APPENDIX D

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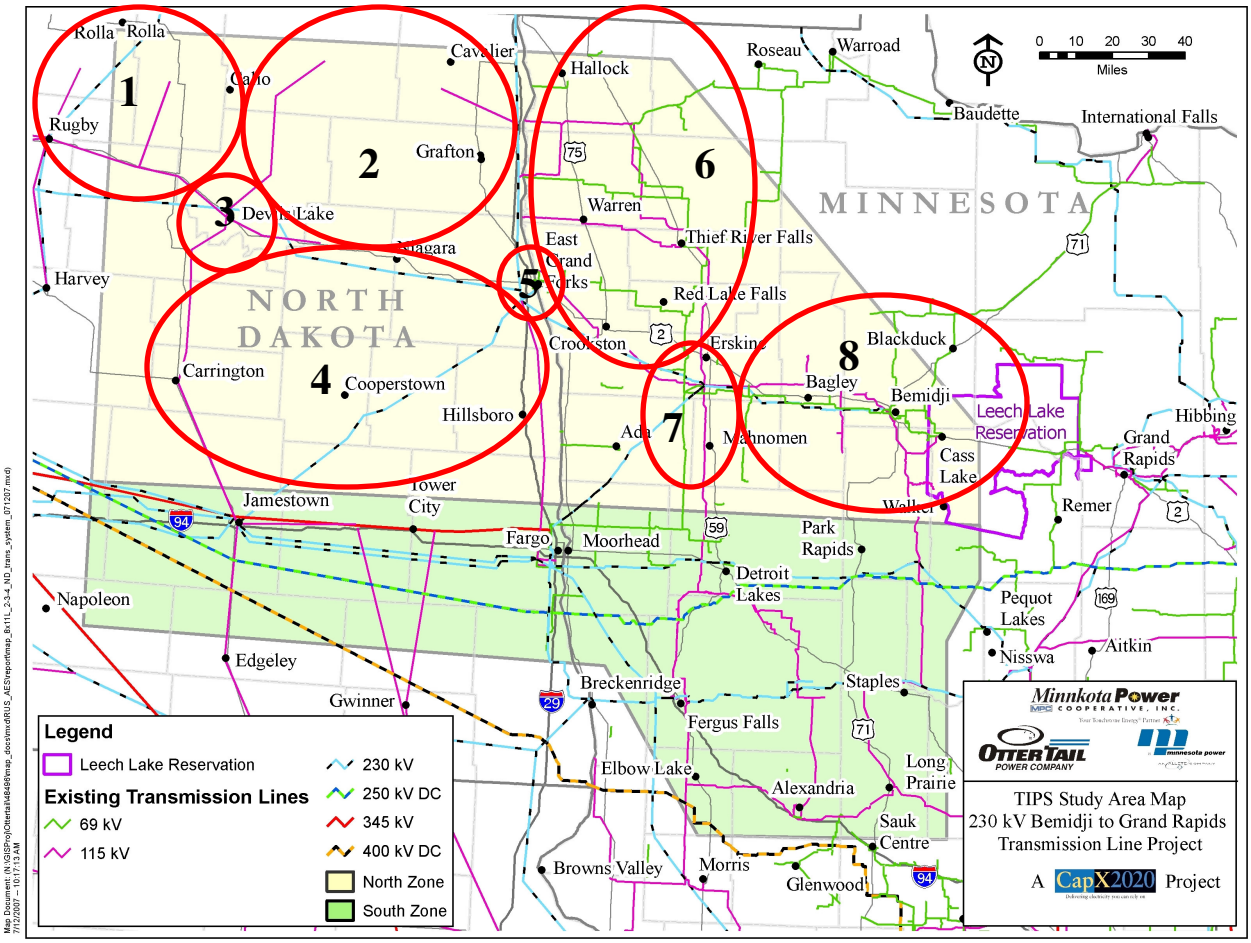
Forecast Databases and Accuracy

The methodologies used to forecast winter peak demand for the Bemidji load center and North Zone, and to forecast consumption for the Minnesota portion of the North Zone, are described in detail in subsection 4.7.1. This description includes how the Utilities' calculated coincident winter peak for the Bemidji area and North Zone, and how aggregate load data for multiple utilities serving customers out of a single substation was disaggregated and allocated to the proper utility. The nature of the data used for the forecasting and its accuracy are discussed below.

As noted in subsection 4.71, historical load center demand and consumption was based on revenue meter data by substation. This data is used to determine the amount customers are to be billed for service and therefore is deemed to be very reliable. Where revenue meter data was not available, Energy Management System ("EMS") data was used. Control Area Operators require EMS data to be able to effectively and efficiently operate their area systems. While not as detailed as revenue meter data, it is reliably accurate. Finally, where neither revenue meter nor EMS data was available, estimates were made. As shown in the forecasts in Appendices B3 through B5, there were very few instances where estimates were required. In addition, the estimates were based on the other historical data available for the substation so they likely have a small margin of error. The Applicants therefore believe the data used to establish the historical winter peak demand and annual consumption in the Bemidji area and North Zone provided a very accurate basis upon which to forecast future demand and consumption.

Each utility serving load in the North Zone provided the Applicants with the rate(s) of demand and consumption growth that should be applied to each substation where it had load. The growth rates were not uniform among the Utilities, but rather reflected the factors that they have found over time to be the most accurate in estimating growth in their customers' demand and consumption. These include economic, operating system, and customer profile considerations, among others. For this reason, the Applicants conclude that the most accurate forecasting methodology reasonably available was used to estimate future aggregate winter peak demand and annual consumption in the Bemidji area and North Zone.



