



April 30, 2020

VIA E-FILING

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: **Annual Automatic Adjustment of Charges Report - Electric**
Docket No. E015/AA-20-171
Reply Comments

Dear Mr. Seuffert:

Minnesota Power respectfully submits Reply Comments in response to the comments submitted on April 15, 2020, by the Minnesota Department of Commerce, Division of Energy Resources ("Department") in the above referenced Docket.

Minnesota Power appreciates the Department's analysis and review of the July 2018 through December 2019 Annual Automatic Adjustment of Charges Report. Minnesota Power supports the recommendations and looks forward to a Commission hearing on this Docket. Please contact me at (218) 355-3455 or hcreurer@allete.com if you have any questions.

Yours truly,



Hillary A. Creurer
Regulatory Compliance Administrator

HAC:th
Attach.

**STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION**

In the Matter of Minnesota Power's Annual
Automatic Adjustment of Charges Report

Docket No. E015/AA-20-171

**MINNESOTA POWER'S
REPLY COMMENTS**

I. INTRODUCTION

On April 15, 2020, the Minnesota Department of Commerce, Division of Energy Resources ("Department") submitted its Review of Minnesota Power's (or the "Company") Annual Automatic Adjustment of Charges Report ("AAA") dated March 1, 2020, in the above-referenced Docket. Section II of these Reply Comments addresses the Departments requests for additional information.

II. RESPONSE TO COMMENTS

A. The Department requests that Minnesota Power provide data for generation maintenance expenses for 2019 in reply comments.

Minnesota Power provided projected 2019 generation maintenance expenses in the AAA filing due to the FERC Form 1 not being completed. However, Minnesota Power included a footnote stating "Minnesota Power will submit a supplemental filing with Actual 2019 costs after the FERC Form 1 is filed in April 2020."

Initially, Minnesota Power was planning on filing the FERC Form 1 on April 15, 2020; however, due to the novel coronavirus COVID-19 pandemic FERC extended the deadline for the FERC Form 1 to May 1, 2020.

Attachment A includes the actual 2019 Generation and Maintenance Expenses based on Minnesota Power's FERC Form 1, in response to the Department's request.

B. The Department recommends that Minnesota Power provide its policy for transformer maintenance in reply comments.

The Company apologizes for inadvertently excluding its transformer maintenance policy in the AAA filing. While the Company does not have a specific written Transformer Maintenance Policy, preventive maintenance is tracked in the Company's Maximo system. Oil samples are taken annually and electrical testing is performed every 5 years except on the HVDC transformers, which are tested every 3 years. These intervals follow the recommendation of the Company's insurance provider.

C. As a result of the significant increase in MISO Day 2 charges for FYE19 and FYE20 compared to FYE18, as shown in Table 4.2, the Department requests that Minnesota Power in its reply comments to explain the main drivers that caused these increases. Additionally, the Department requests that Minnesota Power in its reply comments provide the MISO bills that support the \$13.6 million in MISO Day 2 and ASM net charges for the month February 2019. The Department also requests that Minnesota Power in its reply comments support its cost allocation of \$10.9 million to retail customers "FPE Retail" for February 2019 (as shown on Minnesota Power's Attachment 8, page 48) and provide any plant outages information for February 2019.

The main driver for the increase in MISO Day 2 charges for FYE19 and FYE20 can be attributed to Minnesota Power having significant outages at the Boswell Generation Facility in 2019. February, March, June, and July 2019 all had increased MISO charges and these months align with the outages. February had 26 days of outage, March had 29 days of outage, June had 22 days of outage, and July had 20 days of outage at the Boswell Generation Facility. These outages caused higher MISO costs due to having less company generation to serve load.

Attachment B includes a reconciliation of the February 2019 MISO invoices and the weekly invoices that support the \$13.6 million in MISO Day 2 and ASM net charges. The reconciliation involves adding together the MISO invoice information plus the

current month accrual, then subtracting the prior month accrual and adding any miscellaneous adjustments. The reconciliation difference is due to the accrual process.

The bridging schedule which reconciles the cost allocation between different categories is included as Attachment C and supports the \$10.9 million to retail customers "FPE Retail" for February 2019.

In February 2019 Boswell 4 had a major unplanned outage to repair a hot reheat line steam leak. Attachment D includes Minnesota Power's Forced Outage report included in Docket No. AA-20-171, Attachment 15. The unplanned outage information for February 2019 can be found on page 8.

Dated: April 30, 2020

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Hillary A. Creurer".

Hillary A. Creurer
Regulatory Compliance Administrator
Minnesota Power
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Duluth, MN 55802
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Minnesota Power
AAA Compliance Filing
Summary of Generation Maintenance Expenses

		2017 Actual	Final Rates	2018	2019	2019	Budget
	FERC Acct	Expenses [1]	Test Year 2017	Actual Expenses [3]	Projected Expenses [4]	Actual Expenses [3]	Test Year 2020
			Docket No. E015/GR-16-664 [2]				Docket No. E015/GR-19-442 [5]
Steam Power Generation Maintenance							
Maintenance Supervision and Engineering	510	\$4,074,056	\$4,913,827	\$3,357,688	\$2,701,090	\$2,677,699	\$4,124,087
Maintenance of Structures	511	\$1,163,815	\$582,993	\$1,018,541	\$532,581	\$927,081	\$671,150
Maintenance of Boiler Plant	512	\$11,731,724	\$16,051,910	\$9,613,150	\$11,119,305	\$9,040,936	\$11,663,286
Maintenance of Electric Plant	513	\$3,226,061	\$2,143,926	\$2,713,305	\$1,449,073	\$2,548,768	\$1,851,131
Maintenance of Misc. Steam Plant	514	\$4,725,423	\$5,109,261	\$3,867,090	\$2,291,404	\$3,101,696	\$2,200,024
Sub-Total Steam Power		\$24,921,079	\$28,801,917	\$20,569,774	\$18,093,453	\$18,296,180	\$20,509,678
Hydraulic Power Generation Maintenance							
Maintenance Supervision and Engineering	541	\$474,160	\$514,969	\$384,193	\$35,199	\$329,828	\$334,873
Maintenance of Structures	542	\$45,560	\$73,962	\$76,957	\$19,200	\$120,302	\$60,395
Maintenance of Reservoirs, Dams and Waterways	543	\$1,152,771	\$604,374	\$1,317,590	\$1,053,818	\$919,140	\$1,328,595
Maintenance of Electric Plant	544	\$1,016,865	\$1,581,601	\$1,002,687	\$942,297	\$896,964	\$975,652
Maintenance of Misc. Hydraulic Plant	545	\$1,306,137	\$1,058,911	\$1,242,398	\$1,074,696	\$1,104,598	\$1,134,230
Sub-Total Hydraulic Power		\$3,995,493	\$3,833,817	\$4,023,825	\$3,125,210	\$3,370,832	\$3,833,745
Other Power Generation - Wind Maintenance							
Maintenance Supervision and Engineering	551	\$25,426	\$19,855	\$18,976	\$0	\$1,557	\$504
Maintenance of Structures	552	\$32,835	\$15,000	\$2,964	\$50,000	\$0	\$0
Maintenance of Generating and Electric Plant	553	\$8,000,197	\$9,116,984	\$9,234,251	\$9,238,012	\$6,281,191	\$10,026,743
Maintenance of Misc. Other Pwr Generation Plt.	554	\$1,580,917	\$211,331	\$2,201,046	\$1,274,037	\$1,615,053	\$1,723,270
Sub-Total Other Power - Wind		\$9,639,375	\$9,363,170	\$11,457,237	\$10,562,049	\$7,897,801	\$11,750,517
TOTAL		\$38,555,947	\$41,998,904	\$36,050,836	\$31,780,712	\$29,564,813	\$36,093,940

[1] 2017 FERC Form 1, pages 320 and 321, column (b)

[2] Docket E015/GR-16-664 Compliance Filing dated 6-28-18, Section VIII, Compliance Schedule 16, CCOSS, column Total Company

[3] 2018 and 2019 FERC Form 1, page 320 and 321, column (b), and Docket No. E015/GR-19-442, Volume 4, Workpaper IS-20 2018 O-M Actual, page 1 of 4

[4] Docket No. E015/GR-19-442, Volume 4, Workpaper IS-02, 2019 O&M Projected, page 1 of 4. 2019 costs are projected until the FERC Form 1 is filed.

[5] Docket No. E015/GR-19-442, Income Statement 2020 Test Year Adjusted

Attachment B - Reconciliation & MISO Invoices

FEB19

MINNESOTA POWER		Account	Date Invoice Paid							
MISO MONTHLY ALLOCATION		Number	February 2019						Total	Difference
			2/19/2019	2/26/2019	3/5/2019	3/12/2019	3/19/2019	3/26/2019		
			2/1/19	2/2/19 - 2/8/19	2/9/19 - 2/15/19	2/16/19 - 2/22/19	2/23/19 - 2/28/19	2/23/19 - 2/28/19		
			2/1/19	2/2/19 - 2/8/19	2/9/19 - 2/15/19	2/16/19 - 2/22/19	2/23/19 - 2/28/19	2/23/19 - 2/28/19		
Day Ahead and Real Time Energy										
1a	Day Ahead Asset Energy	44700-0000 or 55500-0000 or 55500-0050	14,260,740.16	366,171.39	2,779,855.05	3,870,392.74	4,743,684.43	3,608,595.11	15,368,698.72	(0.06)
5	Day Ahead Non-Asset Energy	55500-0057	(916,603.80)	(59,400.60)	(237,619.66)	(209,788.75)	(189,533.00)	(220,261.79)	(916,603.80)	-
13a	Real Time Asset Energy	44700-0000 or 55500-0000 or 55500-0050	(66,601.11)	15,907.74	11,464.95	(31,240.33)	(41,018.60)	(206,108.72)	(252,331.73)	(310,195.51)
	Excessive Energy Amount	55500-0066	2,448.42	33.68	69.48	1,144.08	462.08	388.54	2,097.86	(350.56)
22	Non-Excessive Energy Amount	55500-0069	523.01	(44,480.90)	210,960.56	14,919.94	(108,574.36)	(61,216.35)	11,608.89	11,085.88
	Real Time Non-Asset Energy	55500-0043	(169,544.20)	(3,700.48)	(18,624.68)	(30,908.14)	(29,933.05)	(79,013.78)	(162,180.13)	7,364.07
Subtotal			13,110,962.48							
Day Ahead and Real Time Energy Loss										
1c	Day Ahead Loss	44700-0000 or 55500-0000 or 55500-0050	1,004,868.23	-	-	-	-	-	-	-
3	Day Ahead Financial Bilateral Transaction Loss	55500-0022	116,372.34	5,178.55	35,334.40	36,872.60	22,176.45	18,363.25	117,925.25	1,552.91
13c	Real Time Loss	44700-0000 or 55500-0000 or 55500-0050	(380,128.41)	-	-	-	-	-	-	-
14	Real Time Distribution of Losses	55500-0041	(726,364.48)	(22,475.60)	(129,619.11)	(160,527.92)	(144,344.46)	(166,007.49)	(616,580.75)	108,783.73
16	Real Time Financial Bilateral Transaction Loss	55500-0038	-	-	-	-	-	-	-	-
Subtotal			14,747.68							
Virtual Energy										
12	Day Ahead Virtual Energy	55500-0030	-	-	-	-	-	-	-	-
27	Real Time Virtual Energy	55500-0049	-	-	-	-	-	-	-	-
Subtotal			-							
Schedule 16 & 17 - 1/										
4	Day Ahead Market Administration (Schedule 17)	55500-0020	111,278.27	4,544.10	28,304.58	27,562.09	25,678.67	23,848.94	109,938.38	(1,339.89)
19	Real Time Market Administration (Schedule 17)	55500-0036	9,365.94	287.99	3,559.89	1,606.02	1,607.60	1,438.95	8,630.20	(735.74)
29	Financial Transmission Rights Market Administration (Schedule 16)	55500-0031	818.75	29.60	204.64	204.64	204.64	175.04	818.56	(0.19)
Subtotal			121,462.96							
Congestion, FTRs & ARR's										
1b	Day Ahead Congestion	44700-0000 or 55500-0000 or 55500-0050	103,090.27	-	-	-	-	-	-	-
13b	Real Time Congestion	44700-0000 or 55500-0000 or 55500-0050	(23,669.61)	-	-	-	-	-	-	-
2	Day Ahead Financial Bilateral Transaction Congestion	55500-0021	(115,797.72)	13,209.50	(31,983.10)	(13,750.90)	(30,567.35)	(49,256.85)	(112,348.70)	3,449.02
15	Real Time Financial Bilateral Transaction Congestion	55500-0037	-	-	-	-	-	-	-	-
25	Auction Revenue Rights Transaction Amount	55500-0068	(105,297.03)	(105,297.03)	-	-	-	-	(105,297.03)	-
	Financial Transmission Rights Annual Transaction Amount	55500-0059	120,936.61	120,936.61	-	-	-	-	120,936.61	-
	Auction Revenue Rights Infeasible Uplift Amount	55500-0060	7,161.07	7,159.35	-	-	-	-	7,159.35	(1.72)
	Auction Revenue Rights Stage 2 Distribution Amount	55500-0061	(89,023.04)	(89,805.56)	-	-	-	-	(89,805.56)	(782.52)
28	Financial Transmission Rights Hourly Allocation	55500-0032	47,297.96	(25,265.48)	17,790.25	27,376.58	22,645.62	(419.29)	42,127.68	(5,170.28)
30	Financial Transmission Rights Monthly Allocation	55500-0033	(4,169.20)	-	-	-	-	(6,636.47)	(6,636.47)	(2,467.27)
32	Financial Transmission Rights Yearly Allocation	55500-0035	-	-	-	-	-	-	-	-
	Financial Transmission Rights Full Funding Guarantee Amount	55500-0054	(6,527.50)	(2,534.56)	(998.55)	(999.39)	(906.91)	5,430.41	-	6,527.50
	FTR Guarantee Uplift Amount	55500-0055	5,730.74	2,534.56	998.55	999.39	906.91	(5,430.41)	-	(5,730.74)
	Financial Transmission Rights Monthly Transaction Amount	55500-0056	6,487.75	6,487.75	-	-	-	-	6,487.75	-
31	Financial Transmission Rights Transaction	55500-0034	-	-	-	-	-	-	-	-
Subtotal			(53,779.70)							
RSQ & Make Whole Payments										
10	Day Ahead Revenue Sufficiency Guarantee Distribution	55500-0028	30,536.30	1,465.05	6,843.09	3,542.56	7,459.72	5,624.76	24,935.30	(5,601.00)
11	Day Ahead Revenue Sufficiency Guarantee Make Whole Payment	55500-0029	(5,242.43)	-	(182.85)	-	-	-	(182.85)	5,059.58
	Real Time Price Volatility Make Whole Payment	55500-0067	(24.17)	-	(0.60)	(0.04)	(2.87)	(634.71)	(638.22)	(614.05)
24	Real Time Revenue Sufficiency Guarantee First Pass Dist	55500-0046	56,139.45	1,241.89	3,647.72	1,647.76	3,864.97	13,129.89	26,407.00	(29,732.45)
26	Real Time Revenue Sufficiency Guarantee Make Whole Payment	55500-0047	(102,594.74)	(11,553.10)	-	-	-	(4,637.94)	(16,191.04)	86,403.70
Subtotal			(21,185.59)							
RNU & Misc Charges										
20	Real Time Miscellaneous	55500-0042	49,498.70	-	-	-	-	-	-	(49,498.70)
21	Real Time Net Inadvertent Distribution	55500-0044	(26,769.53)	402.17	(3,057.81)	(1,844.22)	(2,045.16)	4,288.28	(9,109.10)	17,660.43
23	Real Time Revenue Neutrality Uplift Amount	55500-0045	391,008.85	60,552.03	66,903.96	20,888.94	15,970.79	22,629.09	198,346.34	(192,662.51)
26	Real Time Uninstructed Deviation	55500-0048	-	-	-	-	-	-	-	-
27	Demand Response Allocation Uplift Amount	55500-0077	182.15	-	-	-	-	-	-	(182.15)
33	Day Ahead Ramp Capability Amount	55500-0079	(70.50)	-	(3.16)	(1.14)	-	-	(4.30)	86.20
34	Real Time Ramp Capability Amount	55500-0080	2.14	2.09	0.05	-	-	(24.01)	(21.87)	(24.01)
Subtotal			413,831.81							
Grandfathered Charge Types										
6	Day Ahead Congestion Rebate on Carve-Out Grandfathered	55500-0023	-	-	-	-	-	-	-	-
7	Day Ahead Losses Rebate on Carve-Out Grandfathered	55500-0024	-	-	-	-	-	-	-	-
8	Day Ahead Congestion Rebate on Option B Grandfathered	55500-0025	-	-	-	-	-	-	-	-
9	Day Ahead Losses Rebate on Option B Grandfathered	55500-0026	-	-	-	-	-	-	-	-
17	Real Time Losses Rebate on Carve-Out Grandfathered	55500-0040	-	-	-	-	-	-	-	-
18	Real Time Congestion Rebate on Carve-Out Grandfathered	55500-0039	-	-	-	-	-	-	-	-
Subtotal			-							
ASM Charge Types (12 Other)										
	Day Ahead Regulation Amount	55500-0062	(10,841.40)	(885.36)	(7,667.27)	-	(140.80)	(2,086.19)	(10,779.62)	61.78
	Day Ahead Spinning Reserve Amount	55500-0063	(25,730.08)	(1,547.28)	(6,160.14)	(4,607.40)	(5,081.50)	(8,594.35)	(25,990.67)	(260.59)
	Day Ahead Supplemental Reserve Amount	55500-0064	4.96	-	-	-	-	-	-	(4.96)
	Contingency Reserve Deployment Failure Charge Amount	55500-0065	-	-	-	-	-	-	-	-
	Net Regulation Adjustment Amount	55500-0068	(353.14)	42.19	12.41	(40.87)	(99.86)	(123.09)	(209.22)	143.92
	Real Time Regulation Amount	55500-0070	5,114.13	(71.88)	4,167.70	(93.97)	(116.15)	144.34	4,030.04	(1,084.09)
	Regulation Reserve Cost Distribution Amount	55500-0071	25,925.00	1,203.72	6,055.66	5,289.64	5,506.00	5,987.12	24,028.78	(1,886.22)
	Real Time Excessive Deficient Deployment Charge Amount	55500-0067	8,028.56	154.68	3,065.53	244.60	268.38	716.67	4,448.89	(3,578.67)
	Real Time Spinning Reserve Amount	55500-0072	2,999.48	(7.61)	681.04	480.17	75.09	(669.96)	558.73	(2,440.75)
	Spinning Reserve Cost Distribution Amount	55500-0073	26,942.45	1,091.40	4,235.43	4,548.06	5,051.23	6,418.60	21,345.34	(5,597.11)
	Real Time Supplemental Reserve Amount	55500-0074	(3,496.42)	(27.96)	(3.70)	(0.88)	(2.15)	(121.62)	(156.31)	3,340.11
	Supplemental Reserve Cost Distribution Amount	55500-0075	9,106.11	939.05	976.22	734.72	879.88	1,134.15	4,664.49	(4,441.62)
Subtotal			37,699.64							
Grand Total			13,623,739.28	242,519.60	2,749,252.57	3,564,740.63	4,304,076.14	2,907,049.92	12,488.93	(371,874.52)

