

NEBRASKA STATEWIDE WIND INTEGRATION STUDY

Technical Review Committee Meeting #3

Thursday, March 19, 2009 – 10:00 AM to 4:00 PM (Central Time)

Gallup Headquarters (Elkhorn Room), 1001 Gallup Drive, Omaha, NE

Preliminary Agenda

Central Time	Topic	Presenter
10:00 am	Welcome, introductions, check on phone pickup volume, general agenda review, protocols for the meeting; acceptance of TRC 2 Meeting Summary dated and distributed March 12, 2009 (after two revisions)	Clint Johannes-G&T
10:15 am	General progress report of accomplishments, review of agenda specifics and goals for the day	Bob Zavadil-EnerNex
10:30 am	Wind generation siting criteria, process, and maps (and cautions of their nature as examples only) for the three scenarios of 10%, 20%, and 40% energy penetration in: <ul style="list-style-type: none"> • Nebraska • Southwest Power Pool (SPP) • WAPA • Remainder of the Eastern Interconnection Statistical analysis and findings for base case Operating reserve requirements inputs for PROMOD base case Assumptions document – Statistical and General	Bob Zavadil-EnerNex
12:00 pm	Lunch	
12:45 pm	PROMOD Base Case work <ul style="list-style-type: none"> • Assumptions document – PROMOD • Model setup background for Neb, SPP, WAPA, and remainder for the base case • Model function • Preliminary results of base case 	Gary Moland-Ventyx
2:15 pm	Break	

2:30 pm	<p>Work Outline Discussion for the next eight weeks and discussion/approval of the study plan for the initial sensitivity cases (see attached page for additional details concerning this discussion).</p> <p>Decisions pending:</p> <ul style="list-style-type: none">• Tentative Outputs/Results to be produced (some may relate only to some of the cases):<ul style="list-style-type: none">Total System CostsRegulation amounts and costsLoad Following and Imbalance amounts and costsScheduling and Unit Commitment effects and costsCapacity ValueWind Generation ErrorsLoad Forecasting ErrorsError CorrelationGeneration Makeup SummariesCO2 EmissionsInterchange in/out of NebraskaWind generation curtailment dataStatistical ResultsRamping Activity for Heat Rate and Emission effectsTotal Wind Integration Cost• Values to use for LOW CO₂ emission price and HIGH CO₂ emission price.• Historical Year Patterns for each initial case.• Expanse of the PROMOD model on the east and southeast ends.• How many and review procedure for the forthcoming cases prior to TRC #4.	<p>Bob Zavadil and Gary Moland</p>
3:15 pm	<p>Other Activities:</p> <ul style="list-style-type: none">• WAPA evaluations for Neb wind generation connection levels in the western interconnection• WAPA hydro evaluation special case (subgroup)• Miscellaneous items on the Action Item List	<p>Ron Steinbach – Tri-State (and Billy Cutsor – MEAN) Clint Johannes (and Mike Radecki – WAPA) All</p>
3:45 pm	<p>Wrap-up and Next Meeting (May 13, 2009 in Omaha?)</p>	<p>Clint Johannes (and Bob Zavadil)</p>
4:00 pm	<p>Adjourn</p>	

Summary of Base and Initial Sensitivity Case Runs derived from the Study Plan (latest revision being 03.12.09)

Task #	Case Description (PROMOD & Statistical models)	Wind Penetrations - Energy				Historical Year Pattern(s) Used	Market Rep for NPA	CO ₂ Price in 2018\$/metric ton	Forecast Errors
		NPA	SPP	WAPA	Other				
10*	Low Penetration Sensitivity Case (this has been chosen by Ventyx for the “starting point closest to today’s operation and is calling it initially as “Base Case” – but will be re-defined as Low Penetration Sensitivity Case as the study moves onward?)	10%	10%	10%	JCSP Ref	2004, 2005, 2006	SPP-2018	\$25.00	Base
5	“Final Base Case” – (assuming based on previous discussions that our base case would be the middle penetration level ??)	20%	20%	20%	JCSP Ref	2004, 2005, 2006	SPP-2018	\$25.00	Base (is this in NREL data? & does it serve for one of task 13 cases?)
10*	High Penetration Sensitivity Case	40%	40%	40%	JCSP Ref	Representative year or all three?	SPP-2018	\$25.00	Base
11	HIGH CO₂ Cost Sensitivity Case	20%	20%	20%	JCSP Ref	Rep year?	SPP-2018	\$___ (High Value)	Base
12a	Market Sensitivity #1 (on Base?)	20%	20%	20%	JCSP Ref	Rep year?	Neb only	\$25.00	Base
12a	Market Sensitivity #2 (on Sensitivity ___?)	20%	20%	20%	JCSP Ref	Rep year?	Neb only	\$25.00	Base
12a	Market Sensitivity #3 (on Sensitivity ___?)	20%	20%	20%	JCSP Ref	Rep year?	Neb only	\$25.00	Base
13	Forecast Sensitivity #1	20%	20%	20%	JCSP Ref	Rep year?	SPP-2018	\$25.00	“Best”
13	Forecast Sensitivity #2	20%	20%	20%	JCSP Ref	Rep year?	SPP-2018	\$25.00	“Common”
13	Forecast Sensitivity #3	20%	20%	20%	JCSP Ref	Rep year?	SPP-2018	\$25.00	“Worst”

* **Original Task 10** actually called for four penetration levels but the study now described, and agreed to by the TRC at meeting #2 has three levels. We can either add this case run capability under the work scope to be defined later or have two transmission plans at 20% penetration (with and without 765kV).