Description of North Zone Load Centers

1. Lakota / Leeds Load Center
2. Langdon / Hensel North Dakota Load Center
3. Devils Lake Load Center
4. Finley / Carrington Load Center
5. Grand Forks Load Center
6. Crookston / Thief River Falls / Donaldson Load Center
7. Winger / Mahnomen Load Center
8. Bemidji Load Center

North Zone Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Bemidji Load Center

Non-Pipeline Loads

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
61838	AKELEY9'	34.5		Total Load =																					
			GRE	0.38																					
			MP	0.62																					
63145	'WILTON 9'	41.6		Total Load =																					
			OTP	1.00																					
63146	'BEMIDJI9'	41.6		Total Load =																					
			OTP	1.00																					
63241	'CLEARBR7'	115		Total Load =																					
			MPC	0.62																					
			OTP	0.38																					
63346	'BEMIDJ19'	12.5		Total Load =																					
			OTP	1.00																					
63347	'CASS LK8'	69		Total Load =																					
			MPC	0.72																					
			OTP	0.28																					
66715	'LEECHLK7'	115		Total Load =																					
			MPC	1.00																					
66716	'LAPORTE7'	115		Total Load =																					
			MPC	1.00																					
66729	'RICELAK7'	115		Total Load =																					
			MPC	1.00																					
66968	'WILTON 8'	69		Total Load =																					
			MPC	1.00																					
67015	'BEMIDJI8'	69		Total Load =																					
			MPC	0.58																					
			OTP	0.42																					
	Noncoincident Demand																								
	Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal																								

Pipeline Loads - Trade Secret

Substations				Substation Load Data																			
Bus #	Bus Name	kV		02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63280	'WILTPIPE'	115	Total Load =																					
63340	'MN PIPE9'	4.2	Total Load =																					
63342	'CLBK LK9'	4.2	Total Load =																					
63344	'ITASCA 9'	4.2	Total Load =																					
63348	'NO PIPE9'	4.2	Total Load =																					
63349	'CASSPIP9'	4.2	Total Load =																					
	Pipeline Coincident Data																							
	TOTAL COINCIDENT DEMAND			205.87	200.55	208.49	211.94	226.78	242.33	251.15	262.35	276.47	287.59	297.01	302.00	306.59	311.52	316.35	321.57	326.58	331.92	337.07	343.10	349.23

LEGEND

Historic Data: 2002/3 to 2006/7

Forecast Data: 2007/8 to 2022/23

Estimated Data is Shaded

North Zone Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Crookston/Thief River Falls/Donaldson Load Center

Non-Pipeline Loads

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63249	'CRKSTON7'	115		Total Load =																					
			MPC	0.09																					
			OTP	0.90																					
			WAPA	0.01																					
63252	'PLUMMER7'	115		Total Load =																					
			MPC	0.27																					
			OTP	0.73																					
63284	'OSLO TN7'	115		Total Load =																					
			OTP	1.00																					
63156	'KARLSTD9'	41.6		Total Load =																					
			OTP	1.00																					
63150	'FERTILE9'	41.6		Total Load =																					
			OTP	0.94																					
			WAPA	0.06																					
63155	'DONALDS9'	41.6		Total Load =																					
			MPC	0.26																					
			OTP	0.62																					
			WAPA	0.12																					
66714	'WARSAW 7'	115		Total Load =																					
			MPC	0.85																					
			WAPA	0.15																					
66718	'HALMA 7'	115		Total Load =																					
			MPC	1.00																					
66722	'OSLO 7'	115		Total Load =																					
			MPC	0.14																					
			OTP	0.58																					
			WAPA	0.28																					
66724	'ALVARAD7'	115		Total Load =																					
			MPC	1.00																					
66725	'WARREN 7'	115		Total Load =																					
			MPC	1.00																					
66838	'KARLSTA8'	69		Total Load =																					
			MPC	0.57																					
			OTP	0.39																					
			WAPA	0.04																					
Thief River Falls																									
66726	'ANDERNW7'	115		Total Load =																					
66723	'GREENWD7'	115	MPC	0.75																					
66910	'TRFALLS8'	69	WAPA	0.25																					

Noncoincident Demand

Adjusted by .8571 Coincidence Factor
to yield Coincident Demand Subtotal

Pipeline Loads - Trade Secret

Substations				Substation Load Data																			
Bus #	Bus Name	kV		02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63254	'VIKING 7'	115	Total Load =																					
63353	'PLUMPIP9'	4.2	Total Load =																					
63356	'DON PIP9'	4.2	Total Load =																					
Pipeline Coincident Data																								
TOTAL COINCIDENT DEMAND				**165.59**	**197.10**	**212.31**	**212.56**	**226.26**	**236.56**	**241.92**	**269.23**	**274.06**	**281.90**	**299.92**	**305.63**	**308.98**	**312.31**	**315.67**	**319.33**	**322.77**	**326.53**	**329.90**	**333.70**	**337.36**

LEGEND
Historic Data: 2002/3 to 2006/7
Forecast Data: 2007/8 to 2022/23
Estimated Data is Shaded

North Zone Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Lakota/Leeds Load Center

Substations					Substation Load Data																			
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
66205	'LAKOTA 8'	69		Total Load =	10.01	10.16	10.40	10.50	10.15	11.27	11.54	11.85	12.13	12.44	12.75	13.07	13.39	13.71	14.03	14.38	14.71	15.07	15.42	15.80	16.19
			MPC	1.00	10.01	10.16	10.40	10.50	10.15	11.27	11.54	11.85	12.13	12.44	12.75	13.07	13.39	13.71	14.03	14.38	14.71	15.07	15.42	15.80	16.19
66206	'LAKOTA 9'	12.5		Total Load =	3.80	4.10	3.80	3.90	4.00	3.85	3.91	3.96	4.04	4.09	4.14	4.18	4.23	4.28	4.32	4.37	4.41	4.44	4.48	4.52	4.56
			MRES	0.41	1.56	1.68	1.56	1.60	1.64	1.51	1.57	1.61	1.69	1.74	1.79	1.84	1.89	1.94	1.98	2.02	2.06	2.10	2.14	2.17	2.21
			WAPA	0.59	2.24	2.42	2.24	2.30	2.36	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
66218	'AGATE 8'	69		Total Load =	4.50	4.10	4.60	4.80	4.60	3.71	3.72	3.76	3.78	3.79	3.80	3.82	3.83	3.85	3.86	3.88	3.89	3.91	3.93	3.95	3.97
			BEPC	0.73	3.29	2.99	3.36	3.50	3.36	2.47	2.48	2.52	2.54	2.55	2.56	2.58	2.59	2.61	2.62	2.64	2.65	2.67	2.69	2.71	2.73
			WAPA	0.27	1.22	1.11	1.24	1.30	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
66317	'LEEDS 8'	69		Total Load =	16.60	16.20	16.30	16.90	14.50	17.69	17.69	18.02	18.16	18.23	18.31	18.34	18.34	18.56	18.64	18.65	18.84	18.94	19.07	19.20	19.33
			BEPC	0.70	11.62	11.34	11.41	11.83	10.15	17.09	17.20	17.43	17.57	17.63	17.72	17.81	17.90	18.03	18.12	18.21	18.30	18.40	18.54	18.66	18.79
			WAPA	0.30	4.98	4.86	4.89	5.07	4.35	0.60	0.60	0.60	0.60	0.60	0.60	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
	Noncoincident Demand				**34.91**	**34.56**	**35.10**	**36.10**	**33.25**	**36.52**	**36.86**	**37.59**	**38.11**	**38.55**	**39.00**	**39.41**	**39.79**	**40.40**	**40.85**	**41.28**	**41.85**	**42.36**	**42.90**	**43.47**	**44.05**
	Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal				**29.92**	**29.62**	**30.08**	**30.94**	**28.50**	**31.30**	**31.59**	**32.21**	**32.66**	**33.04**	**33.42**	**33.78**	**34.10**	**34.63**	**35.01**	**35.38**	**35.87**	**36.31**	**36.77**	**37.26**	**37.76**
	TOTAL COINCIDENT DEMAND				**29.92**	**29.62**	**30.08**	**30.94**	**28.50**	**31.30**	**31.59**	**32.21**	**32.66**	**33.04**	**33.42**	**33.78**	**34.10**	**34.63**	**35.01**	**35.38**	**35.87**	**36.31**	**36.77**	**37.26**	**37.76**