MINNESOTA POWER

MISO MONTHLY ALLOCATION

MINNESOTA POWER		Account	February 2019	FPE Retail				FAC Resale				Subtotal FPE and FAC
MISO MONTHLY ALLOCATION		Number		Mwh	Cost	Mwh	Revenue	Mwh	Cost	Mwh	Revenue	Cost/Revenue
Day Ahead and Real Time Energy												
Day Ahead Asset Energy	44700-0000 or 55500-0000 or 55500-0050	14,260,740.16 (916,603.80)										-
Day Ahead Non-Asset Energy	55500-0027	-										-
Real Time Asset Energy	44700-0000 or 55500-0000 or 55500-0050	(66,601.11)										-
Excessive Energy Amount	55500-0066	2,448.42										-
Non-Excessive Energy Amount	55500-0069	523.01										-
Real Time Non-Asset Energy	55500-0043	(169,544.20)										-
Subtotal		13,110,962.48	705,473	10,573,910.27			131,556	2,014,078.15				12,587,988.41
Day Ahead and Real Time Energy Loss												
Day Ahead Loss	44700-0000 or 55500-0000 or 55500-0050	1,004,868.23			687,406.85	-		130,934.64		-		818,341.49
Day Ahead Financial Bilateral Transaction Loss	55500-0022	116,372.34			79,179.74	-		15,081.86		-		94,261.60
Real Time Loss	44700-0000 or 55500-0000 or 55500-0050	(380,128.41)			-	(260,036.96)		-		(49,530.85)		(309,567.80)
Real Time Distribution of Losses	55500-0041	(726,364.48)			-	(494,218.39)		-		(94,136.84)		(588,355.23)
Real Time Financial Bilateral Transaction Loss	55500-0038	-			-	-		-		-		-
Subtotal		14,747.68	705,473	766,586.59	705,473	(754,255.35)	131,556	146,016.49	131,556	(143,667.69)		14,680.05
Virtual Energy												
Day Ahead Virtual Energy	55500-0030	-			-	-		-		-		-
Real Time Virtual Energy	55500-0049	-			-	-		-		-		-
Subtotal		-	705,473	-	705,473	-	131,556	-	131,556	-		-
Schedule 16 & 17 1/												
Day Ahead Market Administration (Schedule 17)	55500-0020	111,278.27			75,713.73	-		14,421.66		-		90,135.40
Real Time Market Administration (Schedule 17)	55500-0036	9,365.94			6,372.59	-		1,213.83		-		7,586.41
Financial Transmission Rights Market Administration (Schedule 16)	55500-0031	818.75			557.08	-		106.11		-		663.19
Subtotal		121,462.96	705,473	82,643.40	705,473	-	131,556	15,741.60	131,556	-		98,385.00
Congestion, FTRs & ARRs												
Day Ahead Congestion	44700-0000 or 55500-0000 or 55500-0050	103,090.27			70,521.64	-		13,432.69		-		83,954.34
Real Time Congestion	44700-0000 or 55500-0000 or 55500-0050	(23,669.61)			-	(16,191.83)		-		(3,084.16)		(19,275.98)
Day Ahead Financial Bilateral Transaction Congestion	55500-0021	(115,797.72)			-	(78,788.77)		-		(15,007.38)		(93,796.15)
Real Time Financial Bilateral Transaction Congestion	55500-0037	-			-	-		-		-		-
Auction Revenue Rights Transaction Amount	55500-0068	(105,297.03)			-	(71,644.10)		-		(13,646.50)		(85,290.59)
Financial Transmission Rights Annual Transaction Amount	55500-0059	120,936.61			82,285.27	-		15,673.38		-		97,958.65
Auction Revenue Rights Infeasible Uplift Amount	55500-0060	7,161.07			4,872.39	-		928.07		-		5,800.47
Auction Revenue Rights Stage 2 Distribution Amount	55500-0061	(89,023.04)			-	(60,571.28)		-		(11,537.39)		(72,106.66)
Financial Transmission Rights Hourly Allocation	55500-0032	47,287.96			32,181.53	-		6,129.82		-		38,311.35
Financial Transmission Rights Monthly Allocation	55500-0033	(4,169.20)			-	(2,836.72)		-		(540.33)		(3,377.05)
Financial Transmission Rights Yearly Allocation	55500-0035	-			-	-		-		-		-
Financial Transmission Rights Full Funding Guarantee Amount	55500-0054	(6,527.50)			-	(4,441.31)		-		(845.96)		(5,287.28)
FTR Guarantee Uplift Amount	55500-0055	5,730.74			3,899.20	-		742.70		-		4,641.90
Financial Transmission Rights Monthly Transaction Amount	55500-0056	6,487.75			4,414.27	-		840.81		-		5,255.08
Financial Transmission Rights Transaction	55500-0034	-			-	-		-		-		-
Subtotal		(53,779.70)	705,473	198,174.30	705,473	(234,474.00)	131,556	37,747.49	131,556	(44,661.72)		(43,213.94)
RSG & Make Whole Payments												
Day Ahead Revenue Sufficiency Guarantee Distribution	55500-0028	30,536.30			20,776.90	-		3,957.50		-		24,734.40
Day Ahead Revenue Sufficiency Guarantee Make Whole Payment	55500-0029	(5,242.43)			-	(3,566.95)		-		(679.42)		(4,246.37)
Real Time Price Volatility Make Whole Payment	55500-0057	(24.17)			-	(16.45)		-		(3.13)		(19.58)
Real Time Revenue Sufficiency Guarantee First Pass Dist	55500-0046	56,138.45			38,197.28	-		7,275.67		-		45,472.95
Real Time Revenue Sufficiency Guarantee Make Whole Payment	55500-0047	(102,594.74)			-	(69,805.46)		-		(13,296.28)		(83,101.74)
Subtotal		(21,185.59)	705,473	58,974.18	705,473	(73,388.86)	131,556	11,233.18	131,556	(13,978.83)		(17,160.33)
RNU & Misc Charges												
Real Time Miscellaneous	55500-0042	49,498.70			33,678.92	-		6,415.03		-		40,993.95
Real Time Net Inadvertent Distribution	55500-0044	(26,769.59)			-	(18,213.99)		-		(3,469.33)		(21,853.32)
Real Time Revenue Neutrality Uplift Amount	55500-0045	391,008.85			266,042.42	-		50,674.75		-		316,717.17
Real Time Uninstructed Deviation	55500-0048	-			-	-		-		-		-
Demand Response Allocation Uplift Amount	55500-0077	162.15			110.33	-		21.01		-		131.34
Day Ahead Ramp Capability Amount	55500-0079	(70.50)			-	(47.97)		-		(8.14)		(57.11)
Real Time Ramp Capability Amount	55500-0080	2.14			1.46	-		0.28		-		1.73
Subtotal		413,831.81	705,473	299,833.12	705,473	(18,261.96)	131,556	57,111.07	131,556	(3,478.47)		335,203.77
Grandfathered Charge Types												
Day Ahead Congestion Rebate on Carve-Out Grandfathered	55500-0023	-			-	-		-		-		-
Day Ahead Losses Rebate on Carve-Out Grandfathered	55500-0024	-			-	-		-		-		-
Day Ahead Congestion Rebate on Option B Grandfathered	55500-0025	-			-	-		-		-		-
Day Ahead Losses Rebate on Option B Grandfathered	55500-0026	-			-	-		-		-		-
Real Time Losses Rebate on Carve-Out Grandfathered	55500-0040	-			-	-		-		-		-
Real Time Congestion Rebate on Carve-Out Grandfathered	55500-0039	-			-	-		-		-		-
Subtotal		-	705,473	-	705,473	-	131,556	-	131,556	-		-
ASM Charge Types (12 Other)												
Day Ahead Regulation Amount	55500-0062	(10,841.40)			-	(7,376.49)		-		(1,405.05)		(8,781.53)
Day Ahead Spinning Reserve Amount	55500-0063	(25,730.06)			-	(17,506.75)		-		(3,334.62)		(20,841.36)
Day Ahead Supplemental Reserve Amount	55500-0064	4.86			3.37	-		0.64		-		4.01
Contingency Reserve Deployment Failure Charge Amount	55500-0065	-			-	-		-		-		-
Net Regulation Adjustment Amount	55500-0068	(353.14)			-	(240.28)		-		(45.77)		(286.04)
Real Time Regulation Amount	55500-0070	5,114.13			3,479.65	-		662.79		-		4,142.45
Regulation Reserve Cost Distribution Amount	55500-0071	25,925.00			17,839.37	-		3,359.88		-		20,999.25
Real Time Excessive Deficient Deployment Charge Amount	55500-0067	8,028.56			5,462.63	-		1,040.50		-		6,503.13
Real Time Spinning Reserve Amount	55500-0072	2,999.48			2,040.85	-		388.73		-		2,429.58
Spinning Reserve Cost Distribution Amount	55500-0073	26,942.45			18,331.64	-		3,491.74		-		21,823.38
Real Time Supplemental Reserve Amount	55500-0074	(3,496.42)			-	(2,378.96)		-		(453.14)		(2,832.10)
Supplemental Reserve Cost Distribution Amount	55500-0075	9,106.11			6,195.80	-		1,180.15		-		7,375.95
Subtotal		37,699.64	705,473	53,153.31	705,473	(27,502.48)	131,556	10,124.44	131,556	(5,238.57)		30,536.71
Grand Total		13,623,739.28	705,473	12,033,275.16	705,473	(1,107,882.64)	131,556	2,292,052.41	131,556	(211,025.26)		13,006,419.67

1/ All Administration Charges reflected in the Retail column are now in the base rates (not recovered in the FPE)

2/ Accounts 55500-0051 through 55500-0053 are not recovered through the FPE

3/ Accounts 55500-0076 are not recovered through FPE for Resource Adequacy since it relates to capacity

NOTE:

DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Day Ahead Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are allocated to DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-Liquidation.

MINNESOTA POWER

MISO MONTHLY ALLOCATION

MINNESOTA POWER		Account Number	February 2019	MISO Non-Liquidation				MISO - Liquidation				Others - Liquidation			
MISO MONTHLY ALLOCATION				Mwh	Cost	Mwh	Revenue	Mwh	Cost	Mwh	Revenue	Mwh	Cost	Mwh	Revenue
Day Ahead and Real Time Energy															
Day Ahead Asset Energy	44700-0000 or 55500-0000 or 55500-0050		14,260,740.16 (916,603.80)												
Day Ahead Non-Asset Energy	55500-0027														
Real Time Asset Energy	44700-0000 or 55500-0000 or 55500-0050		(66,601.11)												
Excessive Energy Amount	55500-0066		2,448.42												
Non-Excessive Energy Amount	55500-0069		523.01												
Real Time Non-Asset Energy	55500-0043		(169,544.20)												
Subtotal			13,110,962.48	-				33,314					9,755		
Day Ahead and Real Time Energy Loss															
Day Ahead Loss	44700-0000 or 55500-0000 or 55500-0050		1,004,868.23		-		-								
Day Ahead Financial Bilateral Transaction Loss	55500-0022		116,372.34		-		-								
Real Time Loss	44700-0000 or 55500-0000 or 55500-0050		(380,128.41)		-		-								
Real Time Distribution of Losses	55500-0041		(726,364.48)		-		-								
Real Time Financial Bilateral Transaction Loss	55500-0038		-		-		-								
Subtotal			14,747.68	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
Virtual Energy															
Day Ahead Virtual Energy	55500-0030		-												
Real Time Virtual Energy	55500-0049		-												
Subtotal			-	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
Schedule 16 & 17 - 1/															
Day Ahead Market Administration (Schedule 17)	55500-0020		111,278.27		-		-								
Real Time Market Administration (Schedule 17)	55500-0036		9,365.94		-		-								
Financial Transmission Rights Market Administration (Schedule 16)	55500-0031		818.75		-		-								
Subtotal			121,462.96	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
Congestion, FTRs & ARRs															
Day Ahead Congestion	44700-0000 or 55500-0000 or 55500-0050		103,090.27		-		-								
Real Time Congestion	44700-0000 or 55500-0000 or 55500-0050		(23,669.61)		-		-								
Day Ahead Financial Bilateral Transaction Congestion	55500-0021		(115,797.72)		-		-								
Real Time Financial Bilateral Transaction Congestion	55500-0037		-		-		-								
Auction Revenue Rights Transaction Amount	55500-0068		(105,297.03)		-		-								
Financial Transmission Rights Annual Transaction Amount	55500-0059		120,936.61		-		-								
Auction Revenue Rights Infeasible Uplift Amount	55500-0060		7,161.07		-		-								
Auction Revenue Rights Stage 2 Distribution Amount	55500-0061		(89,023.04)		-		-								
Financial Transmission Rights Hourly Allocation	55500-0032		47,287.96		-		-								
Financial Transmission Rights Monthly Allocation	55500-0033		(4,169.20)		-		-								
Financial Transmission Rights Yearly Allocation	55500-0035		-		-		-								
Financial Transmission Rights Full Funding Guarantee Amount	55500-0054		(6,527.50)		-		-								
FTR Guarantee Uplift Amount	55500-0055		5,730.74		-		-								
Financial Transmission Rights Monthly Transaction Amount	55500-0056		6,487.75		-		-								
Financial Transmission Rights Transaction	55500-0034		-		-		-								
Subtotal			(53,779.70)	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
RS&G & Make Whole Payments															
Day Ahead Revenue Sufficiency Guarantee Distribution	55500-0028		30,536.30		-		-								
Day Ahead Revenue Sufficiency Guarantee Make Whole Payment	55500-0029		(5,242.43)		-		-								
Real Time Price Volatility Make Whole Payment	55500-0057		(24.17)		-		-								
Real Time Revenue Sufficiency Guarantee First Pass Dist	55500-0046		56,138.45		-		-								
Real Time Revenue Sufficiency Guarantee Make Whole Payment	55500-0047		(102,594.74)		-		-								
Subtotal			(21,185.59)	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
RNU & Misc Charges															
Real Time Miscellaneous	55500-0042		49,498.70		-		-								
Real Time Net Inadvertent Distribution	55500-0044		(26,769.53)		-		-								
Real Time Revenue Neutrality Uplift Amount	55500-0045		391,008.85		-		-								
Real Time Uninstructed Deviation	55500-0048		-		-		-								
Demand Response Allocation Uplift Amount	55500-0077		162.15		-		-								
Day Ahead Ramp Capability Amount	55500-0079		(70.50)		-		-								
Real Time Ramp Capability Amount	55500-0080		2.14		-		-								
Subtotal			413,831.81	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
Grandfathered Charge Types															
Day Ahead Congestion Rebate on Carve-Out Grandfathered	55500-0023		-		-		-								
Day Ahead Losses Rebate on Carve-Out Grandfathered	55500-0024		-		-		-								
Day Ahead Congestion Rebate on Option B Grandfathered	55500-0025		-		-		-								
Day Ahead Losses Rebate on Option B Grandfathered	55500-0026		-		-		-								
Real Time Losses Rebate on Carve-Out Grandfathered	55500-0040		-		-		-								
Real Time Congestion Rebate on Carve-Out Grandfathered	55500-0039		-		-		-								
Subtotal			-	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
ASM Charge Types (12 Other)															
Day Ahead Regulation Amount	55500-0062		(10,841.40)		-		-								
Day Ahead Spinning Reserve Amount	55500-0063		(25,730.06)		-		-								
Day Ahead Supplemental Reserve Amount	55500-0064		4.95		-		-								
Contingency Reserve Deployment Failure Charge Amount	55500-0065		-		-		-								
Net Regulation Adjustment Amount	55500-0068		(353.14)		-		-								
Real Time Regulation Amount	55500-0070		5,114.13		-		-								
Regulation Reserve Cost Distribution Amount	55500-0071		25,925.00		-		-								
Real Time Excessive Deficient Deployment Charge Amount	55500-0067		8,028.56		-		-								
Real Time Spinning Reserve Amount	55500-0072		2,999.48		-		-								
Spinning Reserve Cost Distribution Amount	55500-0073		26,942.45		-		-								
Real Time Supplemental Reserve Amount	55500-0074		(3,496.42)		-		-								
Supplemental Reserve Cost Distribution Amount	55500-0075		9,106.11		-		-								
Subtotal			37,699.64	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755
Grand Total			13,623,739.28	-	-	-	-	33,314	-	33,314	-		9,755	-	9,755

