to the bottom of the column just as you did in the Economic Comparison section.

(done)

Thanks,
Chuck



We Energies

<u>COSTS</u>		<u>BENEFITS</u>	
	Weighting		Weighting
CAPITAL COSTS	40	Transfer Capability (1)	10
ENV. & SOCIETAL	10	Market energy savings	15
		Control area FCITC	10
		LMP comparability	5
		Loss Reduction	5
		Operating Flexibility (2)	5
Footnotes: (1) Transfer capability includes LOLE and EUE criteria, and Chronic limits mitigated.			
(2) Operating flexibility includes system performance			



WPPI



WPPI



WPPI



MGE

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- 1) Can the economic comparison (capital carrying charge, market savings, net savings) be broken down by LSE? That would help each individual LSE assess the benefits specific to them.
 - 2) Chronic limits mitigated and control area FCITC seem to be redundant with market savings as scoring considerations. Market savings for each LSE seem to be the key consideration, whereas mitigation of chronic limits and improving control area FCITC are simply factors that influence market savings. That said, mitigation of chronic limits and improving control area FCITC can serve as indirect means of confirming market savings. In any event, if they are to be scoring factors in the matrix, they need to be evaluated and scored. If they are not going to be evaluated and scored, they need to be removed from the matrix and their weights reallocated to other scoring factors -- most appropriately, the market savings.
 - 3) The overall score implicitly gives the same weight to economic factors as it does to other factors.
 - a) Is equal weighting appropriate?
 - b) Given that the overall score is a combination of objective (economic) and subjective (other factors) evaluations, how is the overall score to be used?
 - 4) The explanation of the loss cost savings for the High Wind, High Internal Generation, and Low Internal Generation cases seems to indicate losses are linearly proportional to load. Is this valid?
 - 5) The word "minus" in the explanation for the Annual Net Savings should be "plus". Alternatively, it could be stated as the Market Saving minus the Annual capital Carrying Charge.
 - 6) The formula for ranking of MUST results uses 1610 in the denominator. Where does 1610 come from? Isn't 1787 (the difference between 3000 and the best TTC) the appropriate value?
 - 7) What is the basis for subtracting one for voltage collapse in ranking VSAT results?
 - a) What is the condition or scenario that is prompting the subtraction of one?
 - b) Why the value one and not some other number between one and ten; or subtract nothing?
 - 8) What is the purpose of LMP comparability evaluation? What are the issues or deficiencies it is trying to measure?
 - 9) The calculation of the societal impacts score appears to be in error or the label, "corridor sharing potential," is misleading.
 - a) A larger percentage of corridor sharing, which is usually desirable from a societal/environmental perspective, produces a lower score in the spreadsheet, "Subjective-based Verification." This relationship seems to be the opposite of what it should be.
 - i) Is the corridor sharing potential percentage the portion of the route that might use existing corridors, or is it the portion that could not use existing corridors? The label, "corridor sharing potential," implies the former.
 - b) A higher number for new right of way produces a lower score. This relationship seems appropriate.



Decision Matrix

Economic Comparison

PROMOD yearly savings (2012)

- Economic savings relative to base case, based on PROMOD analysis for the year 2012
- Losses are inherently included in PROMOD results, but we ran additional loss analysis to show relative performance of alternatives

Annual carrying charges

- Based on estimated project cost for projects in the access “package” that are above and beyond the Ten Year Assessment zone reliability plans
- The final “package” is not fully defined yet
 - Need to incorporate projects to achieve comparability and ensure maximum economic benefit from the alternative is captured

Net Savings

- Ranked 0-10, with 10 achieving highest net savings



Decision Matrix

Other Factors

- Other Factors
 - Transfer capability
 - Peak capability under various scenarios
 - LMP comparability
 - Max/Min differences interpolated for 1-10 ranking
 - Both with and without UPPCo
 - LOLE
 - Loss Of Load Expectation 0.1 days/year target
 - Base case meets 0.1
 - Reserve requirement might be able to be reduced
 - Ranking of 10 for lowest LOLE alternative



Decision Matrix

Other Factors, cont.

- EUE
 - Expected Unserved Energy
- Strategic benefits
 - Subjective, based on infrastructure enhancements, ability to add new generation, and ability for load expansion
- Operating flexibility
 - Subjective, based on anticipated flexibility to take maintenance outages
- Societal impacts
 - Potential for corridor sharing
- Environmental impacts
 - Subjective, to be validated by environmental staff