Devils Lake Load Center

Substations					Substation Load Data																			
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
66319	'DEVILSL9'	41.6		Total Load =	4.08	4.01	4.37	4.23	4.12	4.45	4.53	4.62	4.71	4.80	4.89	4.99	5.08	5.18	5.25	5.38	5.48	5.58	5.69	5.80	5.91
			BEPC	0.20	0.80	0.70	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
			MPC	0.74	2.98	3.01	3.27	3.13	3.02	3.35	3.43	3.52	3.61	3.70	3.79	3.89	3.98	4.08	4.17	4.28	4.38	4.48	4.59	4.70	4.81
			WAPA	0.06	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
63265	'DEVILSE7'	115		Total Load =	13.64	13.94	15.75	10.99	12.12	13.54	14.16	14.24	14.30	14.38	14.46	14.64	14.75	14.85	14.96	15.08	15.19	15.29	15.37	15.46	15.54
			MPC	0.03	0.41	0.42	0.47	0.33	0.36	0.40	0.41	0.43	0.43	0.45	0.46	0.47	0.48	0.49	0.50	0.52	0.53	0.54	0.55	0.57	0.58
			OTP	0.96	13.09	13.38	15.12	10.55	11.64	13.02	13.63	13.69	13.75	13.83	13.90	14.06	14.16	14.25	14.35	14.46	14.55	14.64	14.71	14.78	14.85
			WAPA	0.01	0.14	0.14	0.16	0.11	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
63268	'DEVIL S7'	115		Total Load =	22.89	26.78	22.83	26.16	28.32	28.81	29.78	30.03	30.27	30.55	30.82	31.22	31.53	31.83	32.14	32.48	32.81	33.13	33.42	33.74	34.03
			BEPC	0.13	2.98	3.48	2.97	3.40	3.68	5.09	5.14	5.16	5.17	5.20	5.21	5.23	5.25	5.27	5.29	5.31	5.34	5.36	5.38	5.40	5.42
			MPC	0.19	4.35	5.09	4.34	4.97	5.38	5.97	6.12	6.28	6.43	6.59	6.76	6.93	7.10	7.27	7.44	7.62	7.80	7.99	8.17	8.38	8.57
			OTP	0.63	14.42	16.87	14.38	16.48	17.84	16.33	17.10	17.17	17.25	17.34	17.43	17.64	17.76	17.87	17.99	18.13	18.25	18.36	18.45	18.54	18.62
			WAPA	0.05	1.14	1.34	1.14	1.31	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
	Noncoincident Demand				**40.61**	**44.73**	**42.95**	**41.38**	**44.56**	**46.80**	**48.47**	**48.89**	**49.28**	**49.73**	**50.17**	**50.85**	**51.36**	**51.86**	**52.35**	**52.94**	**53.48**	**54.00**	**54.48**	**55.00**	**55.48**
	Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal				**34.81**	**38.34**	**36.81**	**35.47**	**38.19**	**40.11**	**41.54**	**41.90**	**42.24**	**42.62**	**43.00**	**43.58**	**44.02**	**44.45**	**44.87**	**45.37**	**45.84**	**46.28**	**46.69**	**47.14**	**47.55**
	TOTAL COINCIDENT DEMAND				**34.81**	**38.34**	**36.81**	**35.47**	**38.19**	**40.11**	**41.54**	**41.90**	**42.24**	**42.62**	**43.00**	**43.58**	**44.02**	**44.45**	**44.87**	**45.37**	**45.84**	**46.28**	**46.69**	**47.14**	**47.55**

Winger / Mahnomen Load Center

Substations					Substation Load Data																			
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63138	'WINGER 9'	41.6		Total Load =	13.13	7.62	10.75	8.88	8.87	10.05	10.53	10.57	10.62	10.68	10.73	10.86	10.93	11.00	11.08	11.16	11.23	11.31	11.36	11.41	11.47
			OTP	1.00	13.13	7.62	10.75	8.88	8.87	10.05	10.53	10.57	10.62	10.68	10.73	10.86	10.93	11.00	11.08	11.16	11.23	11.31	11.36	11.41	11.47
67018	'WINGER 8'	69		Total Load =	28.34	30.63	32.70	30.83	32.88	36.49	37.30	38.23	39.08	40.01	40.94	41.90	42.84	43.81	44.78	45.82	46.83	47.91	48.96	50.12	51.23
			MPC	0.93	26.36	28.49	30.41	28.67	30.58	33.95	34.76	35.69	36.54	37.47	38.40	39.36	40.33	41.30	42.27	43.31	44.32	45.40	46.45	47.61	48.72
			WAPA	0.07	1.98	2.14	2.29	2.16	2.30	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
63237	'MAHNOMN7'	115		Total Load =	6.24	6.63	6.37	6.16	6.58	6.53	6.82	6.84	6.87	6.91	6.94	7.02	7.06	7.11	7.15	7.20	7.24	7.29	7.32	7.35	7.38
			OTP	0.93	5.80	6.17	5.92	5.73	6.12	6.07	6.36	6.38	6.41	6.45	6.48	6.56	6.60	6.65	6.69	6.74	6.78	6.83	6.86	6.89	6.92
			WAPA	0.07	0.44	0.46	0.45	0.43	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
	Noncoincident Demand				**47.71**	**44.88**	**49.82**	**45.87**	**48.33**	**53.07**	**54.65**	**55.64**	**56.57**	**57.60**	**58.61**	**59.78**	**60.83**	**61.92**	**63.01**	**64.18**	**65.30**	**66.51**	**67.64**	**68.88**	**70.08**
	Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal				**40.89**	**38.47**	**42.70**	**39.32**	**41.42**	**45.49**	**46.84**	**47.69**	**48.48**	**49.37**	**50.24**	**51.24**	**52.14**	**53.08**	**54.00**	**55.01**	**55.97**	**57.00**	**57.97**	**59.04**	**60.06**
	TOTAL COINCIDENT DEMAND				**40.89**	**38.47**	**42.70**	**39.32**	**41.42**	**45.49**	**46.84**	**47.69**	**48.48**	**49.37**	**50.24**	**51.24**	**52.14**	**53.08**	**54.00**	**55.01**	**55.97**	**57.00**	**57.97**	**59.04**	**60.06**