MINNESOTA POWER

MISO MONTHLY ALLOCATION

MINNESOTA POWER		Account	February 2019		Others - Non-Liquidation				Contract Sales			
MISO MONTHLY ALLOCATION			Number		Mwh	Cost	Mwh	Revenue	Mwh	Cost	Mwh	Revenue
Day Ahead and Real Time Energy												
Day Ahead Asset Energy	44700-0000 or 55500-0000 or 55500-0050		14,260,740.16 (916,603.80)									
Day Ahead Non-Asset Energy	55500-0027		-									
Real Time Asset Energy	44700-0000 or 55500-0000 or 55500-0050		(66,601.11)									
Excessive Energy Amount	55500-0066		2,448.42									
Non-Excessive Energy Amount	55500-0069		523.01									
Real Time Non-Asset Energy	55500-0043		(169,544.20)									
Subtotal			13,110,962.48		57,597				187,681			
Day Ahead and Real Time Energy Loss												
Day Ahead Loss	44700-0000 or 55500-0000 or 55500-0050		1,004,868.23			53,069.85	-		133,456.90		-	
Day Ahead Financial Bilateral Transaction Loss	55500-0022		116,372.34			6,655.30	-		15,455.45		-	
Real Time Loss	44700-0000 or 55500-0000 or 55500-0050		(380,128.41)			-	(20,075.62)		-		(50,484.99)	
Real Time Distribution of Losses	55500-0041		(726,364.48)			-	(41,540.57)		-		(96,468.69)	
Real Time Financial Bilateral Transaction Loss	55500-0038		-			-	-		-		-	
Subtotal			14,747.68		57,597	59,725.15	57,597	(61,616.19)	187,681	148,912.34	187,681	(146,953.67)
Virtual Energy												
Day Ahead Virtual Energy	55500-0030		-									
Real Time Virtual Energy	55500-0049		-									
Subtotal			-		57,597	-	57,597	-	187,681	-	187,681	-
Schedule 16 & 17 1/												
Day Ahead Market Administration (Schedule 17)	55500-0020		111,278.27			6,363.97	-		14,778.90		-	
Real Time Market Administration (Schedule 17)	55500-0036		9,365.94			535.64	-		1,243.89		-	
Financial Transmission Rights Market Administration (Schedule 16)	55500-0031		818.75			46.82	-		108.74		-	
Subtotal			121,462.96		57,597	6,946.43	57,597	-	187,681	16,131.53	187,681	-
Congestion, FTRs & ARRs												
Day Ahead Congestion	44700-0000 or 55500-0000 or 55500-0050		103,090.27			5,444.48	-		13,691.45		-	
Real Time Congestion	44700-0000 or 55500-0000 or 55500-0050		(23,669.61)			-	(1,250.06)		-		(3,143.57)	
Day Ahead Financial Bilateral Transaction Congestion	55500-0021		(115,797.72)			-	(6,622.44)		-		(15,379.13)	
Real Time Financial Bilateral Transaction Congestion	55500-0037		-			-	-		-		-	
Auction Revenue Rights Transaction Amount	55500-0058		(105,297.03)			-	(6,021.91)		-		(13,984.53)	
Financial Transmission Rights Annual Transaction Amount	55500-0059		120,936.61			6,916.33	-		16,061.63		-	
Auction Revenue Rights Infeasible Uplift Amount	55500-0060		7,161.07			409.54	-		951.06		-	
Auction Revenue Rights Stage 2 Distribution Amount	55500-0061		(89,023.04)			-	(5,091.20)		-		(11,823.18)	
Financial Transmission Rights Hourly Allocation	55500-0032		47,287.96			2,704.96	-		6,281.66		-	
Financial Transmission Rights Monthly Allocation	55500-0033		(4,169.20)			-	(238.44)		-		(553.71)	
Financial Transmission Rights Yearly Allocation	55500-0035		-			-	-		-		-	
Financial Transmission Rights Full Funding Guarantee Amount	55500-0054		(6,527.50)			-	(373.31)		-		(866.92)	
FTR Guarantee Uplift Amount	55500-0055		5,730.74			327.74	-		761.10		-	
Financial Transmission Rights Monthly Transaction Amount	55500-0056		6,487.75			371.03	-		861.64		-	
Financial Transmission Rights Transaction	55500-0034		-			-	-		-		-	
Subtotal			(53,779.70)		57,597	16,174.08	57,597	(19,597.34)	187,681	38,608.54	187,681	(45,751.04)
RS&G & Make Whole Payments												
Day Ahead Revenue Sufficiency Guarantee Distribution	55500-0028		30,536.30			1,746.36	-		4,055.54		-	
Day Ahead Revenue Sufficiency Guarantee Make Whole Payment	55500-0029		(5,242.43)			-	(299.81)		-		(696.25)	
Real Time Price Volatility Make Whole Payment	55500-0057		(24.17)			-	(1.38)		-		(3.21)	
Real Time Revenue Sufficiency Guarantee First Pass Dist	55500-0046		56,138.45			3,210.60	-		7,455.90		-	
Real Time Revenue Sufficiency Guarantee Make Whole Payment	55500-0047		(102,594.74)			-	(5,867.36)		-		(13,625.64)	
Subtotal			(21,185.59)		57,597	4,956.96	57,597	(6,168.56)	187,681	11,511.43	187,681	(14,325.10)
RNU & Misc Charges												
Real Time Miscellaneous	55500-0042		49,498.70			2,830.82	-		6,573.94		-	
Real Time Net Inadvertent Distribution	55500-0044		(25,769.53)			-	(1,530.94)		-		(3,555.27)	
Real Time Revenue Neutrality Uplift Amount	55500-0045		391,008.85			22,361.68	-		51,930.00		-	
Real Time Uninstructed Deviation	55500-0048		-			-	-		-		-	
Demand Response Allocation Uplift Amount	55500-0077		162.15			9.27	-		21.54		-	
Day Ahead Ramp Capability Amount	55500-0079		(70.50)			-	(4.03)		-		(9.36)	
Real Time Ramp Capability Amount	55500-0080		2.14			0.12	-		0.28		-	
Subtotal			413,831.81		57,597	25,201.89	57,597	(1,534.97)	187,681	58,525.76	187,681	(3,564.63)
Grandfathered Charge Types												
Day Ahead Congestion Rebate on Carve-Out Grandfathered	55500-0023		-			-	-		-		-	
Day Ahead Losses Rebate on Carve-Out Grandfathered	55500-0024		-			-	-		-		-	
Day Ahead Congestion Rebate on Option B Grandfathered	55500-0025		-			-	-		-		-	
Day Ahead Losses Rebate on Option B Grandfathered	55500-0026		-			-	-		-		-	
Real Time Losses Rebate on Carve-Out Grandfathered	55500-0040		-			-	-		-		-	
Real Time Congestion Rebate on Carve-Out Grandfathered	55500-0039		-			-	-		-		-	
Subtotal			-		57,597	-	57,597	-	187,681	-	187,681	-
ASM Charge Types (12 Other)												
Day Ahead Regulation Amount	55500-0062		(10,841.40)			-	(620.02)		-		(1,439.85)	
Day Ahead Spinning Reserve Amount	55500-0063		(25,730.06)			-	(1,471.50)		-		(3,417.22)	
Day Ahead Supplemental Reserve Amount	55500-0064		4.95			0.28	-		0.66		-	
Contingency Reserve Deployment Failure Charge Amount	55500-0065		-			-	-		-		-	
Net Regulation Adjustment Amount	55500-0068		(353.14)			-	(20.20)		-		(46.90)	
Real Time Regulation Amount	55500-0070		5,114.13			292.48	-		679.21		-	
Regulation Reserve Cost Distribution Amount	55500-0071		25,925.00			1,482.64	-		3,443.11		-	
Real-Time Excessive Deficient Deployment Charge Amount	55500-0067		8,028.56			459.15	-		1,066.28		-	
Real Time Spinning Reserve Amount	55500-0072		2,999.48			171.54	-		398.36		-	
Spinning Reserve Cost Distribution Amount	55500-0073		26,942.45			1,540.83	-		3,578.23		-	
Real Time Supplemental Reserve Amount	55500-0074		(3,496.42)			-	(199.96)		-		(464.36)	
Supplemental Reserve Cost Distribution Amount	55500-0075		9,106.11			520.78	-		1,209.39		-	
Subtotal			37,699.64		57,597	4,467.70	57,597	(2,311.67)	187,681	10,375.23	187,681	(5,368.33)
Grand Total			13,623,739.28		57,597	117,472.20	57,597	(91,228.73)	187,681	284,064.84	187,681	(215,962.77)

MISO MARKET & ADMINISTRATION INVOICE

FEBRUARY 12, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$1,864,379.96
S14 Prior Period Adjustments:	391.71
S55 Prior Period Adjustments:	(5,048.28)
S105 Prior Period Adjustments:	(1,707.23)
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$1,858,016.16

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	02/02/2019	01/26/2019	\$47,360.67	\$264,582.71	\$0.00	\$311,943.38
Asset Energy Amount	02/03/2019	01/27/2019	9,760.57	289,647.56	0.00	299,408.13
Asset Energy Amount	02/04/2019	01/28/2019	39,487.83	252,433.02	0.00	291,920.85
Asset Energy Amount	02/05/2019	01/29/2019	34,579.22	205,076.29	0.00	239,655.51
Asset Energy Amount	02/06/2019	01/30/2019	(382,338.04)	712,328.62	0.00	329,990.58
Asset Energy Amount	02/07/2019	01/31/2019	9,756.19	1,011,289.42	0.00	1,021,045.61
Asset Energy Amount	02/08/2019	02/01/2019	15,907.74	366,171.39	0.00	382,079.13
Auction Revenue Rights Infeasible Uplift Amount	02/08/2019	02/01/2019	0.00	0.00	7,159.35	7,159.35
Auction Revenue Rights Stage 2 Distribution Amount	02/08/2019	02/01/2019	0.00	0.00	(89,805.56)	(89,805.56)
Auction Revenue Rights Transaction Amount	02/08/2019	02/01/2019	0.00	0.00	(105,297.03)	(105,297.03)
Demand Response Allocation Uplift Charge	02/06/2019	01/30/2019	148.11	0.00	0.00	148.11
Demand Response Allocation Uplift Charge	02/07/2019	01/31/2019	13.88	0.00	0.00	13.88
Distribution of Losses Amount	02/02/2019	01/26/2019	(17,704.25)	0.00	0.00	(17,704.25)
Distribution of Losses Amount	02/03/2019	01/27/2019	(16,906.75)	0.00	0.00	(16,906.75)
Distribution of Losses Amount	02/04/2019	01/28/2019	(23,453.01)	0.00	0.00	(23,453.01)
Distribution of Losses Amount	02/05/2019	01/29/2019	(28,561.13)	0.00	0.00	(28,561.13)
Distribution of Losses Amount	02/06/2019	01/30/2019	(39,822.46)	0.00	0.00	(39,822.46)
Distribution of Losses Amount	02/07/2019	01/31/2019	(64,027.64)	0.00	0.00	(64,027.64)
Distribution of Losses Amount	02/08/2019	02/01/2019	(22,475.60)	0.00	0.00	(22,475.60)
Excessive Deficient Energy Deployment Charge Amount	02/02/2019	01/26/2019	2,250.97	0.00	0.00	2,250.97
Excessive Deficient Energy Deployment Charge Amount	02/03/2019	01/27/2019	1,028.47	0.00	0.00	1,028.47
Excessive Deficient Energy Deployment Charge Amount	02/04/2019	01/28/2019	225.66	0.00	0.00	225.66
Excessive Deficient Energy Deployment Charge Amount	02/05/2019	01/29/2019	264.37	0.00	0.00	264.37
Excessive Deficient Energy Deployment Charge Amount	02/06/2019	01/30/2019	136.49	0.00	0.00	136.49
Excessive Deficient Energy Deployment Charge Amount	02/07/2019	01/31/2019	82.61	0.00	0.00	82.61
Excessive Deficient Energy Deployment Charge Amount	02/08/2019	02/01/2019	154.68	0.00	0.00	154.68
Excessive Energy Amount	02/02/2019	01/26/2019	116.40	0.00	0.00	116.40
Excessive Energy Amount	02/03/2019	01/27/2019	1,414.12	0.00	0.00	1,414.12
Excessive Energy Amount	02/04/2019	01/28/2019	(114.62)	0.00	0.00	(114.62)
Excessive Energy Amount	02/05/2019	01/29/2019	(101.65)	0.00	0.00	(101.65)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

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Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Excessive Energy Amount	02/06/2019	01/30/2019	\$5.64	\$0.00	\$0.00	\$5.64
Excessive Energy Amount	02/07/2019	01/31/2019	73.30	0.00	0.00	73.30
Excessive Energy Amount	02/08/2019	02/01/2019	33.68	0.00	0.00	33.68
Financial Bilateral Transaction Congestion Amount	02/02/2019	01/26/2019	0.00	(1,356.45)	0.00	(1,356.45)
Financial Bilateral Transaction Congestion Amount	02/03/2019	01/27/2019	0.00	(570.70)	0.00	(570.70)
Financial Bilateral Transaction Congestion Amount	02/04/2019	01/28/2019	0.00	9,667.45	0.00	9,667.45
Financial Bilateral Transaction Congestion Amount	02/05/2019	01/29/2019	0.00	15,766.30	0.00	15,766.30
Financial Bilateral Transaction Congestion Amount	02/06/2019	01/30/2019	0.00	(4,839.60)	0.00	(4,839.60)
Financial Bilateral Transaction Congestion Amount	02/07/2019	01/31/2019	0.00	36,129.10	0.00	36,129.10
Financial Bilateral Transaction Congestion Amount	02/08/2019	02/01/2019	0.00	13,209.50	0.00	13,209.50
Financial Bilateral Transaction Loss Amount	02/02/2019	01/26/2019	0.00	4,876.40	0.00	4,876.40
Financial Bilateral Transaction Loss Amount	02/03/2019	01/27/2019	0.00	5,020.00	0.00	5,020.00
Financial Bilateral Transaction Loss Amount	02/04/2019	01/28/2019	0.00	9,056.40	0.00	9,056.40
Financial Bilateral Transaction Loss Amount	02/05/2019	01/29/2019	0.00	12,368.50	0.00	12,368.50
Financial Bilateral Transaction Loss Amount	02/06/2019	01/30/2019	0.00	1,849.25	0.00	1,849.25
Financial Bilateral Transaction Loss Amount	02/07/2019	01/31/2019	0.00	3,030.55	0.00	3,030.55
Financial Bilateral Transaction Loss Amount	02/08/2019	02/01/2019	0.00	5,178.55	0.00	5,178.55
MVP Distribution Amount	02/07/2019	01/31/2019	(18,072.03)	0.00	0.00	(18,072.03)
Net Inadvertent Distribution Amount	02/02/2019	01/26/2019	(165.47)	0.00	0.00	(165.47)
Net Inadvertent Distribution Amount	02/03/2019	01/27/2019	(963.94)	0.00	0.00	(963.94)
Net Inadvertent Distribution Amount	02/04/2019	01/28/2019	70.02	0.00	0.00	70.02
Net Inadvertent Distribution Amount	02/05/2019	01/29/2019	969.14	0.00	0.00	969.14
Net Inadvertent Distribution Amount	02/06/2019	01/30/2019	(1,806.54)	0.00	0.00	(1,806.54)
Net Inadvertent Distribution Amount	02/07/2019	01/31/2019	(561.63)	0.00	0.00	(561.63)
Net Inadvertent Distribution Amount	02/08/2019	02/01/2019	402.17	0.00	0.00	402.17
Net Regulation Adjustment Amount	02/02/2019	01/26/2019	14.78	0.00	0.00	14.78
Net Regulation Adjustment Amount	02/03/2019	01/27/2019	0.64	0.00	0.00	0.64
Net Regulation Adjustment Amount	02/04/2019	01/28/2019	16.62	0.00	0.00	16.62
Net Regulation Adjustment Amount	02/05/2019	01/29/2019	2.36	0.00	0.00	2.36
Net Regulation Adjustment Amount	02/06/2019	01/30/2019	(77.20)	0.00	0.00	(77.20)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Net Regulation Adjustment Amount	02/07/2019	01/31/2019	(\$36.50)	\$0.00	\$0.00	(\$36.50)
Net Regulation Adjustment Amount	02/08/2019	02/01/2019	42.19	0.00	0.00	42.19
Non-Asset Energy Amount	02/02/2019	01/26/2019	(33,086.24)	(24,978.00)	0.00	(58,064.24)
Non-Asset Energy Amount	02/03/2019	01/27/2019	(36,638.36)	(29,447.50)	0.00	(66,085.86)
Non-Asset Energy Amount	02/04/2019	01/28/2019	(31,487.61)	(57,030.00)	0.00	(88,517.61)
Non-Asset Energy Amount	02/05/2019	01/29/2019	0.00	(89,298.52)	0.00	(89,298.52)
Non-Asset Energy Amount	02/06/2019	01/30/2019	30,698.04	(114,856.80)	0.00	(84,158.76)
Non-Asset Energy Amount	02/07/2019	01/31/2019	3,675.61	(108,333.78)	0.00	(104,658.17)
Non-Asset Energy Amount	02/08/2019	02/01/2019	(3,700.48)	(59,400.60)	0.00	(63,101.08)
Non-Excessive Energy Amount	02/02/2019	01/26/2019	(57,173.01)	0.00	0.00	(57,173.01)
Non-Excessive Energy Amount	02/03/2019	01/27/2019	(64,593.72)	0.00	0.00	(64,593.72)
Non-Excessive Energy Amount	02/04/2019	01/28/2019	(124,196.63)	0.00	0.00	(124,196.63)
Non-Excessive Energy Amount	02/05/2019	01/29/2019	5,215.07	0.00	0.00	5,215.07
Non-Excessive Energy Amount	02/06/2019	01/30/2019	(65,545.70)	0.00	0.00	(65,545.70)
Non-Excessive Energy Amount	02/07/2019	01/31/2019	(31,966.15)	0.00	0.00	(31,966.15)
Non-Excessive Energy Amount	02/08/2019	02/01/2019	(44,480.90)	0.00	0.00	(44,480.90)
Price Volatility Make Whole Payment Amt	02/06/2019	01/30/2019	(1.10)	0.00	0.00	(1.10)
Price Volatility Make Whole Payment Amt	02/07/2019	01/31/2019	(19.56)	0.00	0.00	(19.56)
Ramp Capability Amount	02/07/2019	01/31/2019	0.00	(66.20)	0.00	(66.20)
Regulation Amount	02/02/2019	01/26/2019	827.58	(3,975.42)	0.00	(3,147.84)
Regulation Amount	02/03/2019	01/27/2019	2,013.88	(3,390.26)	0.00	(1,376.38)
Regulation Amount	02/04/2019	01/28/2019	1,313.66	(2,398.70)	0.00	(1,085.04)
Regulation Amount	02/05/2019	01/29/2019	803.19	(2,492.82)	0.00	(1,689.63)
Regulation Amount	02/06/2019	01/30/2019	(74.93)	(596.02)	0.00	(670.95)
Regulation Amount	02/07/2019	01/31/2019	(192.26)	0.00	0.00	(192.26)
Regulation Amount	02/08/2019	02/01/2019	(71.88)	(885.36)	0.00	(957.24)
Regulation Cost Distribution Amount	02/02/2019	01/26/2019	1,168.83	0.00	0.00	1,168.83
Regulation Cost Distribution Amount	02/03/2019	01/27/2019	1,029.47	0.00	0.00	1,029.47
Regulation Cost Distribution Amount	02/04/2019	01/28/2019	904.05	0.00	0.00	904.05
Regulation Cost Distribution Amount	02/05/2019	01/29/2019	1,355.11	0.00	0.00	1,355.11

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Regulation Cost Distribution Amount	02/06/2019	01/30/2019	\$1,273.96	\$0.00	\$0.00	\$1,273.96
Regulation Cost Distribution Amount	02/07/2019	01/31/2019	1,896.14	0.00	0.00	1,896.14
Regulation Cost Distribution Amount	02/08/2019	02/01/2019	1,203.72	0.00	0.00	1,203.72
Resource Adequacy Auction Amount	02/02/2019	01/26/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/03/2019	01/27/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/04/2019	01/28/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/05/2019	01/29/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/06/2019	01/30/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/07/2019	01/31/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/08/2019	02/01/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	02/02/2019	01/26/2019	(1,308.31)	0.00	0.00	(1,308.31)
Revenue Neutrality Uplift Amount	02/03/2019	01/27/2019	2,390.09	0.00	0.00	2,390.09
Revenue Neutrality Uplift Amount	02/04/2019	01/28/2019	(1,547.45)	0.00	0.00	(1,547.45)
Revenue Neutrality Uplift Amount	02/05/2019	01/29/2019	(1,827.56)	0.00	0.00	(1,827.56)
Revenue Neutrality Uplift Amount	02/06/2019	01/30/2019	101,922.95	0.00	0.00	101,922.95
Revenue Neutrality Uplift Amount	02/07/2019	01/31/2019	70,582.63	0.00	0.00	70,582.63
Revenue Neutrality Uplift Amount	02/08/2019	02/01/2019	60,552.03	0.00	0.00	60,552.03
Revenue Sufficiency Guarantee Distribution Amount	02/02/2019	01/26/2019	0.00	729.58	0.00	729.58
Revenue Sufficiency Guarantee Distribution Amount	02/03/2019	01/27/2019	0.00	1,130.05	0.00	1,130.05
Revenue Sufficiency Guarantee Distribution Amount	02/04/2019	01/28/2019	0.00	743.04	0.00	743.04
Revenue Sufficiency Guarantee Distribution Amount	02/05/2019	01/29/2019	0.00	1,622.30	0.00	1,622.30
Revenue Sufficiency Guarantee Distribution Amount	02/06/2019	01/30/2019	0.00	1,246.93	0.00	1,246.93
Revenue Sufficiency Guarantee Distribution Amount	02/07/2019	01/31/2019	0.00	5,257.15	0.00	5,257.15
Revenue Sufficiency Guarantee Distribution Amount	02/08/2019	02/01/2019	0.00	1,465.05	0.00	1,465.05
Revenue Sufficiency Guarantee First Pass Dist Amount	02/02/2019	01/26/2019	1.31	0.00	0.00	1.31
Revenue Sufficiency Guarantee First Pass Dist Amount	02/03/2019	01/27/2019	78.76	0.00	0.00	78.76
Revenue Sufficiency Guarantee First Pass Dist Amount	02/04/2019	01/28/2019	120.00	0.00	0.00	120.00
Revenue Sufficiency Guarantee First Pass Dist Amount	02/05/2019	01/29/2019	9.73	0.00	0.00	9.73
Revenue Sufficiency Guarantee First Pass Dist Amount	02/06/2019	01/30/2019	8,347.89	0.00	0.00	8,347.89
Revenue Sufficiency Guarantee First Pass Dist Amount	02/07/2019	01/31/2019	31,452.71	0.00	0.00	31,452.71

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Revenue Sufficiency Guarantee First Pass Dist Amount	02/08/2019	02/01/2019	\$1,241.89	\$0.00	\$0.00	\$1,241.89
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/03/2019	01/27/2019	0.00	(53.94)	0.00	(53.94)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/04/2019	01/28/2019	0.00	(12.82)	0.00	(12.82)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/07/2019	01/31/2019	(87,190.61)	(5,319.15)	0.00	(92,509.76)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/08/2019	02/01/2019	(11,553.10)	0.00	0.00	(11,553.10)
Schedule 24 Allocation Amount	02/02/2019	01/26/2019	47.24	686.80	0.00	734.04
Schedule 24 Allocation Amount	02/03/2019	01/27/2019	71.74	680.87	0.00	752.61
Schedule 24 Allocation Amount	02/04/2019	01/28/2019	93.23	704.31	0.00	797.54
Schedule 24 Allocation Amount	02/05/2019	01/29/2019	48.80	785.27	0.00	834.07
Schedule 24 Allocation Amount	02/06/2019	01/30/2019	45.71	688.53	0.00	734.24
Schedule 24 Allocation Amount	02/07/2019	01/31/2019	51.93	711.29	0.00	763.22
Schedule 24 Allocation Amount	02/08/2019	02/01/2019	46.63	735.26	0.00	781.89
Schedule 24 Distribution Amount	02/02/2019	01/26/2019	(4,776.38)	0.00	0.00	(4,776.38)
Schedule 24 Distribution Amount	02/03/2019	01/27/2019	(4,658.92)	0.00	0.00	(4,658.92)
Schedule 24 Distribution Amount	02/04/2019	01/28/2019	(5,177.81)	0.00	0.00	(5,177.81)
Schedule 24 Distribution Amount	02/05/2019	01/29/2019	(5,678.47)	0.00	0.00	(5,678.47)
Schedule 24 Distribution Amount	02/06/2019	01/30/2019	(5,965.62)	0.00	0.00	(5,965.62)
Schedule 24 Distribution Amount	02/07/2019	01/31/2019	(5,576.28)	0.00	0.00	(5,576.28)
Schedule 24 Distribution Amount	02/08/2019	02/01/2019	(5,287.70)	0.00	0.00	(5,287.70)
Spinning Reserve Amount	02/02/2019	01/26/2019	467.64	(1,858.38)	0.00	(1,390.74)
Spinning Reserve Amount	02/03/2019	01/27/2019	45.12	(1,010.92)	0.00	(965.80)
Spinning Reserve Amount	02/04/2019	01/28/2019	59.87	(1,295.70)	0.00	(1,235.83)
Spinning Reserve Amount	02/05/2019	01/29/2019	24.47	(1,637.48)	0.00	(1,613.01)
Spinning Reserve Amount	02/06/2019	01/30/2019	2,146.03	(2,841.50)	0.00	(695.47)
Spinning Reserve Amount	02/07/2019	01/31/2019	154.30	(2,711.84)	0.00	(2,557.54)
Spinning Reserve Amount	02/08/2019	02/01/2019	(7.61)	(1,547.28)	0.00	(1,554.89)
Spinning Reserve Cost Distribution Amount	02/02/2019	01/26/2019	1,026.06	0.00	0.00	1,026.06
Spinning Reserve Cost Distribution Amount	02/03/2019	01/27/2019	694.22	0.00	0.00	694.22
Spinning Reserve Cost Distribution Amount	02/04/2019	01/28/2019	945.41	0.00	0.00	945.41
Spinning Reserve Cost Distribution Amount	02/05/2019	01/29/2019	1,219.23	0.00	0.00	1,219.23

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Spinning Reserve Cost Distribution Amount	02/06/2019	01/30/2019	\$7,261.78	\$0.00	\$0.00	\$7,261.78
Spinning Reserve Cost Distribution Amount	02/07/2019	01/31/2019	1,895.24	0.00	0.00	1,895.24
Spinning Reserve Cost Distribution Amount	02/08/2019	02/01/2019	1,091.40	0.00	0.00	1,091.40
Supplemental Reserve Amount	02/05/2019	01/29/2019	(26.70)	0.00	0.00	(26.70)
Supplemental Reserve Amount	02/06/2019	01/30/2019	(3,307.35)	0.00	0.00	(3,307.35)
Supplemental Reserve Amount	02/07/2019	01/31/2019	(124.96)	0.00	0.00	(124.96)
Supplemental Reserve Amount	02/08/2019	02/01/2019	(27.96)	0.00	0.00	(27.96)
Supplemental Reserve Cost Distribution Amount	02/02/2019	01/26/2019	97.41	0.00	0.00	97.41
Supplemental Reserve Cost Distribution Amount	02/03/2019	01/27/2019	97.42	0.00	0.00	97.42
Supplemental Reserve Cost Distribution Amount	02/04/2019	01/28/2019	94.91	0.00	0.00	94.91
Supplemental Reserve Cost Distribution Amount	02/05/2019	01/29/2019	468.33	0.00	0.00	468.33
Supplemental Reserve Cost Distribution Amount	02/06/2019	01/30/2019	2,537.26	0.00	0.00	2,537.26
Supplemental Reserve Cost Distribution Amount	02/07/2019	01/31/2019	2,094.17	0.00	0.00	2,094.17
Supplemental Reserve Cost Distribution Amount	02/08/2019	02/01/2019	939.05	0.00	0.00	939.05
Transmission Guarantee Uplift Amount	02/02/2019	01/26/2019	0.00	0.00	37.98	37.98
Transmission Guarantee Uplift Amount	02/03/2019	01/27/2019	0.00	0.00	153.10	153.10
Transmission Guarantee Uplift Amount	02/04/2019	01/28/2019	0.00	0.00	449.30	449.30
Transmission Guarantee Uplift Amount	02/05/2019	01/29/2019	0.00	0.00	1,116.85	1,116.85
Transmission Guarantee Uplift Amount	02/06/2019	01/30/2019	0.00	0.00	65.47	65.47
Transmission Guarantee Uplift Amount	02/07/2019	01/31/2019	0.00	0.00	(841.88)	(841.88)
Transmission Guarantee Uplift Amount	02/08/2019	02/01/2019	0.00	0.00	2,534.56	2,534.56
Transmission Rights Annual Transaction Amount	02/08/2019	02/01/2019	0.00	0.00	120,936.61	120,936.61
Transmission Rights Full Funding Guarantee Amount	02/02/2019	01/26/2019	0.00	0.00	(37.98)	(37.98)
Transmission Rights Full Funding Guarantee Amount	02/03/2019	01/27/2019	0.00	0.00	(153.10)	(153.10)
Transmission Rights Full Funding Guarantee Amount	02/04/2019	01/28/2019	0.00	0.00	(449.30)	(449.30)
Transmission Rights Full Funding Guarantee Amount	02/05/2019	01/29/2019	0.00	0.00	(1,116.85)	(1,116.85)
Transmission Rights Full Funding Guarantee Amount	02/06/2019	01/30/2019	0.00	0.00	(65.47)	(65.47)
Transmission Rights Full Funding Guarantee Amount	02/07/2019	01/31/2019	0.00	0.00	44.96	44.96
Transmission Rights Full Funding Guarantee Amount	02/08/2019	02/01/2019	0.00	0.00	(2,534.56)	(2,534.56)
Transmission Rights Hourly Allocation Amount	02/02/2019	01/26/2019	0.00	0.00	1,380.65	1,380.65

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	02/03/2019	01/20/2019	\$2.33	\$0.00	\$0.00	\$2.33
Asset Energy Amount	02/04/2019	01/21/2019	24.83	0.00	0.00	24.83
Asset Energy Amount	02/05/2019	01/22/2019	340.09	0.00	0.00	340.09
Asset Energy Amount	02/06/2019	01/23/2019	232.27	0.00	0.00	232.27
Asset Energy Amount	02/07/2019	01/24/2019	214.85	0.00	0.00	214.85
Asset Energy Amount	02/08/2019	01/25/2019	291.48	0.00	0.00	291.48
Distribution of Losses Amount	02/02/2019	01/19/2019	236.05	0.00	0.00	236.05
Distribution of Losses Amount	02/03/2019	01/20/2019	(23.70)	0.00	0.00	(23.70)
Distribution of Losses Amount	02/04/2019	01/21/2019	(114.02)	0.00	0.00	(114.02)
Distribution of Losses Amount	02/05/2019	01/22/2019	(33.78)	0.00	0.00	(33.78)
Distribution of Losses Amount	02/06/2019	01/23/2019	66.43	0.00	0.00	66.43
Distribution of Losses Amount	02/07/2019	01/24/2019	(24.49)	0.00	0.00	(24.49)
Distribution of Losses Amount	02/08/2019	01/25/2019	373.71	0.00	0.00	373.71
Excessive Deficient Energy Deployment Charge Amount	02/02/2019	01/19/2019	(0.04)	0.00	0.00	(0.04)
Excessive Deficient Energy Deployment Charge Amount	02/03/2019	01/20/2019	1.63	0.00	0.00	1.63
Excessive Deficient Energy Deployment Charge Amount	02/04/2019	01/21/2019	(0.13)	0.00	0.00	(0.13)
Excessive Deficient Energy Deployment Charge Amount	02/05/2019	01/22/2019	(0.08)	0.00	0.00	(0.08)
Excessive Deficient Energy Deployment Charge Amount	02/07/2019	01/24/2019	(0.02)	0.00	0.00	(0.02)
Excessive Deficient Energy Deployment Charge Amount	02/08/2019	01/25/2019	(0.06)	0.00	0.00	(0.06)
Excessive Energy Amount	02/03/2019	01/20/2019	(375.67)	0.00	0.00	(375.67)
Net Inadvertent Distribution Amount	02/02/2019	01/19/2019	84.21	0.00	0.00	84.21
Net Inadvertent Distribution Amount	02/03/2019	01/20/2019	(0.96)	0.00	0.00	(0.96)
Net Inadvertent Distribution Amount	02/04/2019	01/21/2019	(33.42)	0.00	0.00	(33.42)
Net Inadvertent Distribution Amount	02/05/2019	01/22/2019	1.99	0.00	0.00	1.99
Net Inadvertent Distribution Amount	02/06/2019	01/23/2019	(279.90)	0.00	0.00	(279.90)
Net Inadvertent Distribution Amount	02/07/2019	01/24/2019	(245.25)	0.00	0.00	(245.25)
Net Inadvertent Distribution Amount	02/08/2019	01/25/2019	(178.81)	0.00	0.00	(178.81)
Net Regulation Adjustment Amount	02/04/2019	01/21/2019	(0.33)	0.00	0.00	(0.33)
Non-Asset Energy Amount	02/08/2019	01/25/2019	(261.96)	0.00	0.00	(261.96)
Non-Excessive Energy Amount	02/02/2019	01/19/2019	38.67	0.00	0.00	38.67