LEGEND

Historic Data: 2002/3 to 2006/7

Forecast Data: 2007/8 to 2022/23

Estimated Data is Shaded

North Zone Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Grand Forks Load Center

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
Grand Forks / East Grand Forks																									
67053	'CALEDON8'	69		Total Load =	240.00	242.46	242.68	243.95	254.78	300.82	307.02	310.69	314.91	319.17	323.61	328.14	332.72	337.30	341.88	346.70	351.42	356.33	361.14	366.22	370.63
61151	'CENTRAL8'	69	MPC	0.36	85.46	86.34	86.42	86.87	90.73	100.72	103.13	105.89	108.41	111.17	113.93	116.80	119.67	122.54	125.41	128.51	131.50	134.71	137.81	141.26	144.73
61154	'GETWAY 8'	69	WAPA	0.10	23.40	23.64	23.66	23.79	24.84	28.59	28.59	28.59	28.59	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40
66202	'GRNDFKS8'	69	XEL	0.45	108.36	109.47	109.57	110.14	115.03	142.75	145.96	147.20	148.45	149.70	150.97	152.24	153.54	154.85	156.17	157.50	158.85	160.21	161.58	162.87	164.17
66894	'MILL RD8'	69	MRES	0.02	4.56	4.61	4.61	4.64	4.84	7.97	8.16	8.30	8.50	8.67	8.83	8.96	9.11	9.26	9.39	9.52	9.64	9.75	9.85	9.96	10.07
60141	'NORDIC 7'	115	MMPA	0.08	18.22	18.40	18.42	18.52	19.34	20.80	21.18	20.71	20.96	21.23	21.49	21.74	22.00	22.26	22.51	22.77	23.03	23.26	23.49	23.73	23.26
61152	'PARK 8'	69																							
66904	PRAIRIE8'	69																							
61153	'SUGARHL8'	69																							
66430	'EGF IND7'	115		Total Load =	9.60	7.20	8.00	7.60	8.00	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62
			WAPA	1.00	9.60	7.20	8.00	7.60	8.00	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62
Noncoincident Demand					249.60	249.66	250.68	251.55	262.78	305.44	311.64	315.31	319.53	323.79	328.23	332.76	337.34	341.92	346.50	351.32	356.04	360.95	365.76	370.84	375.25
Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal					213.93	213.98	214.86	215.60	225.23	261.80	267.10	270.25	273.87	277.52	281.33	285.21	289.13	293.06	296.98	301.11	305.16	309.37	313.49	317.84	321.63
TOTAL COINCIDENT DEMAND					213.93	213.98	214.86	215.60	225.23	261.80	267.10	270.25	273.87	277.52	281.33	285.21	289.13	293.06	296.98	301.11	305.16	309.37	313.49	317.84	321.63

Langdon/Hensel North Dakota Load Center

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63157	'HENSEL 9'	41.6		Total Load =	10.49	14.03	10.50	8.04	10.60	10.10	10.53	10.58	10.62	10.67	10.72	10.84	10.91	10.97	11.04	11.12	11.18	11.25	11.30	11.34	11.39
			OTP	0.84	8.81	11.79	8.82	6.75	8.90	9.20	9.63	9.68	9.72	9.77	9.82	9.94	10.01	10.07	10.14	10.22	10.28	10.35	10.40	10.44	10.49
			WAPA	0.16	1.68	2.24	1.68	1.29	1.70	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
63164	'LANGDON9'	41.6		Total Load =	15.04	11.00	15.47	14.54	10.91	13.66	14.31	14.37	14.43	14.52	14.59	14.76	14.86	14.96	15.06	15.18	15.27	15.37	15.44	15.52	15.59
			OTP	1.00	15.04	11.00	15.47	14.54	10.91	13.66	14.31	14.37	14.43	14.52	14.59	14.76	14.86	14.96	15.06	15.18	15.27	15.37	15.44	15.52	15.59
66800	'LANGDON8'	69		Total Load =	16.52	16.70	16.17	15.92	16.61	17.97	18.51	18.90	19.26	19.65	20.04	20.49	20.90	21.32	21.74	22.19	22.62	23.08	23.52	24.01	24.50
			MPC	0.73	12.06	12.19	11.80	11.62	12.13	13.46	13.78	14.15	14.49	14.86	15.23	15.61	15.99	16.38	16.76	17.17	17.57	18.00	18.42	18.88	19.35
			OTP	0.27	4.46	4.51	4.37	4.30	4.48	4.51	4.73	4.75	4.77	4.79	4.82	4.88	4.91	4.94	4.97	5.01	5.05	5.08	5.10	5.13	5.15
66818	'HENSEL 8'	69		Total Load =	40.33	44.34	43.94	38.98	41.61	46.56	47.63	48.66	49.67	50.65	51.71	52.83	53.93	55.03	56.13	57.31	58.44	59.66	60.85	62.15	63.48
			MPC	0.76	30.65	33.70	33.39	29.62	31.62	35.11	35.95	36.91	37.79	38.75	39.71	40.71	41.71	42.71	43.71	44.79	45.83	46.96	48.04	49.24	50.47
			MRES	0.01	0.40	0.44	0.44	0.39	0.42	0.371	0.415	0.469	0.58	0.651	0.728	0.803	0.874	0.944	1.013	1.077	1.14	1.217	1.306	1.38	1.46
			OTP	0.09	3.63	3.99	3.95	3.51	3.74	3.84	4.02	4.04	4.06	4.08	4.10	4.15	4.18	4.21	4.23	4.27	4.29	4.32	4.34	4.36	4.38
			WAPA	0.14	5.65	6.21	6.15	5.46	5.83	7.24	7.24	7.24	7.24	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17
66720	'SWEETWA7'	115		Total Load =	1.44	1.19	1.89	1.85	1.36	1.51	1.55	1.59	1.63	1.67	1.71	1.75	1.79	1.84	1.88	1.93	1.97	2.02	2.07	2.12	2.17
			MPC	1.00	1.44	1.19	1.89	1.85	1.36	1.51	1.55	1.59	1.63	1.67	1.71	1.75	1.79	1.84	1.88	1.93	1.97	2.02	2.07	2.12	2.17
Noncoincident Demand					83.82	87.26	87.97	79.33	81.09	89.80	92.53	94.10	95.61	97.15	98.77	100.68	102.40	104.12	105.85	107.73	109.49	111.38	113.18	115.13	117.13
Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal					71.84	74.79	75.40	67.99	69.50	76.97	79.30	80.65	81.95	83.27	84.65	86.29	87.77	89.24	90.72	92.33	93.84	95.46	97.01	98.68	100.39
TOTAL COINCIDENT DEMAND					71.84	74.79	75.40	67.99	69.50	76.97	79.30	80.65	81.95	83.27	84.65	86.29	87.77	89.24	90.72	92.33	93.84	95.46	97.01	98.68	100.39