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Non-Excessive Energy Amount	02/03/2019	01/20/2019	(\$858.78)	\$0.00	\$0.00	(\$858.78)
Non-Excessive Energy Amount	02/04/2019	01/21/2019	36.63	0.00	0.00	36.63
Non-Excessive Energy Amount	02/05/2019	01/22/2019	56.43	0.00	0.00	56.43
Non-Excessive Energy Amount	02/06/2019	01/23/2019	40.96	0.00	0.00	40.96
Non-Excessive Energy Amount	02/07/2019	01/24/2019	36.38	0.00	0.00	36.38
Non-Excessive Energy Amount	02/08/2019	01/25/2019	55.65	0.00	0.00	55.65
Regulation Cost Distribution Amount	02/02/2019	01/19/2019	(0.15)	0.00	0.00	(0.15)
Regulation Cost Distribution Amount	02/03/2019	01/20/2019	(1.10)	0.00	0.00	(1.10)
Regulation Cost Distribution Amount	02/04/2019	01/21/2019	21.51	0.00	0.00	21.51
Regulation Cost Distribution Amount	02/05/2019	01/22/2019	2.42	0.00	0.00	2.42
Regulation Cost Distribution Amount	02/06/2019	01/23/2019	0.50	0.00	0.00	0.50
Regulation Cost Distribution Amount	02/07/2019	01/24/2019	(0.49)	0.00	0.00	(0.49)
Regulation Cost Distribution Amount	02/08/2019	01/25/2019	40.16	0.00	0.00	40.16
Revenue Neutrality Uplift Amount	02/02/2019	01/19/2019	(109.23)	0.00	0.00	(109.23)
Revenue Neutrality Uplift Amount	02/03/2019	01/20/2019	(43.33)	0.00	0.00	(43.33)
Revenue Neutrality Uplift Amount	02/04/2019	01/21/2019	(163.44)	0.00	0.00	(163.44)
Revenue Neutrality Uplift Amount	02/05/2019	01/22/2019	(87.20)	0.00	0.00	(87.20)
Revenue Neutrality Uplift Amount	02/06/2019	01/23/2019	282.74	0.00	0.00	282.74
Revenue Neutrality Uplift Amount	02/07/2019	01/24/2019	307.10	0.00	0.00	307.10
Revenue Neutrality Uplift Amount	02/08/2019	01/25/2019	275.22	0.00	0.00	275.22
Revenue Sufficiency Guarantee Distribution Amount	02/02/2019	01/19/2019	0.00	(4.20)	0.00	(4.20)
Revenue Sufficiency Guarantee Distribution Amount	02/03/2019	01/20/2019	0.00	0.04	0.00	0.04
Revenue Sufficiency Guarantee Distribution Amount	02/04/2019	01/21/2019	0.00	0.20	0.00	0.20
Revenue Sufficiency Guarantee Distribution Amount	02/05/2019	01/22/2019	0.00	0.50	0.00	0.50
Revenue Sufficiency Guarantee Distribution Amount	02/06/2019	01/23/2019	0.00	0.44	0.00	0.44
Revenue Sufficiency Guarantee Distribution Amount	02/07/2019	01/24/2019	0.00	0.05	0.00	0.05
Revenue Sufficiency Guarantee First Pass Dist Amount	02/02/2019	01/19/2019	1.86	0.00	0.00	1.86
Revenue Sufficiency Guarantee First Pass Dist Amount	02/03/2019	01/20/2019	17.67	0.00	0.00	17.67
Revenue Sufficiency Guarantee First Pass Dist Amount	02/04/2019	01/21/2019	16.00	0.00	0.00	16.00
Revenue Sufficiency Guarantee First Pass Dist Amount	02/05/2019	01/22/2019	202.37	0.00	0.00	202.37

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Revenue Sufficiency Guarantee First Pass Dist Amount	02/06/2019	01/23/2019	(\$166.41)	\$0.00	\$0.00	(\$166.41)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/07/2019	01/24/2019	8.16	0.00	0.00	8.16
Revenue Sufficiency Guarantee First Pass Dist Amount	02/08/2019	01/25/2019	75.86	0.00	0.00	75.86
Schedule 24 Allocation Amount	02/02/2019	01/19/2019	(0.01)	0.00	0.00	(0.01)
Schedule 24 Allocation Amount	02/03/2019	01/20/2019	(0.84)	0.00	0.00	(0.84)
Schedule 24 Allocation Amount	02/04/2019	01/21/2019	0.04	0.00	0.00	0.04
Schedule 24 Allocation Amount	02/05/2019	01/22/2019	0.01	0.00	0.00	0.01
Schedule 24 Allocation Amount	02/06/2019	01/23/2019	(0.11)	0.00	0.00	(0.11)
Schedule 24 Allocation Amount	02/07/2019	01/24/2019	0.08	0.00	0.00	0.08
Schedule 24 Allocation Amount	02/08/2019	01/25/2019	(0.02)	0.00	0.00	(0.02)
Schedule 24 Distribution Amount	02/02/2019	01/19/2019	0.29	0.00	0.00	0.29
Schedule 24 Distribution Amount	02/03/2019	01/20/2019	1.15	0.00	0.00	1.15
Schedule 24 Distribution Amount	02/04/2019	01/21/2019	3.64	0.00	0.00	3.64
Schedule 24 Distribution Amount	02/05/2019	01/22/2019	2.60	0.00	0.00	2.60
Schedule 24 Distribution Amount	02/06/2019	01/23/2019	0.80	0.00	0.00	0.80
Schedule 24 Distribution Amount	02/07/2019	01/24/2019	0.10	0.00	0.00	0.10
Schedule 24 Distribution Amount	02/08/2019	01/25/2019	3.21	0.00	0.00	3.21
Spinning Reserve Cost Distribution Amount	02/02/2019	01/19/2019	0.39	0.00	0.00	0.39
Spinning Reserve Cost Distribution Amount	02/04/2019	01/21/2019	(0.77)	0.00	0.00	(0.77)
Spinning Reserve Cost Distribution Amount	02/05/2019	01/22/2019	(0.15)	0.00	0.00	(0.15)
Spinning Reserve Cost Distribution Amount	02/06/2019	01/23/2019	0.57	0.00	0.00	0.57
Spinning Reserve Cost Distribution Amount	02/07/2019	01/24/2019	0.32	0.00	0.00	0.32
Spinning Reserve Cost Distribution Amount	02/08/2019	01/25/2019	0.10	0.00	0.00	0.10
Supplemental Reserve Cost Distribution Amount	02/04/2019	01/21/2019	0.01	0.00	0.00	0.01
Supplemental Reserve Cost Distribution Amount	02/05/2019	01/22/2019	0.04	0.00	0.00	0.04
Supplemental Reserve Cost Distribution Amount	02/06/2019	01/23/2019	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/07/2019	01/24/2019	(0.09)	0.00	0.00	(0.09)
Supplemental Reserve Cost Distribution Amount	02/08/2019	01/25/2019	0.03	0.00	0.00	0.03
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$394.68	(\$2.97)	\$0.00	\$391.71



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	02/02/2019	12/09/2018	(\$84.51)	\$0.00	\$0.00	(\$84.51)
Asset Energy Amount	02/03/2019	12/10/2018	(397.40)	0.00	0.00	(397.40)
Asset Energy Amount	02/04/2019	12/11/2018	(457.14)	0.00	0.00	(457.14)
Asset Energy Amount	02/05/2019	12/12/2018	(454.02)	0.00	0.00	(454.02)
Asset Energy Amount	02/06/2019	12/13/2018	(532.25)	0.00	0.00	(532.25)
Asset Energy Amount	02/07/2019	12/14/2018	(806.10)	0.00	0.00	(806.10)
Asset Energy Amount	02/08/2019	12/15/2018	(659.09)	0.00	0.00	(659.09)
Distribution of Losses Amount	02/02/2019	12/09/2018	(16.55)	0.00	0.00	(16.55)
Distribution of Losses Amount	02/03/2019	12/10/2018	(31.21)	0.00	0.00	(31.21)
Distribution of Losses Amount	02/04/2019	12/11/2018	(20.73)	0.00	0.00	(20.73)
Distribution of Losses Amount	02/05/2019	12/12/2018	(65.78)	0.00	0.00	(65.78)
Distribution of Losses Amount	02/06/2019	12/13/2018	(366.61)	0.00	0.00	(366.61)
Distribution of Losses Amount	02/07/2019	12/14/2018	(26.16)	0.00	0.00	(26.16)
Distribution of Losses Amount	02/08/2019	12/15/2018	31.40	0.00	0.00	31.40
Excessive Deficient Energy Deployment Charge Amount	02/02/2019	12/09/2018	(0.05)	0.00	0.00	(0.05)
Excessive Deficient Energy Deployment Charge Amount	02/03/2019	12/10/2018	(0.22)	0.00	0.00	(0.22)
Excessive Deficient Energy Deployment Charge Amount	02/04/2019	12/11/2018	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	02/05/2019	12/12/2018	(0.38)	0.00	0.00	(0.38)
Excessive Deficient Energy Deployment Charge Amount	02/07/2019	12/14/2018	(0.03)	0.00	0.00	(0.03)
Excessive Deficient Energy Deployment Charge Amount	02/08/2019	12/15/2018	(0.01)	0.00	0.00	(0.01)
Miscellaneous Amount	02/05/2019	12/12/2018	15.06	0.00	0.00	15.06
Net Inadvertent Distribution Amount	02/02/2019	12/09/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	02/03/2019	12/10/2018	(2.91)	0.00	0.00	(2.91)
Net Inadvertent Distribution Amount	02/04/2019	12/11/2018	(19.01)	0.00	0.00	(19.01)
Net Inadvertent Distribution Amount	02/05/2019	12/12/2018	(24.36)	0.00	0.00	(24.36)
Net Inadvertent Distribution Amount	02/06/2019	12/13/2018	(203.37)	0.00	0.00	(203.37)
Net Inadvertent Distribution Amount	02/07/2019	12/14/2018	(5.04)	0.00	0.00	(5.04)
Net Inadvertent Distribution Amount	02/08/2019	12/15/2018	37.92	0.00	0.00	37.92
Regulation Cost Distribution Amount	02/02/2019	12/09/2018	(0.23)	0.00	0.00	(0.23)
Regulation Cost Distribution Amount	02/03/2019	12/10/2018	(1.99)	0.00	0.00	(1.99)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Regulation Cost Distribution Amount	02/04/2019	12/11/2018	\$0.78	\$0.00	\$0.00	\$0.78
Regulation Cost Distribution Amount	02/05/2019	12/12/2018	(1.24)	0.00	0.00	(1.24)
Regulation Cost Distribution Amount	02/06/2019	12/13/2018	(0.74)	0.00	0.00	(0.74)
Regulation Cost Distribution Amount	02/07/2019	12/14/2018	(1.44)	0.00	0.00	(1.44)
Regulation Cost Distribution Amount	02/08/2019	12/15/2018	(1.92)	0.00	0.00	(1.92)
Revenue Neutrality Uplift Amount	02/02/2019	12/09/2018	(271.21)	0.00	0.00	(271.21)
Revenue Neutrality Uplift Amount	02/03/2019	12/10/2018	(320.67)	0.00	0.00	(320.67)
Revenue Neutrality Uplift Amount	02/04/2019	12/11/2018	282.55	0.00	0.00	282.55
Revenue Neutrality Uplift Amount	02/05/2019	12/12/2018	(76.88)	0.00	0.00	(76.88)
Revenue Neutrality Uplift Amount	02/06/2019	12/13/2018	174.28	0.00	0.00	174.28
Revenue Neutrality Uplift Amount	02/07/2019	12/14/2018	(213.48)	0.00	0.00	(213.48)
Revenue Neutrality Uplift Amount	02/08/2019	12/15/2018	(144.93)	0.00	0.00	(144.93)
Revenue Sufficiency Guarantee Distribution Amount	02/02/2019	12/09/2018	0.00	(1.19)	0.00	(1.19)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/02/2019	12/09/2018	2.23	0.00	0.00	2.23
Revenue Sufficiency Guarantee First Pass Dist Amount	02/03/2019	12/10/2018	(901.91)	0.00	0.00	(901.91)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/04/2019	12/11/2018	12.52	0.00	0.00	12.52
Revenue Sufficiency Guarantee First Pass Dist Amount	02/05/2019	12/12/2018	327.32	0.00	0.00	327.32
Revenue Sufficiency Guarantee First Pass Dist Amount	02/06/2019	12/13/2018	205.92	0.00	0.00	205.92
Revenue Sufficiency Guarantee First Pass Dist Amount	02/07/2019	12/14/2018	(23.42)	0.00	0.00	(23.42)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/08/2019	12/15/2018	(0.54)	0.00	0.00	(0.54)
Schedule 24 Allocation Amount	02/02/2019	12/09/2018	0.01	0.00	0.00	0.01
Schedule 24 Allocation Amount	02/03/2019	12/10/2018	(0.14)	0.00	0.00	(0.14)
Schedule 24 Allocation Amount	02/04/2019	12/11/2018	(0.18)	0.00	0.00	(0.18)
Schedule 24 Allocation Amount	02/05/2019	12/12/2018	(0.22)	0.00	0.00	(0.22)
Schedule 24 Allocation Amount	02/06/2019	12/13/2018	(0.21)	0.00	0.00	(0.21)
Schedule 24 Allocation Amount	02/07/2019	12/14/2018	(0.16)	0.00	0.00	(0.16)
Schedule 24 Allocation Amount	02/08/2019	12/15/2018	(0.04)	0.00	0.00	(0.04)
Schedule 24 Distribution Amount	02/02/2019	12/09/2018	(1.38)	0.00	0.00	(1.38)
Schedule 24 Distribution Amount	02/03/2019	12/10/2018	0.72	0.00	0.00	0.72
Schedule 24 Distribution Amount	02/04/2019	12/11/2018	2.93	0.00	0.00	2.93

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Distribution Amount	02/05/2019	12/12/2018	\$3.17	\$0.00	\$0.00	\$3.17
Schedule 24 Distribution Amount	02/06/2019	12/13/2018	1.66	0.00	0.00	1.66
Schedule 24 Distribution Amount	02/07/2019	12/14/2018	(1.16)	0.00	0.00	(1.16)
Schedule 24 Distribution Amount	02/08/2019	12/15/2018	(0.78)	0.00	0.00	(0.78)
Spinning Reserve Cost Distribution Amount	02/02/2019	12/09/2018	(0.49)	0.00	0.00	(0.49)
Spinning Reserve Cost Distribution Amount	02/03/2019	12/10/2018	(1.34)	0.00	0.00	(1.34)
Spinning Reserve Cost Distribution Amount	02/04/2019	12/11/2018	(0.25)	0.00	0.00	(0.25)
Spinning Reserve Cost Distribution Amount	02/05/2019	12/12/2018	(1.38)	0.00	0.00	(1.38)
Spinning Reserve Cost Distribution Amount	02/06/2019	12/13/2018	(0.66)	0.00	0.00	(0.66)
Spinning Reserve Cost Distribution Amount	02/07/2019	12/14/2018	(1.53)	0.00	0.00	(1.53)
Spinning Reserve Cost Distribution Amount	02/08/2019	12/15/2018	(0.97)	0.00	0.00	(0.97)
Supplemental Reserve Cost Distribution Amount	02/02/2019	12/09/2018	(0.29)	0.00	0.00	(0.29)
Supplemental Reserve Cost Distribution Amount	02/03/2019	12/10/2018	(0.07)	0.00	0.00	(0.07)
Supplemental Reserve Cost Distribution Amount	02/04/2019	12/11/2018	(0.21)	0.00	0.00	(0.21)
Supplemental Reserve Cost Distribution Amount	02/05/2019	12/12/2018	(0.11)	0.00	0.00	(0.11)
Supplemental Reserve Cost Distribution Amount	02/06/2019	12/13/2018	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/07/2019	12/14/2018	(0.16)	0.00	0.00	(0.16)
Supplemental Reserve Cost Distribution Amount	02/08/2019	12/15/2018	(0.18)	0.00	0.00	(0.18)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$5,047.09)	(\$1.19)	\$0.00	(\$5,048.28)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	02/02/2019	10/20/2018	(\$22.74)	\$0.00	\$0.00	(\$22.74)
Distribution of Losses Amount	02/03/2019	10/21/2018	4.28	0.00	0.00	4.28
Distribution of Losses Amount	02/04/2019	10/22/2018	(10.65)	0.00	0.00	(10.65)
Distribution of Losses Amount	02/05/2019	10/23/2018	3.78	0.00	0.00	3.78
Distribution of Losses Amount	02/06/2019	10/24/2018	(15.42)	0.00	0.00	(15.42)
Distribution of Losses Amount	02/07/2019	10/25/2018	(7.62)	0.00	0.00	(7.62)
Distribution of Losses Amount	02/08/2019	10/26/2018	7.68	0.00	0.00	7.68
Excessive Deficient Energy Deployment Charge Amount	02/02/2019	10/20/2018	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	02/03/2019	10/21/2018	0.07	0.00	0.00	0.07
Excessive Deficient Energy Deployment Charge Amount	02/04/2019	10/22/2018	0.16	0.00	0.00	0.16
Excessive Deficient Energy Deployment Charge Amount	02/05/2019	10/23/2018	0.13	0.00	0.00	0.13
Excessive Deficient Energy Deployment Charge Amount	02/06/2019	10/24/2018	0.29	0.00	0.00	0.29
Excessive Deficient Energy Deployment Charge Amount	02/07/2019	10/25/2018	0.21	0.00	0.00	0.21
Excessive Deficient Energy Deployment Charge Amount	02/08/2019	10/26/2018	(0.02)	0.00	0.00	(0.02)
Net Inadvertent Distribution Amount	02/02/2019	10/20/2018	0.05	0.00	0.00	0.05
Net Inadvertent Distribution Amount	02/03/2019	10/21/2018	(0.18)	0.00	0.00	(0.18)
Net Inadvertent Distribution Amount	02/04/2019	10/22/2018	0.11	0.00	0.00	0.11
Net Inadvertent Distribution Amount	02/05/2019	10/23/2018	(0.02)	0.00	0.00	(0.02)
Net Inadvertent Distribution Amount	02/06/2019	10/24/2018	(2.44)	0.00	0.00	(2.44)
Net Inadvertent Distribution Amount	02/07/2019	10/25/2018	0.16	0.00	0.00	0.16
Net Inadvertent Distribution Amount	02/08/2019	10/26/2018	0.04	0.00	0.00	0.04
Regulation Cost Distribution Amount	02/02/2019	10/20/2018	53.98	0.00	0.00	53.98
Regulation Cost Distribution Amount	02/03/2019	10/21/2018	45.73	0.00	0.00	45.73
Regulation Cost Distribution Amount	02/04/2019	10/22/2018	17.51	0.00	0.00	17.51
Regulation Cost Distribution Amount	02/05/2019	10/23/2018	33.27	0.00	0.00	33.27
Regulation Cost Distribution Amount	02/06/2019	10/24/2018	57.42	0.00	0.00	57.42
Regulation Cost Distribution Amount	02/07/2019	10/25/2018	28.76	0.00	0.00	28.76
Regulation Cost Distribution Amount	02/08/2019	10/26/2018	0.10	0.00	0.00	0.10
Revenue Neutrality Uplift Amount	02/02/2019	10/20/2018	(1,360.97)	0.00	0.00	(1,360.97)
Revenue Neutrality Uplift Amount	02/03/2019	10/21/2018	(1,163.10)	0.00	0.00	(1,163.10)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588799

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	02/04/2019	10/22/2018	\$87.88	\$0.00	\$0.00	\$87.88
Revenue Neutrality Uplift Amount	02/05/2019	10/23/2018	151.32	0.00	0.00	151.32
Revenue Neutrality Uplift Amount	02/06/2019	10/24/2018	183.56	0.00	0.00	183.56
Revenue Neutrality Uplift Amount	02/07/2019	10/25/2018	66.44	0.00	0.00	66.44
Revenue Neutrality Uplift Amount	02/08/2019	10/26/2018	101.93	0.00	0.00	101.93
Revenue Sufficiency Guarantee First Pass Dist Amount	02/02/2019	10/20/2018	1.45	0.00	0.00	1.45
Revenue Sufficiency Guarantee First Pass Dist Amount	02/03/2019	10/21/2018	(1.46)	0.00	0.00	(1.46)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/04/2019	10/22/2018	(3.77)	0.00	0.00	(3.77)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/05/2019	10/23/2018	8.51	0.00	0.00	8.51
Revenue Sufficiency Guarantee First Pass Dist Amount	02/06/2019	10/24/2018	8.92	0.00	0.00	8.92
Revenue Sufficiency Guarantee First Pass Dist Amount	02/07/2019	10/25/2018	(0.34)	0.00	0.00	(0.34)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/08/2019	10/26/2018	(7.57)	0.00	0.00	(7.57)
Schedule 24 Distribution Amount	02/02/2019	10/20/2018	3.64	0.00	0.00	3.64
Schedule 24 Distribution Amount	02/03/2019	10/21/2018	4.72	0.00	0.00	4.72
Schedule 24 Distribution Amount	02/04/2019	10/22/2018	2.21	0.00	0.00	2.21
Schedule 24 Distribution Amount	02/05/2019	10/23/2018	1.56	0.00	0.00	1.56
Schedule 24 Distribution Amount	02/06/2019	10/24/2018	5.43	0.00	0.00	5.43
Schedule 24 Distribution Amount	02/07/2019	10/25/2018	2.82	0.00	0.00	2.82
Schedule 24 Distribution Amount	02/08/2019	10/26/2018	0.70	0.00	0.00	0.70
Spinning Reserve Cost Distribution Amount	02/02/2019	10/20/2018	0.52	0.00	0.00	0.52
Spinning Reserve Cost Distribution Amount	02/03/2019	10/21/2018	0.60	0.00	0.00	0.60
Spinning Reserve Cost Distribution Amount	02/04/2019	10/22/2018	0.47	0.00	0.00	0.47
Spinning Reserve Cost Distribution Amount	02/05/2019	10/23/2018	0.61	0.00	0.00	0.61
Spinning Reserve Cost Distribution Amount	02/06/2019	10/24/2018	1.08	0.00	0.00	1.08
Spinning Reserve Cost Distribution Amount	02/07/2019	10/25/2018	0.34	0.00	0.00	0.34
Spinning Reserve Cost Distribution Amount	02/08/2019	10/26/2018	0.26	0.00	0.00	0.26
Supplemental Reserve Cost Distribution Amount	02/02/2019	10/20/2018	0.12	0.00	0.00	0.12
Supplemental Reserve Cost Distribution Amount	02/03/2019	10/21/2018	0.12	0.00	0.00	0.12
Supplemental Reserve Cost Distribution Amount	02/06/2019	10/24/2018	0.12	0.00	0.00	0.12
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$1,707.23)	\$0.00	\$0.00	(\$1,707.23)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588800

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Payment Due Date: 02/19/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$26,485.94
S14 Prior Period Adjustments:	(3.88)
S55 Prior Period Adjustments:	(6.32)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$26,475.74

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1588800

For Statements Issued: 02/02/2019 - 02/08/2019

Invoice Date: 02/12/2019

Participant ID: MPM

Invoice Type: Administration Fee Invoice

Payment Due Date: 02/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	02/02/2019	01/26/2019	\$215.35	\$3,131.37	\$0.00	\$3,346.72
Market Administration Amount	02/03/2019	01/27/2019	327.15	3,104.41	0.00	3,431.56
Market Administration Amount	02/04/2019	01/28/2019	425.15	3,211.21	0.00	3,636.36
Market Administration Amount	02/05/2019	01/29/2019	222.47	3,580.33	0.00	3,802.80
Market Administration Amount	02/06/2019	01/30/2019	208.28	3,139.15	0.00	3,347.43
Market Administration Amount	02/07/2019	01/31/2019	236.84	3,243.02	0.00	3,479.86
Market Administration Amount	02/08/2019	02/01/2019	287.99	4,544.10	0.00	4,832.09
Transmission Rights Market Administration Amount	02/02/2019	01/26/2019	0.00	0.00	93.60	93.60
Transmission Rights Market Administration Amount	02/03/2019	01/27/2019	0.00	0.00	93.60	93.60
Transmission Rights Market Administration Amount	02/04/2019	01/28/2019	0.00	0.00	98.08	98.08
Transmission Rights Market Administration Amount	02/05/2019	01/29/2019	0.00	0.00	98.08	98.08
Transmission Rights Market Administration Amount	02/06/2019	01/30/2019	0.00	0.00	98.08	98.08
Transmission Rights Market Administration Amount	02/07/2019	01/31/2019	0.00	0.00	98.08	98.08
Transmission Rights Market Administration Amount	02/08/2019	02/01/2019	0.00	0.00	29.60	29.60
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$1,923.23	\$23,953.59	\$609.12	\$26,485.94

MISO MARKET & ADMINISTRATION INVOICE

FEBRUARY 19, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$2,687,627.87
S14 Prior Period Adjustments:	(17,341.58)
S55 Prior Period Adjustments:	(26,832.15)
S105 Prior Period Adjustments:	575.86
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$2,644,030.00

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	02/09/2019	02/02/2019	\$2,588.50	\$341,072.22	\$0.00	\$343,660.72
Asset Energy Amount	02/10/2019	02/03/2019	11,976.92	373,814.91	0.00	385,791.83
Asset Energy Amount	02/11/2019	02/04/2019	(22,200.67)	438,523.94	0.00	416,323.27
Asset Energy Amount	02/12/2019	02/05/2019	(12,872.83)	409,073.62	0.00	396,200.79
Asset Energy Amount	02/13/2019	02/06/2019	23,168.55	347,650.28	0.00	370,818.83
Asset Energy Amount	02/14/2019	02/07/2019	41,412.92	204,081.89	0.00	245,494.81
Asset Energy Amount	02/15/2019	02/08/2019	(32,442.48)	665,638.19	0.00	633,195.71
Distribution of Losses Amount	02/09/2019	02/02/2019	(10,773.93)	0.00	0.00	(10,773.93)
Distribution of Losses Amount	02/10/2019	02/03/2019	(16,559.11)	0.00	0.00	(16,559.11)
Distribution of Losses Amount	02/11/2019	02/04/2019	(15,411.97)	0.00	0.00	(15,411.97)
Distribution of Losses Amount	02/12/2019	02/05/2019	(19,104.51)	0.00	0.00	(19,104.51)
Distribution of Losses Amount	02/13/2019	02/06/2019	(21,176.50)	0.00	0.00	(21,176.50)
Distribution of Losses Amount	02/14/2019	02/07/2019	(21,859.21)	0.00	0.00	(21,859.21)
Distribution of Losses Amount	02/15/2019	02/08/2019	(24,714.72)	0.00	0.00	(24,714.72)
Excessive Deficient Energy Deployment Charge Amount	02/09/2019	02/02/2019	711.72	0.00	0.00	711.72
Excessive Deficient Energy Deployment Charge Amount	02/10/2019	02/03/2019	1,108.89	0.00	0.00	1,108.89
Excessive Deficient Energy Deployment Charge Amount	02/11/2019	02/04/2019	318.52	0.00	0.00	318.52
Excessive Deficient Energy Deployment Charge Amount	02/12/2019	02/05/2019	287.21	0.00	0.00	287.21
Excessive Deficient Energy Deployment Charge Amount	02/13/2019	02/06/2019	525.34	0.00	0.00	525.34
Excessive Deficient Energy Deployment Charge Amount	02/14/2019	02/07/2019	90.75	0.00	0.00	90.75
Excessive Deficient Energy Deployment Charge Amount	02/15/2019	02/08/2019	23.10	0.00	0.00	23.10
Excessive Energy Amount	02/09/2019	02/02/2019	249.62	0.00	0.00	249.62
Excessive Energy Amount	02/10/2019	02/03/2019	81.70	0.00	0.00	81.70
Excessive Energy Amount	02/11/2019	02/04/2019	(368.44)	0.00	0.00	(368.44)
Excessive Energy Amount	02/12/2019	02/05/2019	36.76	0.00	0.00	36.76
Excessive Energy Amount	02/13/2019	02/06/2019	69.84	0.00	0.00	69.84
Financial Bilateral Transaction Congestion Amount	02/09/2019	02/02/2019	0.00	853.65	0.00	853.65
Financial Bilateral Transaction Congestion Amount	02/10/2019	02/03/2019	0.00	783.80	0.00	783.80
Financial Bilateral Transaction Congestion Amount	02/11/2019	02/04/2019	0.00	(13,809.70)	0.00	(13,809.70)
Financial Bilateral Transaction Congestion Amount	02/12/2019	02/05/2019	0.00	(15,771.90)	0.00	(15,771.90)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Financial Bilateral Transaction Congestion Amount	02/13/2019	02/06/2019	\$0.00	(\$12,404.25)	\$0.00	(\$12,404.25)
Financial Bilateral Transaction Congestion Amount	02/14/2019	02/07/2019	0.00	(1,767.20)	0.00	(1,767.20)
Financial Bilateral Transaction Congestion Amount	02/15/2019	02/08/2019	0.00	10,132.50	0.00	10,132.50
Financial Bilateral Transaction Loss Amount	02/09/2019	02/02/2019	0.00	3,582.55	0.00	3,582.55
Financial Bilateral Transaction Loss Amount	02/10/2019	02/03/2019	0.00	2,993.70	0.00	2,993.70
Financial Bilateral Transaction Loss Amount	02/11/2019	02/04/2019	0.00	6,856.75	0.00	6,856.75
Financial Bilateral Transaction Loss Amount	02/12/2019	02/05/2019	0.00	3,505.90	0.00	3,505.90
Financial Bilateral Transaction Loss Amount	02/13/2019	02/06/2019	0.00	5,969.00	0.00	5,969.00
Financial Bilateral Transaction Loss Amount	02/14/2019	02/07/2019	0.00	6,992.30	0.00	6,992.30
Financial Bilateral Transaction Loss Amount	02/15/2019	02/08/2019	0.00	5,434.20	0.00	5,434.20
Net Inadvertent Distribution Amount	02/09/2019	02/02/2019	51.68	0.00	0.00	51.68
Net Inadvertent Distribution Amount	02/10/2019	02/03/2019	(578.71)	0.00	0.00	(578.71)
Net Inadvertent Distribution Amount	02/11/2019	02/04/2019	(16.54)	0.00	0.00	(16.54)
Net Inadvertent Distribution Amount	02/12/2019	02/05/2019	(355.51)	0.00	0.00	(355.51)
Net Inadvertent Distribution Amount	02/13/2019	02/06/2019	(797.61)	0.00	0.00	(797.61)
Net Inadvertent Distribution Amount	02/14/2019	02/07/2019	(953.66)	0.00	0.00	(953.66)
Net Inadvertent Distribution Amount	02/15/2019	02/08/2019	(404.89)	0.00	0.00	(404.89)
Net Regulation Adjustment Amount	02/09/2019	02/02/2019	25.16	0.00	0.00	25.16
Net Regulation Adjustment Amount	02/10/2019	02/03/2019	9.48	0.00	0.00	9.48
Net Regulation Adjustment Amount	02/11/2019	02/04/2019	(6.30)	0.00	0.00	(6.30)
Net Regulation Adjustment Amount	02/12/2019	02/05/2019	36.91	0.00	0.00	36.91
Net Regulation Adjustment Amount	02/13/2019	02/06/2019	3.21	0.00	0.00	3.21
Net Regulation Adjustment Amount	02/14/2019	02/07/2019	(43.54)	0.00	0.00	(43.54)
Net Regulation Adjustment Amount	02/15/2019	02/08/2019	(12.51)	0.00	0.00	(12.51)
Non-Asset Energy Amount	02/09/2019	02/02/2019	1,243.54	(53,476.26)	0.00	(52,232.72)
Non-Asset Energy Amount	02/10/2019	02/03/2019	509.73	(44,216.38)	0.00	(43,706.65)
Non-Asset Energy Amount	02/11/2019	02/04/2019	4,359.26	(11,901.02)	0.00	(7,541.76)
Non-Asset Energy Amount	02/12/2019	02/05/2019	(18.54)	(3,463.00)	0.00	(3,481.54)
Non-Asset Energy Amount	02/13/2019	02/06/2019	(7,092.30)	(34,677.00)	0.00	(41,769.30)
Non-Asset Energy Amount	02/14/2019	02/07/2019	(10,761.82)	(51,224.00)	0.00	(61,985.82)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
 30 West Superior Street
 Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Non-Asset Energy Amount	02/15/2019	02/08/2019	(\$6,864.55)	(\$38,662.00)	\$0.00	(\$45,526.55)
Non-Excessive Energy Amount	02/09/2019	02/02/2019	13,649.13	0.00	0.00	13,649.13
Non-Excessive Energy Amount	02/10/2019	02/03/2019	(15,366.37)	0.00	0.00	(15,366.37)
Non-Excessive Energy Amount	02/11/2019	02/04/2019	(42,158.15)	0.00	0.00	(42,158.15)
Non-Excessive Energy Amount	02/12/2019	02/05/2019	(1,151.52)	0.00	0.00	(1,151.52)
Non-Excessive Energy Amount	02/13/2019	02/06/2019	112,822.74	0.00	0.00	112,822.74
Non-Excessive Energy Amount	02/14/2019	02/07/2019	136,229.72	0.00	0.00	136,229.72
Non-Excessive Energy Amount	02/15/2019	02/08/2019	6,935.01	0.00	0.00	6,935.01
Price Volatility Make Whole Payment Amt	02/15/2019	02/08/2019	(0.60)	0.00	0.00	(0.60)
Ramp Capability Amount	02/13/2019	02/06/2019	(0.42)	0.00	0.00	(0.42)
Ramp Capability Amount	02/14/2019	02/07/2019	0.31	(0.12)	0.00	0.19
Ramp Capability Amount	02/15/2019	02/08/2019	2.20	(3.04)	0.00	(0.84)
Regulation Amount	02/09/2019	02/02/2019	187.21	(1,572.89)	0.00	(1,385.68)
Regulation Amount	02/10/2019	02/03/2019	355.49	(1,466.08)	0.00	(1,110.59)
Regulation Amount	02/11/2019	02/04/2019	397.45	(1,163.88)	0.00	(766.43)
Regulation Amount	02/12/2019	02/05/2019	513.67	(914.43)	0.00	(400.76)
Regulation Amount	02/13/2019	02/06/2019	134.35	(759.94)	0.00	(625.59)
Regulation Amount	02/14/2019	02/07/2019	2,630.34	(1,790.05)	0.00	840.29
Regulation Amount	02/15/2019	02/08/2019	(50.81)	0.00	0.00	(50.81)
Regulation Cost Distribution Amount	02/09/2019	02/02/2019	906.22	0.00	0.00	906.22
Regulation Cost Distribution Amount	02/10/2019	02/03/2019	865.40	0.00	0.00	865.40
Regulation Cost Distribution Amount	02/11/2019	02/04/2019	1,073.60	0.00	0.00	1,073.60
Regulation Cost Distribution Amount	02/12/2019	02/05/2019	946.77	0.00	0.00	946.77
Regulation Cost Distribution Amount	02/13/2019	02/06/2019	665.63	0.00	0.00	665.63
Regulation Cost Distribution Amount	02/14/2019	02/07/2019	610.12	0.00	0.00	610.12
Regulation Cost Distribution Amount	02/15/2019	02/08/2019	987.08	0.00	0.00	987.08
Resource Adequacy Auction Amount	02/09/2019	02/02/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/10/2019	02/03/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/11/2019	02/04/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/12/2019	02/05/2019	(10.95)	0.00	0.00	(10.95)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Resource Adequacy Auction Amount	02/13/2019	02/06/2019	(\$10.95)	\$0.00	\$0.00	(\$10.95)
Resource Adequacy Auction Amount	02/14/2019	02/07/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/15/2019	02/08/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	02/09/2019	02/02/2019	18,331.37	0.00	0.00	18,331.37
Revenue Neutrality Uplift Amount	02/10/2019	02/03/2019	(32.51)	0.00	0.00	(32.51)
Revenue Neutrality Uplift Amount	02/11/2019	02/04/2019	(1,119.32)	0.00	0.00	(1,119.32)
Revenue Neutrality Uplift Amount	02/12/2019	02/05/2019	44,828.33	0.00	0.00	44,828.33
Revenue Neutrality Uplift Amount	02/13/2019	02/06/2019	2,007.75	0.00	0.00	2,007.75
Revenue Neutrality Uplift Amount	02/14/2019	02/07/2019	1,166.07	0.00	0.00	1,166.07
Revenue Neutrality Uplift Amount	02/15/2019	02/08/2019	1,401.97	0.00	0.00	1,401.97
Revenue Sufficiency Guarantee Distribution Amount	02/09/2019	02/02/2019	0.00	576.82	0.00	576.82
Revenue Sufficiency Guarantee Distribution Amount	02/10/2019	02/03/2019	0.00	864.35	0.00	864.35
Revenue Sufficiency Guarantee Distribution Amount	02/11/2019	02/04/2019	0.00	990.15	0.00	990.15
Revenue Sufficiency Guarantee Distribution Amount	02/12/2019	02/05/2019	0.00	1,398.76	0.00	1,398.76
Revenue Sufficiency Guarantee Distribution Amount	02/13/2019	02/06/2019	0.00	790.96	0.00	790.96
Revenue Sufficiency Guarantee Distribution Amount	02/14/2019	02/07/2019	0.00	810.79	0.00	810.79
Revenue Sufficiency Guarantee Distribution Amount	02/15/2019	02/08/2019	0.00	1,411.26	0.00	1,411.26
Revenue Sufficiency Guarantee First Pass Dist Amount	02/09/2019	02/02/2019	74.04	0.00	0.00	74.04
Revenue Sufficiency Guarantee First Pass Dist Amount	02/10/2019	02/03/2019	40.43	0.00	0.00	40.43
Revenue Sufficiency Guarantee First Pass Dist Amount	02/11/2019	02/04/2019	317.42	0.00	0.00	317.42
Revenue Sufficiency Guarantee First Pass Dist Amount	02/12/2019	02/05/2019	1,091.64	0.00	0.00	1,091.64
Revenue Sufficiency Guarantee First Pass Dist Amount	02/13/2019	02/06/2019	1,242.13	0.00	0.00	1,242.13
Revenue Sufficiency Guarantee First Pass Dist Amount	02/14/2019	02/07/2019	93.74	0.00	0.00	93.74
Revenue Sufficiency Guarantee First Pass Dist Amount	02/15/2019	02/08/2019	33.56	0.00	0.00	33.56
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/09/2019	02/02/2019	0.00	(25.28)	0.00	(25.28)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/10/2019	02/03/2019	0.00	(44.00)	0.00	(44.00)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/11/2019	02/04/2019	0.00	(39.60)	0.00	(39.60)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/13/2019	02/06/2019	0.00	(16.50)	0.00	(16.50)
Revenue Sufficiency Guarantee Make Whole Payment Amt	02/14/2019	02/07/2019	0.00	(57.47)	0.00	(57.47)
Schedule 24 Allocation Amount	02/09/2019	02/02/2019	56.85	626.28	0.00	683.13