LEGEND

Historic Data: 2002/3 to 2006/7

Forecast Data: 2007/8 to 2022/23

Estimated Data is Shaded

North Zone Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Finley/Carrington Load Center

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
66923	'PICKERT8'	69		Total Load =	29.87	27.80	29.04	30.95	34.17	38.56	39.39	40.33	41.20	42.07	43.03	44.00	44.98	45.97	46.95	48.01	49.04	50.14	51.20	52.38	53.59
			MPC	0.91	27.18	25.30	26.43	28.16	31.09	34.52	35.35	36.29	37.16	38.10	39.05	40.03	41.01	42.00	42.98	44.04	45.07	46.17	47.23	48.41	49.62
			WAPA	0.09	2.69	2.50	2.61	2.79	3.08	4.04	4.04	4.04	4.04	3.97	3.97	3.97	3.97	3.97	3.97	3.97	3.97	3.97	3.97	3.97	3.97
66321	'CARNGTN9'	41.6		Total Load =	17.30	18.70	12.20	12.40	12.90	17.18	17.29	17.53	17.67	17.73	17.82	17.92	18.02	18.16	18.26	18.36	18.46	18.57	18.71	18.83	18.95
			BEPC	0.71	12.28	13.28	8.66	8.80	9.16	17.07	17.185	17.421	17.569	17.636	17.728	17.827	17.929	18.063	18.165	18.264	18.361	18.472	18.615	18.73	18.85
			WAPA	0.29	3.56	3.85	2.51	2.55	2.66	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
66423	'BARLOW 7'	115		Total Load =	6.46	6.70	5.30	5.50	5.90	2.75	2.76	2.77	2.78	2.76	2.76	2.77	2.77	2.78	2.79	2.79	2.80	2.80	2.81	2.82	2.82
			BEPC	0.54	3.49	3.62	2.86	2.97	3.19	0.844	0.85	0.862	0.87	0.873	0.878	0.883	0.888	0.895	0.9	0.905	0.91	0.9163	0.923	0.93	0.93
			WAPA	0.46	2.97	3.08	2.44	2.53	2.71	1.91	1.91	1.91	1.91	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
63167	'PICKERT9'	41.6		Total Load =	15.29	13.37	14.71	16.23	17.34	15.70	16.44	16.52	16.59	16.68	16.76	16.97	17.08	17.19	17.31	17.44	17.55	17.66	17.75	17.83	17.91
			OTP	1.00	15.29	13.37	14.71	16.23	17.34	15.70	16.44	16.52	16.59	16.68	16.76	16.97	17.08	17.19	17.31	17.44	17.55	17.66	17.75	17.83	17.91
	Noncoincident Demand				**68.92**	**66.57**	**61.25**	**65.08**	**70.31**	**74.19**	**75.88**	**77.15**	**78.24**	**79.24**	**80.37**	**81.66**	**82.85**	**84.10**	**85.31**	**86.60**	**87.85**	**89.17**	**90.47**	**91.86**	**93.27**
	Adjusted by .8571 Coincidence Factor to yield Coincident Demand Subtotal				**59.07**	**57.06**	**52.50**	**55.78**	**60.26**	**63.59**	**65.04**	**66.12**	**67.06**	**67.92**	**68.89**	**69.99**	**71.01**	**72.08**	**73.12**	**74.23**	**75.30**	**76.43**	**77.54**	**78.73**	**79.94**
	TOTAL COINCIDENT DEMAND				**59.07**	**57.06**	**52.50**	**55.78**	**60.26**	**63.59**	**65.04**	**66.12**	**67.06**	**67.92**	**68.89**	**69.99**	**71.01**	**72.08**	**73.12**	**74.23**	**75.30**	**76.43**	**77.54**	**78.73**	**79.94**

Load Center Summary

Bemidji Load Center	205.87	200.55	208.49	211.94	226.78	242.33	251.15	262.35	276.47	287.59	297.01	302.00	306.59	311.52	316.35	321.57	326.58	331.92	337.07	343.10	349.23
Crookston/Thief River Falls/Donaldson Load Center	165.59	197.10	212.31	212.56	226.26	236.56	241.92	269.23	274.06	281.90	299.92	305.63	308.98	312.31	315.67	319.33	322.77	326.53	329.90	333.70	337.36
Lakota/Leeds Load Center	29.92	29.62	30.08	30.94	28.50	31.30	31.59	32.21	32.66	33.04	33.42	33.78	34.10	34.63	35.01	35.38	35.87	36.31	36.77	37.26	37.76
Devils Lake Load Center	34.81	38.34	36.81	35.47	38.19	40.11	41.54	41.90	42.24	42.62	43.00	43.58	44.02	44.45	44.87	45.37	45.84	46.28	46.69	47.14	47.55
Winger / Mahnomen Load Center	40.89	38.47	42.70	39.32	41.42	45.49	46.84	47.69	48.48	49.37	50.24	51.24	52.14	53.08	54.00	55.01	55.97	57.00	57.97	59.04	60.06
Grand Forks Load Center	213.93	213.98	214.86	215.60	225.23	261.80	267.10	270.25	273.87	277.52	281.33	285.21	289.13	293.06	296.98	301.11	305.16	309.37	313.49	317.84	321.63
Langdon/Hensel North Dakota Load Center	71.84	74.79	75.40	67.99	69.50	76.97	79.30	80.65	81.95	83.27	84.65	86.29	87.77	89.24	90.72	92.33	93.84	95.46	97.01	98.68	100.39
Finley/Carrington Load Center	59.07	57.06	52.50	55.78	60.26	63.59	65.04	66.12	67.06	67.92	68.89	69.99	71.01	72.08	73.12	74.23	75.30	76.43	77.54	78.73	79.94
TOTAL NORTH ZONE COINCIDENT DEMAND	**821.92**	**849.91**	**873.15**	**869.60**	**916.15**	**998.15**	**1024.49**	**1070.41**	**1096.79**	**1123.22**	**1158.46**	**1177.72**	**1193.74**	**1210.37**	**1226.73**	**1244.34**	**1261.33**	**1279.30**	**1296.44**	**1315.51**	**1333.93**

LEGEND
Historic Data: 2002/3 to 2006/7
Forecast Data: 2007/8 to 2022/23
Estimated Data is Shaded

Bemidji Area Coincident Winter Peak Demand Forecast - Public - trade secret substation load data excised

Bemidji Load Center

Non-Pipeline Loads

Substations					Substation Load Data																				
Bus #	Bus Name	kV	Utility	% Total Load	02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
61838	AKELEY9'	34.5		Total Load =																					
			GRE	0.38																					
			MP	0.62																					
63145	'WILTON 9'	41.6		Total Load =																					
			OTP	1.00																					
63146	'BEMIDJI9'	41.6		Total Load =																					
			OTP	1.00																					
63241	'CLEARBR7'	115		Total Load =																					
			MPC	0.62																					
			OTP	0.38																					
63346	'BEMIDJ19'	12.5		Total Load =																					
			OTP	1.00																					
63347	'CASS LK8'	69		Total Load =																					
			MPC	0.72																					
			OTP	0.28																					
66715	'LEECHLK7'	115		Total Load =																					
			MPC	1.00																					
66716	'LAPORTE7'	115		Total Load =																					
			MPC	1.00																					
66729	'RICELAK7'	115		Total Load =																					
			MPC	1.00																					
66968	'WILTON 8'	69		Total Load =																					
			MPC	1.00																					
67015	'BEMIDJI8'	69		Total Load =																					
			MPC	0.58																					
			OTP	0.42																					
	Noncoincident Demand																								
	Adjusted by .894 Coincidence Factor to yield Coincident Demand Subtotal																								

Pipeline Loads - Trade Secret

Substations				Substation Load Data																			
Bus #	Bus Name	kV		02/03 Winter	03/04 Winter	04/05 Winter	05/06 Winter	06/07 Winter	07/08 Winter	08/09 Winter	09/10 Winter	10/11 Winter	11/12 Winter	12/13 Winter	13/14 Winter	14/15 Winter	15/16 Winter	16/17 Winter	17/18 Winter	18/19 Winter	19/20 Winter	20/21 Winter	21/22 Winter	22/23 Winter
63280	'WILTPIPE'	115	Total Load =																				
63340	'MN PIPE9'	4.2	Total Load =																				
63342	'CLBK LK9'	4.2	Total Load =																				
63344	'ITASCA 9'	4.2	Total Load =																				
63348	'NO PIPE9'	4.2	Total Load =																				
63349	'CASSPIP9'	4.2	Total Load =																				
	Pipeline Coincident Demand																						
	TOTAL COINCIDENT DEMAND			177.07	207.63	215.54	219.11	234.30	250.34	259.41	270.78	285.07	296.36	305.97	311.16	315.93	321.05	326.07	331.49	336.70	342.25	347.61	353.88	360.26

LEGEND

Historic Data: 2002/3 to 2006/7

Forecast Data: 2007/8 to 2022/23

Estimated Data is Shaded

Consumption Forecast for Minnesota Portion of North Zone (kWh) -- Public -- trade secret substation load data excised

Bemidji Load Center

Non-Pipeline Loads

Substations				Substation Load Data																					
Bus #	Bus Name	kV	Utility	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
61838	'AKELEY9'	34.5	MP																						
			GRE																						
			Total =																						
63145	'WILTON 9'	41.6	OTP																						
			Total =																						
63146	'BEMIDJI9'	41.6	OTP																						
			Total =																						
63241	'CLEARBR7'	115	MPC																						
			OTP																						
			Total =																						
63346	'BEMIDJ19'	12.5	OTP																						
			Total =																						
63347	'CASS LK8'	69	MPC																						
			OTP																						
			Total =																						
66715	'LEECHLK7'	115	MPC																						
			Total =																						
66716	'LAPORTE7'	115	MPC																						
			Total =																						
66729	'RICELAK7'	115	MPC																						
			Total =																						
66968	'WILTON 8'	69	MPC																						
			Total =																						
67015	'BEMIDJI8'	69	MPC																						
			OTP																						
			Total =																						
	Non-Pipeline Total																								

Pipeline Loads - Trade Secret

Substations				Substation Load Data																					
Bus #	Bus Name	kV		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
63280	WILTPIPE'	115	Total =																						
63340	'MN PIPE9'	4.2	Total =																						
63342	'CLBK LK9'	4.2	Total =																						
63344	'ITASCA 9'	4.2	Total =																						
63348	NO PIPE9'	4.2	Total =																						
63349	CASSPIP9'	4.2	Total =																						
	Pipeline Total																								
Load Center Total				845,188,070	818,882,063	1,201,950,120	1,228,793,214	1,257,311,856	1,366,119,585	1,408,130,470	1,457,520,801	1,481,533,104	1,505,005,322	1,531,746,994	1,554,848,147	1,580,616,683	1,606,247,646	1,634,681,427	1,659,409,240	1,687,013,609	1,715,097,953	1,746,118,956	1,773,224,851	1,802,413,784	1,831,689,208

LEGEND
Historic Data: 2002 to 2006
Forecast Data: 2007 to 2023
Estimated Data is Shaded

Consumption Forecast for Minnesota Portion of North Zone (kWh) -- Public -- trade secret substation load data excised