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Schedule 24 Allocation Amount	02/10/2019	02/03/2019	\$68.49	\$596.19	\$0.00	\$664.68
Schedule 24 Allocation Amount	02/11/2019	02/04/2019	100.05	627.38	0.00	727.43
Schedule 24 Allocation Amount	02/12/2019	02/05/2019	21.40	652.96	0.00	674.36
Schedule 24 Allocation Amount	02/13/2019	02/06/2019	112.86	675.31	0.00	788.17
Schedule 24 Allocation Amount	02/14/2019	02/07/2019	197.58	740.28	0.00	937.86
Schedule 24 Allocation Amount	02/15/2019	02/08/2019	25.21	661.41	0.00	686.62
Schedule 24 Distribution Amount	02/09/2019	02/02/2019	(4,795.13)	0.00	0.00	(4,795.13)
Schedule 24 Distribution Amount	02/10/2019	02/03/2019	(4,348.53)	0.00	0.00	(4,348.53)
Schedule 24 Distribution Amount	02/11/2019	02/04/2019	(4,722.66)	0.00	0.00	(4,722.66)
Schedule 24 Distribution Amount	02/12/2019	02/05/2019	(4,790.38)	0.00	0.00	(4,790.38)
Schedule 24 Distribution Amount	02/13/2019	02/06/2019	(4,737.37)	0.00	0.00	(4,737.37)
Schedule 24 Distribution Amount	02/14/2019	02/07/2019	(4,935.43)	0.00	0.00	(4,935.43)
Schedule 24 Distribution Amount	02/15/2019	02/08/2019	(5,383.59)	0.00	0.00	(5,383.59)
Spinning Reserve Amount	02/09/2019	02/02/2019	110.91	(681.14)	0.00	(570.23)
Spinning Reserve Amount	02/10/2019	02/03/2019	(163.62)	(544.52)	0.00	(708.14)
Spinning Reserve Amount	02/11/2019	02/04/2019	95.30	(505.08)	0.00	(409.78)
Spinning Reserve Amount	02/12/2019	02/05/2019	207.90	(1,315.00)	0.00	(1,107.10)
Spinning Reserve Amount	02/13/2019	02/06/2019	440.40	(1,046.57)	0.00	(606.17)
Spinning Reserve Amount	02/14/2019	02/07/2019	599.53	(862.43)	0.00	(262.90)
Spinning Reserve Amount	02/15/2019	02/08/2019	(609.38)	(1,205.40)	0.00	(1,814.78)
Spinning Reserve Cost Distribution Amount	02/09/2019	02/02/2019	416.24	0.00	0.00	416.24
Spinning Reserve Cost Distribution Amount	02/10/2019	02/03/2019	422.88	0.00	0.00	422.88
Spinning Reserve Cost Distribution Amount	02/11/2019	02/04/2019	432.13	0.00	0.00	432.13
Spinning Reserve Cost Distribution Amount	02/12/2019	02/05/2019	857.84	0.00	0.00	857.84
Spinning Reserve Cost Distribution Amount	02/13/2019	02/06/2019	723.22	0.00	0.00	723.22
Spinning Reserve Cost Distribution Amount	02/14/2019	02/07/2019	478.65	0.00	0.00	478.65
Spinning Reserve Cost Distribution Amount	02/15/2019	02/08/2019	904.51	0.00	0.00	904.51
Supplemental Reserve Amount	02/09/2019	02/02/2019	(0.65)	0.00	0.00	(0.65)
Supplemental Reserve Amount	02/10/2019	02/03/2019	(1.85)	0.00	0.00	(1.85)
Supplemental Reserve Amount	02/11/2019	02/04/2019	(1.20)	0.00	0.00	(1.20)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Supplemental Reserve Cost Distribution Amount	02/09/2019	02/02/2019	\$149.50	\$0.00	\$0.00	\$149.50
Supplemental Reserve Cost Distribution Amount	02/10/2019	02/03/2019	159.45	0.00	0.00	159.45
Supplemental Reserve Cost Distribution Amount	02/11/2019	02/04/2019	124.47	0.00	0.00	124.47
Supplemental Reserve Cost Distribution Amount	02/12/2019	02/05/2019	154.54	0.00	0.00	154.54
Supplemental Reserve Cost Distribution Amount	02/13/2019	02/06/2019	110.86	0.00	0.00	110.86
Supplemental Reserve Cost Distribution Amount	02/14/2019	02/07/2019	102.84	0.00	0.00	102.84
Supplemental Reserve Cost Distribution Amount	02/15/2019	02/08/2019	174.63	0.00	0.00	174.63
Transmission Guarantee Uplift Amount	02/09/2019	02/02/2019	0.00	0.00	127.13	127.13
Transmission Guarantee Uplift Amount	02/11/2019	02/04/2019	0.00	0.00	33.18	33.18
Transmission Guarantee Uplift Amount	02/13/2019	02/06/2019	0.00	0.00	438.90	438.90
Transmission Guarantee Uplift Amount	02/14/2019	02/07/2019	0.00	0.00	317.43	317.43
Transmission Guarantee Uplift Amount	02/15/2019	02/08/2019	0.00	0.00	81.91	81.91
Transmission Rights Full Funding Guarantee Amount	02/09/2019	02/02/2019	0.00	0.00	(127.13)	(127.13)
Transmission Rights Full Funding Guarantee Amount	02/11/2019	02/04/2019	0.00	0.00	(33.18)	(33.18)
Transmission Rights Full Funding Guarantee Amount	02/13/2019	02/06/2019	0.00	0.00	(438.90)	(438.90)
Transmission Rights Full Funding Guarantee Amount	02/14/2019	02/07/2019	0.00	0.00	(317.43)	(317.43)
Transmission Rights Full Funding Guarantee Amount	02/15/2019	02/08/2019	0.00	0.00	(81.91)	(81.91)
Transmission Rights Hourly Allocation Amount	02/09/2019	02/02/2019	0.00	0.00	(1,460.61)	(1,460.61)
Transmission Rights Hourly Allocation Amount	02/10/2019	02/03/2019	0.00	0.00	(1,412.10)	(1,412.10)
Transmission Rights Hourly Allocation Amount	02/11/2019	02/04/2019	0.00	0.00	8,127.67	8,127.67
Transmission Rights Hourly Allocation Amount	02/12/2019	02/05/2019	0.00	0.00	10,930.10	10,930.10
Transmission Rights Hourly Allocation Amount	02/13/2019	02/06/2019	0.00	0.00	1,159.31	1,159.31
Transmission Rights Hourly Allocation Amount	02/14/2019	02/07/2019	0.00	0.00	(2,783.66)	(2,783.66)
Transmission Rights Hourly Allocation Amount	02/15/2019	02/08/2019	0.00	0.00	3,229.54	3,229.54
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$126,841.45	\$2,542,996.17	\$17,790.25	\$2,687,627.87



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	02/09/2019	01/26/2019	\$285.90	\$0.00	\$0.00	\$285.90
Asset Energy Amount	02/10/2019	01/27/2019	(672.78)	0.00	0.00	(672.78)
Asset Energy Amount	02/11/2019	01/28/2019	(735.79)	0.00	0.00	(735.79)
Asset Energy Amount	02/12/2019	01/29/2019	(2,826.86)	0.00	0.00	(2,826.86)
Asset Energy Amount	02/13/2019	01/30/2019	(15,793.24)	0.00	0.00	(15,793.24)
Asset Energy Amount	02/14/2019	01/31/2019	(7,811.34)	0.00	0.00	(7,811.34)
Asset Energy Amount	02/15/2019	02/01/2019	(165.96)	0.00	0.00	(165.96)
Demand Response Allocation Uplift Charge	02/13/2019	01/30/2019	0.17	0.00	0.00	0.17
Demand Response Allocation Uplift Charge	02/14/2019	01/31/2019	(0.01)	0.00	0.00	(0.01)
Distribution of Losses Amount	02/09/2019	01/26/2019	121.76	0.00	0.00	121.76
Distribution of Losses Amount	02/10/2019	01/27/2019	152.75	0.00	0.00	152.75
Distribution of Losses Amount	02/11/2019	01/28/2019	32.05	0.00	0.00	32.05
Distribution of Losses Amount	02/12/2019	01/29/2019	(1,107.09)	0.00	0.00	(1,107.09)
Distribution of Losses Amount	02/13/2019	01/30/2019	794.82	0.00	0.00	794.82
Distribution of Losses Amount	02/14/2019	01/31/2019	470.01	0.00	0.00	470.01
Distribution of Losses Amount	02/15/2019	02/01/2019	(19.16)	0.00	0.00	(19.16)
Excessive Deficient Energy Deployment Charge Amount	02/10/2019	01/27/2019	(0.04)	0.00	0.00	(0.04)
Excessive Deficient Energy Deployment Charge Amount	02/11/2019	01/28/2019	(0.04)	0.00	0.00	(0.04)
Excessive Deficient Energy Deployment Charge Amount	02/12/2019	01/29/2019	(0.05)	0.00	0.00	(0.05)
Excessive Deficient Energy Deployment Charge Amount	02/13/2019	01/30/2019	0.06	0.00	0.00	0.06
Excessive Deficient Energy Deployment Charge Amount	02/14/2019	01/31/2019	0.03	0.00	0.00	0.03
MVP Distribution Amount	02/14/2019	01/31/2019	948.27	0.00	0.00	948.27
Net Inadvertent Distribution Amount	02/09/2019	01/26/2019	(230.24)	0.00	0.00	(230.24)
Net Inadvertent Distribution Amount	02/10/2019	01/27/2019	(242.73)	0.00	0.00	(242.73)
Net Inadvertent Distribution Amount	02/11/2019	01/28/2019	(260.36)	0.00	0.00	(260.36)
Net Inadvertent Distribution Amount	02/12/2019	01/29/2019	(938.62)	0.00	0.00	(938.62)
Net Inadvertent Distribution Amount	02/13/2019	01/30/2019	68.20	0.00	0.00	68.20
Net Inadvertent Distribution Amount	02/14/2019	01/31/2019	(3.32)	0.00	0.00	(3.32)
Net Inadvertent Distribution Amount	02/15/2019	02/01/2019	(2.57)	0.00	0.00	(2.57)
Regulation Cost Distribution Amount	02/09/2019	01/26/2019	0.28	0.00	0.00	0.28