Crookston/Thief River Falls/Donaldson Load Center

Non-Pipeline Loads

Substations				Substation Load Data																					
Bus #	Bus Name	kV	Utility	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
63249	'CRKSTON7'	115	OTP																						
			WAPA																						
			Total =																						
63252	'PLUMMER7'	115	MPC																						
			OTP																						
			Total =																						
63284	'OSLO TN7'	115	OTP																						
			Total =																						
63156	'KARLSTD9'	41.6	MPC																						
			OTP																						
			Total =																						
63150	'FERTILE9'	41.6	MPC																						
			OTP																						
			WAPA																						
			Total =																						
63155	'DONALDS9'	41.6	MPC																						
			OTP																						
			WAPA																						
			Total =																						
66718	'HALMA 7'	115	MPC																						
			Total =																						
66724	'ALVARAD7'	115	MPC																						
			Total =																						
66725	'WARREN 7'	115	MPC																						
			Total =																						
66838	'KARLSTA8'	69	MPC																						
			OTP																						
			WAPA																						
			Total =																						
Thief River Falls																									
66726	'ANDERNW7'	115	MPC																						
66723	'GREENWD7'	115	MPC																						
66910	'TRFALLS8'	69	MPC																						
			WAPA																						
			Total =																						
			Total																						

Pipeline Loads

Substations				Substation Load Data																					
Bus #	Bus Name	kV		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
63354	'VIKING 7'	4.2	Total =																						
63353	'PLUMPIP9'	4.2	Total =																						
63356	'DON PIP9'	4.2	Total =																						
	Pipeline Total - Trade Secret																								
Load Center Total				886,618,975	902,501,847	948,659,154	955,842,468	998,925,695	1,081,260,248	1,116,469,599	1,156,994,272	1,172,349,637	1,186,643,213	1,203,717,830	1,217,169,052	1,232,959,840	1,248,767,826	1,267,091,289	1,281,641,293	1,298,725,180	1,316,165,545	1,336,331,568	1,352,518,586	1,370,411,973	1,389,326,310

LEGEND
Historic Data: 2002 to 2006
Forecast Data: 2007 to 2023
Estimated Data is Shaded

Consumption Forecast for Minnesota Portion of North Zone (kWh) -- Public -- trade secret substation load data excised

Winger / Mahnomen Load Center

Substations				Substation Load Data																					
Bus #	Bus Name	kV	Utility	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
63138	'WINGER 9'	41.6	MPC	14,418,911	14,135,569	14,088,771	14,663,816	15,249,006	16,726,916	17,026,985	17,448,159	17,903,040	18,343,450	18,808,705	19,279,105	19,761,706	20,235,934	20,722,162	21,219,067	21,728,291	22,249,836	22,783,701	23,329,885	23,889,160	24,461,842
			OTP	16,027,445	16,129,011	17,120,962	18,127,300	17,790,122	19,280,934	20,202,563	21,198,549	21,323,621	21,451,562	21,651,062	21,724,676	21,865,886	22,014,574	22,236,921	22,323,645	22,484,375	22,646,263	22,888,578	22,986,999	23,147,901	23,309,942
			Total =	**30,446,356**	**30,264,580**	**31,209,733**	**32,791,116**	**33,039,128**	**36,007,850**	**37,229,548**	**38,646,708**	**39,226,661**	**39,795,012**	**40,459,767**	**41,003,781**	**41,627,592**	**42,250,508**	**42,959,083**	**43,542,712**	**44,212,667**	**44,896,099**	**45,672,279**	**46,316,884**	**47,037,061**	**47,771,784**
67018	'WINGER 8'	69	MPC	137,915,849	137,699,255	137,466,407	140,126,091	137,550,701	150,881,900	153,588,613	157,387,732	161,490,902	165,463,531	169,660,272	173,903,428	178,256,640	182,534,320	186,920,241	191,402,474	195,995,837	200,700,330	205,515,953	210,442,705	215,282,880	220,234,385
			WAPA	13,264,000	13,264,000	13,306,000	13,264,000	13,237,000	13,237,000	13,237,000	13,237,000	13,237,000	13,104,630	12,973,584	12,843,848	12,715,409	12,588,255	12,462,373	12,337,749	12,214,372	12,092,228	11,971,306	11,851,592	11,733,076	11,615,745
			Total =	**151,179,849**	**150,963,255**	**150,772,407**	**153,390,091**	**150,787,701**	**164,118,900**	**166,825,613**	**170,624,732**	**174,727,902**	**178,568,161**	**182,633,856**	**186,747,276**	**190,972,049**	**195,122,575**	**199,382,614**	**203,740,223**	**208,210,209**	**212,792,558**	**217,487,258**	**222,294,297**	**227,015,956**	**231,850,130**
63237	'MAHNOMN7'	115	OTP	35,555,437	35,081,588	34,640,456	35,163,632	33,996,216	36,845,099	38,606,295	40,509,585	40,748,592	40,993,083	41,374,319	41,514,991	41,784,839	42,068,976	42,493,872	42,659,599	42,966,748	43,276,108	43,739,163	43,927,241	43,227,731	43,530,325
			WAPA	9,782,837	9,813,950	9,782,837	9,764,188	9,764,188	9,764,188	9,764,188	9,764,188	9,666,546	9,569,881	9,474,182	9,379,440	9,285,646	9,192,789	9,100,861	9,009,853	8,919,754	8,830,557	8,742,251	8,654,828	8,568,279	8,482,596
			Total =	**45,338,274**	**44,895,538**	**44,423,293**	**44,927,820**	**43,760,404**	**46,609,287**	**48,370,483**	**50,273,773**	**50,415,138**	**50,562,964**	**50,848,501**	**50,894,431**	**51,070,484**	**51,261,765**	**51,594,734**	**51,669,451**	**51,886,502**	**52,106,665**	**52,481,414**	**52,582,069**	**51,796,010**	**52,012,921**
Load Center Total				**226,964,479**	**226,123,373**	**226,405,433**	**231,109,027**	**227,587,233**	**246,736,037**	**252,425,643**	**259,545,213**	**264,369,700**	**268,926,137**	**273,942,123**	**278,645,488**	**283,670,126**	**288,634,849**	**293,936,430**	**298,952,386**	**304,309,377**	**309,795,322**	**315,640,950**	**321,193,250**	**325,849,027**	**331,634,835**

Grand Forks Load Center Annual Consumption Data for MN

(East Grand Forks Only)

Substations				Substation Load Data																					
Bus #	Bus Name	kV	Utility	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
61151	'CENTRAL8'	69	MMPA	28,911,000	28,614,000	23,345,000	22,785,000	22,680,000	22,850,133	23,553,929	23,508,154	23,801,400	24,094,645	24,387,891	24,681,136	24,974,382	25,267,627	25,560,873	25,854,118	26,147,364	26,408,838	26,672,926	26,939,655	27,209,052	27,481,142
61152	'PARK 8'	69	MMPA	20,409,000	22,884,000	23,051,000	23,521,000	23,264,000	23,478,281	24,226,462	24,179,380	24,480,999	24,782,617	25,084,236	25,385,854	25,687,473	25,989,091	26,290,710	26,592,328	26,893,947	27,162,886	27,434,514	27,708,859	27,985,948	28,265,807
61153	'SUGARHL8'	69	MMPA	28,114,000	60,484,000	52,296,000	54,865,000	49,294,000	53,509,826	54,352,869	54,247,240	54,923,931	55,600,622	56,277,313	56,954,005	57,630,696	58,307,387	58,984,078	59,660,769	60,337,460	60,904,834	61,550,242	62,165,744	62,787,401	63,415,275
			Total =	**77,436,002**	**111,984,003**	**98,694,004**	**101,173,005**	**95,240,006**	**99,840,247**	**102,135,268**	**101,936,783**	**103,208,340**	**104,479,895**	**105,751,452**	**107,023,008**	**108,294,565**	**109,566,120**	**110,837,677**	**112,109,232**	**113,380,789**	**114,478,577**	**115,659,702**	**116,816,279**	**117,984,423**	**119,164,248**
66430	'EGF IND7'	115	WAPA	56,334,000	29,765,000	44,190,000	45,300,000	48,887,000	73,051,000	73,051,000	73,051,000	72,320,490	71,597,285	70,881,312	70,172,499	69,470,774	68,776,066	68,088,306	67,407,423	66,733,348	66,066,015	65,405,355	64,751,301	64,103,788	63,462,750
			Total =	**56,334,000**	**29,765,000**	**44,190,000**	**45,300,000**	**48,887,000**	**73,051,000**	**73,051,000**	**73,051,000**	**72,320,490**	**71,597,285**	**70,881,312**	**70,172,499**	**69,470,774**	**68,776,066**	**68,088,306**	**67,407,423**	**66,733,348**	**66,066,015**	**65,405,355**	**64,751,301**	**64,103,788**	**63,462,750**
Load Center Total				**133,770,002**	**141,749,003**	**142,884,004**	**146,473,005**	**144,127,006**	**172,891,247**	**175,186,268**	**174,987,783**	**175,528,830**	**176,077,180**	**176,632,764**	**177,195,507**	**177,765,339**	**178,342,186**	**178,925,983**	**179,516,655**	**180,114,137**	**180,544,592**	**181,065,057**	**181,567,581**	**182,088,211**	**182,626,998**

Langdon/Hensel Load Center Annual Consumption Data for MN

Substations				Substation Load Data																					
Bus #	Bus Name	kV	Utility	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
66818	'HENSEL 8'	69	MPC	39,016,914	38,747,012	42,744,068	39,631,094	38,275,626	41,985,240	42,738,425	43,795,589	44,937,360	46,042,806	47,210,614	48,391,339	49,602,688	50,793,019	52,013,470	53,260,721	54,538,896	55,847,994	57,188,016	58,558,962	59,905,818	61,283,651
			Total =	**39,016,914**	**38,747,012**	**42,744,068**	**39,631,094**	**38,275,626**	**41,985,240**	**42,738,425**	**43,795,589**	**44,937,360**	**46,042,806**	**47,210,614**	**48,391,339**	**49,602,688**	**50,793,019**	**52,013,470**	**53,260,721**	**54,538,896**	**55,847,994**	**57,188,016**	**58,558,962**	**59,905,818**	**61,283,651**
Load Center Total				**39,016,914**	**38,747,012**	**42,744,068**	**39,631,094**	**38,275,626**	**41,985,240**	**42,738,425**	**43,795,589**	**44,937,360**	**46,042,806**	**47,210,614**	**48,391,339**	**49,602,688**	**50,793,019**	**52,013,470**	**53,260,721**	**54,538,896**	**55,847,994**	**57,188,016**	**58,558,962**	**59,905,818**	**61,283,651**

Load Center Summary

Bemidji Load Center	845,188,070	818,882,063	1,201,950,120	1,228,793,214	1,257,311,856	1,366,119,585	1,408,130,470	1,457,520,801	1,481,533,104	1,505,005,322	1,531,746,994	1,554,848,147	1,580,616,683	1,606,247,646	1,634,681,427	1,659,409,240	1,687,013,609	1,715,097,953	1,746,118,956	1,773,224,851	1,802,413,784	1,831,689,208
Crookston/Thief River/Donaldson Load Center	886,618,975	902,501,847	948,659,154	955,842,468	998,925,695	1,081,260,248	1,116,469,599	1,156,994,272	1,172,349,637	1,186,643,213	1,203,717,830	1,217,169,052	1,232,959,840	1,248,767,826	1,267,091,289	1,281,641,293	1,298,725,180	1,316,165,545	1,336,331,568	1,352,518,586	1,370,411,973	1,389,326,310
Winger / Mahnomen Load Center	226,964,479	226,123,373	226,405,433	231,109,027	227,587,233	246,736,037	252,425,643	259,545,213	264,369,700	268,926,137	273,942,123	278,645,488	283,670,126	288,634,849	293,936,430	298,952,386	304,309,377	309,795,322	315,640,950	321,193,250	325,849,027	331,634,835
Grand Forks Load Center	133,770,002	141,749,003	142,884,004	146,473,005	144,127,006	172,891,247	175,186,268	174,987,783	175,528,830	176,077,180	176,632,764	177,195,507	177,765,339	178,342,186	178,925,983	179,516,655	180,114,137	180,544,592	181,065,057	181,567,581	182,088,211	182,626,998
Langdon/Hensel North Dakota Load Center	39,016,914	38,747,012	42,744,068	39,631,094	38,275,626	41,985,240	42,738,425	43,795,589	44,937,360	46,042,806	47,210,614	48,391,339	49,602,688	50,793,019	52,013,470	53,260,721	54,538,896	55,847,994	57,188,016	58,558,962	59,905,818	61,283,651
Total of MN Consumption =	**2,131,558,440**	**2,128,003,298**	**2,562,642,779**	**2,601,848,808**	**2,666,227,416**	**2,908,992,357**	**2,994,950,405**	**3,092,843,659**	**3,138,718,631**	**3,182,694,658**	**3,233,250,326**	**3,276,249,532**	**3,324,614,676**	**3,372,785,526**	**3,426,648,599**	**3,472,780,295**	**3,524,701,200**	**3,577,451,405**	**3,636,344,548**	**3,687,063,231**	**3,740,668,813**	**3,796,561,002**

LEGEND

Historic Data: 2002 to 2006

Forecast Data: 2007 to 2023

Estimated Data is Shaded

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