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Regulation Cost Distribution Amount	02/10/2019	01/27/2019	(\$0.87)	\$0.00	\$0.00	(\$0.87)
Regulation Cost Distribution Amount	02/11/2019	01/28/2019	(0.32)	0.00	0.00	(0.32)
Regulation Cost Distribution Amount	02/12/2019	01/29/2019	(4.71)	0.00	0.00	(4.71)
Regulation Cost Distribution Amount	02/13/2019	01/30/2019	14.84	0.00	0.00	14.84
Regulation Cost Distribution Amount	02/14/2019	01/31/2019	(7.47)	0.00	0.00	(7.47)
Regulation Cost Distribution Amount	02/15/2019	02/01/2019	0.84	0.00	0.00	0.84
Revenue Neutrality Uplift Amount	02/09/2019	01/26/2019	358.12	0.00	0.00	358.12
Revenue Neutrality Uplift Amount	02/10/2019	01/27/2019	313.02	0.00	0.00	313.02
Revenue Neutrality Uplift Amount	02/11/2019	01/28/2019	344.20	0.00	0.00	344.20
Revenue Neutrality Uplift Amount	02/12/2019	01/29/2019	1,284.92	0.00	0.00	1,284.92
Revenue Neutrality Uplift Amount	02/13/2019	01/30/2019	2,351.39	0.00	0.00	2,351.39
Revenue Neutrality Uplift Amount	02/14/2019	01/31/2019	(480.50)	0.00	0.00	(480.50)
Revenue Neutrality Uplift Amount	02/15/2019	02/01/2019	320.30	0.00	0.00	320.30
Revenue Sufficiency Guarantee Distribution Amount	02/09/2019	01/26/2019	0.00	0.43	0.00	0.43
Revenue Sufficiency Guarantee Distribution Amount	02/10/2019	01/27/2019	0.00	0.67	0.00	0.67
Revenue Sufficiency Guarantee Distribution Amount	02/11/2019	01/28/2019	0.00	0.55	0.00	0.55
Revenue Sufficiency Guarantee Distribution Amount	02/12/2019	01/29/2019	0.00	0.40	0.00	0.40
Revenue Sufficiency Guarantee First Pass Dist Amount	02/09/2019	01/26/2019	0.39	0.00	0.00	0.39
Revenue Sufficiency Guarantee First Pass Dist Amount	02/10/2019	01/27/2019	12.68	0.00	0.00	12.68
Revenue Sufficiency Guarantee First Pass Dist Amount	02/11/2019	01/28/2019	32.20	0.00	0.00	32.20
Revenue Sufficiency Guarantee First Pass Dist Amount	02/12/2019	01/29/2019	(0.03)	0.00	0.00	(0.03)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/13/2019	01/30/2019	256.51	0.00	0.00	256.51
Revenue Sufficiency Guarantee First Pass Dist Amount	02/14/2019	01/31/2019	5,088.10	0.00	0.00	5,088.10
Revenue Sufficiency Guarantee First Pass Dist Amount	02/15/2019	02/01/2019	754.76	0.00	0.00	754.76
Schedule 24 Allocation Amount	02/09/2019	01/26/2019	0.11	0.00	0.00	0.11
Schedule 24 Allocation Amount	02/10/2019	01/27/2019	(0.25)	0.00	0.00	(0.25)
Schedule 24 Allocation Amount	02/11/2019	01/28/2019	(0.33)	0.00	0.00	(0.33)
Schedule 24 Allocation Amount	02/12/2019	01/29/2019	(0.75)	0.00	0.00	(0.75)
Schedule 24 Allocation Amount	02/13/2019	01/30/2019	0.28	0.00	0.00	0.28
Schedule 24 Allocation Amount	02/14/2019	01/31/2019	(0.58)	0.00	0.00	(0.58)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Schedule 24 Allocation Amount	02/15/2019	02/01/2019	\$0.07	\$0.00	\$0.00	\$0.07
Schedule 24 Distribution Amount	02/09/2019	01/26/2019	1.48	0.00	0.00	1.48
Schedule 24 Distribution Amount	02/10/2019	01/27/2019	0.54	0.00	0.00	0.54
Schedule 24 Distribution Amount	02/11/2019	01/28/2019	0.09	0.00	0.00	0.09
Schedule 24 Distribution Amount	02/12/2019	01/29/2019	0.50	0.00	0.00	0.50
Schedule 24 Distribution Amount	02/13/2019	01/30/2019	4.63	0.00	0.00	4.63
Schedule 24 Distribution Amount	02/14/2019	01/31/2019	0.03	0.00	0.00	0.03
Schedule 24 Distribution Amount	02/15/2019	02/01/2019	3.34	0.00	0.00	3.34
Spinning Reserve Cost Distribution Amount	02/09/2019	01/26/2019	0.32	0.00	0.00	0.32
Spinning Reserve Cost Distribution Amount	02/10/2019	01/27/2019	(0.21)	0.00	0.00	(0.21)
Spinning Reserve Cost Distribution Amount	02/11/2019	01/28/2019	(0.60)	0.00	0.00	(0.60)
Spinning Reserve Cost Distribution Amount	02/12/2019	01/29/2019	(3.46)	0.00	0.00	(3.46)
Spinning Reserve Cost Distribution Amount	02/13/2019	01/30/2019	(24.66)	0.00	0.00	(24.66)
Spinning Reserve Cost Distribution Amount	02/14/2019	01/31/2019	(7.58)	0.00	0.00	(7.58)
Spinning Reserve Cost Distribution Amount	02/15/2019	02/01/2019	(0.04)	0.00	0.00	(0.04)
Supplemental Reserve Cost Distribution Amount	02/09/2019	01/26/2019	0.03	0.00	0.00	0.03
Supplemental Reserve Cost Distribution Amount	02/10/2019	01/27/2019	(0.08)	0.00	0.00	(0.08)
Supplemental Reserve Cost Distribution Amount	02/11/2019	01/28/2019	(0.08)	0.00	0.00	(0.08)
Supplemental Reserve Cost Distribution Amount	02/12/2019	01/29/2019	(1.67)	0.00	0.00	(1.67)
Supplemental Reserve Cost Distribution Amount	02/13/2019	01/30/2019	(8.10)	0.00	0.00	(8.10)
Supplemental Reserve Cost Distribution Amount	02/14/2019	01/31/2019	(8.40)	0.00	0.00	(8.40)
Supplemental Reserve Cost Distribution Amount	02/15/2019	02/01/2019	(0.07)	0.00	0.00	(0.07)
Transmission Guarantee Uplift Amount	02/12/2019	01/29/2019	0.00	0.00	(0.82)	(0.82)
Transmission Guarantee Uplift Amount	02/14/2019	01/31/2019	0.00	0.00	0.16	0.16
Transmission Rights Full Funding Guarantee Amount	02/12/2019	01/29/2019	0.00	0.00	0.82	0.82
Transmission Rights Full Funding Guarantee Amount	02/14/2019	01/31/2019	0.00	0.00	0.02	0.02
Transmission Rights Hourly Allocation Amount	02/12/2019	01/29/2019	0.00	0.00	(0.82)	(0.82)
Transmission Rights Monthly Allocation Amount	02/14/2019	01/31/2019	0.00	0.00	(0.02)	(0.02)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$17,342.97)	\$2.05	(\$0.66)	(\$17,341.58)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 02/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	02/09/2019	12/16/2018	(\$457.94)	\$0.00	\$0.00	(\$457.94)
Asset Energy Amount	02/10/2019	12/17/2018	(669.23)	0.00	0.00	(669.23)
Asset Energy Amount	02/11/2019	12/18/2018	(451.19)	0.00	0.00	(451.19)
Asset Energy Amount	02/12/2019	12/19/2018	(621.58)	0.00	0.00	(621.58)
Asset Energy Amount	02/13/2019	12/20/2018	(877.37)	0.00	0.00	(877.37)
Asset Energy Amount	02/14/2019	12/21/2018	(780.38)	0.00	0.00	(780.38)
Asset Energy Amount	02/15/2019	12/22/2018	(687.94)	0.00	0.00	(687.94)
Distribution of Losses Amount	02/09/2019	12/16/2018	0.31	0.00	0.00	0.31
Distribution of Losses Amount	02/10/2019	12/17/2018	(3,706.55)	0.00	0.00	(3,706.55)
Distribution of Losses Amount	02/11/2019	12/18/2018	(3,311.59)	0.00	0.00	(3,311.59)
Distribution of Losses Amount	02/12/2019	12/19/2018	(5,199.01)	0.00	0.00	(5,199.01)
Distribution of Losses Amount	02/13/2019	12/20/2018	(3,553.68)	0.00	0.00	(3,553.68)
Distribution of Losses Amount	02/14/2019	12/21/2018	(3,784.78)	0.00	0.00	(3,784.78)
Distribution of Losses Amount	02/15/2019	12/22/2018	9.30	0.00	0.00	9.30
Excessive Deficient Energy Deployment Charge Amount	02/09/2019	12/16/2018	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	02/10/2019	12/17/2018	(0.41)	0.00	0.00	(0.41)
Excessive Deficient Energy Deployment Charge Amount	02/11/2019	12/18/2018	(0.50)	0.00	0.00	(0.50)
Excessive Deficient Energy Deployment Charge Amount	02/12/2019	12/19/2018	(0.74)	0.00	0.00	(0.74)
Excessive Deficient Energy Deployment Charge Amount	02/13/2019	12/20/2018	(0.34)	0.00	0.00	(0.34)
Excessive Deficient Energy Deployment Charge Amount	02/14/2019	12/21/2018	(0.35)	0.00	0.00	(0.35)
Excessive Deficient Energy Deployment Charge Amount	02/15/2019	12/22/2018	0.10	0.00	0.00	0.10
Miscellaneous Amount	02/11/2019	12/18/2018	454.34	0.00	0.00	454.34
Net Inadvertent Distribution Amount	02/09/2019	12/16/2018	10.47	0.00	0.00	10.47
Net Inadvertent Distribution Amount	02/10/2019	12/17/2018	(2,855.21)	0.00	0.00	(2,855.21)
Net Inadvertent Distribution Amount	02/11/2019	12/18/2018	(2,787.43)	0.00	0.00	(2,787.43)
Net Inadvertent Distribution Amount	02/12/2019	12/19/2018	(3,597.61)	0.00	0.00	(3,597.61)
Net Inadvertent Distribution Amount	02/13/2019	12/20/2018	(2,948.57)	0.00	0.00	(2,948.57)
Net Inadvertent Distribution Amount	02/14/2019	12/21/2018	(2,364.07)	0.00	0.00	(2,364.07)
Net Inadvertent Distribution Amount	02/15/2019	12/22/2018	(439.85)	0.00	0.00	(439.85)
Regulation Cost Distribution Amount	02/09/2019	12/16/2018	(1.41)	0.00	0.00	(1.41)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Regulation Cost Distribution Amount	02/10/2019	12/17/2018	(\$3.34)	\$0.00	\$0.00	(\$3.34)
Regulation Cost Distribution Amount	02/11/2019	12/18/2018	(3.09)	0.00	0.00	(3.09)
Regulation Cost Distribution Amount	02/12/2019	12/19/2018	(4.23)	0.00	0.00	(4.23)
Regulation Cost Distribution Amount	02/13/2019	12/20/2018	(3.41)	0.00	0.00	(3.41)
Regulation Cost Distribution Amount	02/14/2019	12/21/2018	(2.42)	0.00	0.00	(2.42)
Regulation Cost Distribution Amount	02/15/2019	12/22/2018	(0.53)	0.00	0.00	(0.53)
Revenue Neutrality Uplift Amount	02/09/2019	12/16/2018	(128.81)	0.00	0.00	(128.81)
Revenue Neutrality Uplift Amount	02/10/2019	12/17/2018	(1,739.63)	0.00	0.00	(1,739.63)
Revenue Neutrality Uplift Amount	02/11/2019	12/18/2018	3,088.51	0.00	0.00	3,088.51
Revenue Neutrality Uplift Amount	02/12/2019	12/19/2018	3,512.50	0.00	0.00	3,512.50
Revenue Neutrality Uplift Amount	02/13/2019	12/20/2018	3,490.26	0.00	0.00	3,490.26
Revenue Neutrality Uplift Amount	02/14/2019	12/21/2018	2,710.31	0.00	0.00	2,710.31
Revenue Neutrality Uplift Amount	02/15/2019	12/22/2018	581.66	0.00	0.00	581.66
Revenue Sufficiency Guarantee First Pass Dist Amount	02/09/2019	12/16/2018	(8.21)	0.00	0.00	(8.21)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/10/2019	12/17/2018	(26.26)	0.00	0.00	(26.26)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/11/2019	12/18/2018	(11.79)	0.00	0.00	(11.79)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/12/2019	12/19/2018	49.77	0.00	0.00	49.77
Revenue Sufficiency Guarantee First Pass Dist Amount	02/13/2019	12/20/2018	215.79	0.00	0.00	215.79
Revenue Sufficiency Guarantee First Pass Dist Amount	02/14/2019	12/21/2018	68.42	0.00	0.00	68.42
Revenue Sufficiency Guarantee First Pass Dist Amount	02/15/2019	12/22/2018	(6.71)	0.00	0.00	(6.71)
Schedule 24 Allocation Amount	02/09/2019	12/16/2018	0.03	0.00	0.00	0.03
Schedule 24 Allocation Amount	02/10/2019	12/17/2018	(0.36)	0.00	0.00	(0.36)
Schedule 24 Allocation Amount	02/11/2019	12/18/2018	(0.26)	0.00	0.00	(0.26)
Schedule 24 Allocation Amount	02/12/2019	12/19/2018	(0.31)	0.00	0.00	(0.31)
Schedule 24 Allocation Amount	02/13/2019	12/20/2018	(0.44)	0.00	0.00	(0.44)
Schedule 24 Allocation Amount	02/14/2019	12/21/2018	(0.36)	0.00	0.00	(0.36)
Schedule 24 Allocation Amount	02/15/2019	12/22/2018	(0.34)	0.00	0.00	(0.34)
Schedule 24 Distribution Amount	02/09/2019	12/16/2018	(2.41)	0.00	0.00	(2.41)
Schedule 24 Distribution Amount	02/10/2019	12/17/2018	4.81	0.00	0.00	4.81
Schedule 24 Distribution Amount	02/11/2019	12/18/2018	6.83	0.00	0.00	6.83

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Distribution Amount	02/12/2019	12/19/2018	\$7.65	\$0.00	\$0.00	\$7.65
Schedule 24 Distribution Amount	02/13/2019	12/20/2018	7.59	0.00	0.00	7.59
Schedule 24 Distribution Amount	02/14/2019	12/21/2018	2.72	0.00	0.00	2.72
Schedule 24 Distribution Amount	02/15/2019	12/22/2018	(0.46)	0.00	0.00	(0.46)
Spinning Reserve Cost Distribution Amount	02/09/2019	12/16/2018	(0.71)	0.00	0.00	(0.71)
Spinning Reserve Cost Distribution Amount	02/10/2019	12/17/2018	(2.81)	0.00	0.00	(2.81)
Spinning Reserve Cost Distribution Amount	02/11/2019	12/18/2018	(2.05)	0.00	0.00	(2.05)
Spinning Reserve Cost Distribution Amount	02/12/2019	12/19/2018	(2.13)	0.00	0.00	(2.13)
Spinning Reserve Cost Distribution Amount	02/13/2019	12/20/2018	(1.21)	0.00	0.00	(1.21)
Spinning Reserve Cost Distribution Amount	02/14/2019	12/21/2018	(0.95)	0.00	0.00	(0.95)
Spinning Reserve Cost Distribution Amount	02/15/2019	12/22/2018	(0.32)	0.00	0.00	(0.32)
Supplemental Reserve Cost Distribution Amount	02/09/2019	12/16/2018	0.01	0.00	0.00	0.01
Supplemental Reserve Cost Distribution Amount	02/10/2019	12/17/2018	(0.55)	0.00	0.00	(0.55)
Supplemental Reserve Cost Distribution Amount	02/11/2019	12/18/2018	(0.27)	0.00	0.00	(0.27)
Supplemental Reserve Cost Distribution Amount	02/12/2019	12/19/2018	(0.50)	0.00	0.00	(0.50)
Supplemental Reserve Cost Distribution Amount	02/13/2019	12/20/2018	(0.58)	0.00	0.00	(0.58)
Supplemental Reserve Cost Distribution Amount	02/14/2019	12/21/2018	(0.46)	0.00	0.00	(0.46)
Supplemental Reserve Cost Distribution Amount	02/15/2019	12/22/2018	0.12	0.00	0.00	0.12
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$26,832.15)	\$0.00	\$0.00	(\$26,832.15)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	02/09/2019	10/27/2018	\$1.42	\$0.00	\$0.00	\$1.42
Distribution of Losses Amount	02/10/2019	10/28/2018	(4.17)	0.00	0.00	(4.17)
Distribution of Losses Amount	02/11/2019	10/29/2018	(21.19)	0.00	0.00	(21.19)
Distribution of Losses Amount	02/12/2019	10/30/2018	(13.69)	0.00	0.00	(13.69)
Distribution of Losses Amount	02/13/2019	10/31/2018	(3.20)	0.00	0.00	(3.20)
Distribution of Losses Amount	02/14/2019	11/01/2018	3.41	0.00	0.00	3.41
Distribution of Losses Amount	02/15/2019	11/02/2018	(7.46)	0.00	0.00	(7.46)
Excessive Deficient Energy Deployment Charge Amount	02/09/2019	10/27/2018	(0.10)	0.00	0.00	(0.10)
Excessive Deficient Energy Deployment Charge Amount	02/10/2019	10/28/2018	(0.08)	0.00	0.00	(0.08)
Excessive Deficient Energy Deployment Charge Amount	02/11/2019	10/29/2018	0.22	0.00	0.00	0.22
Excessive Deficient Energy Deployment Charge Amount	02/12/2019	10/30/2018	(0.16)	0.00	0.00	(0.16)
Excessive Deficient Energy Deployment Charge Amount	02/13/2019	10/31/2018	(0.13)	0.00	0.00	(0.13)
Excessive Deficient Energy Deployment Charge Amount	02/14/2019	11/01/2018	0.10	0.00	0.00	0.10
MVP Distribution Amount	02/13/2019	10/31/2018	48.42	0.00	0.00	48.42
Net Inadvertent Distribution Amount	02/09/2019	10/27/2018	0.02	0.00	0.00	0.02
Net Inadvertent Distribution Amount	02/10/2019	10/28/2018	0.05	0.00	0.00	0.05
Net Inadvertent Distribution Amount	02/12/2019	10/30/2018	(0.10)	0.00	0.00	(0.10)
Net Inadvertent Distribution Amount	02/13/2019	10/31/2018	0.02	0.00	0.00	0.02
Net Inadvertent Distribution Amount	02/14/2019	11/01/2018	(0.01)	0.00	0.00	(0.01)
Net Inadvertent Distribution Amount	02/15/2019	11/02/2018	0.02	0.00	0.00	0.02
Regulation Cost Distribution Amount	02/09/2019	10/27/2018	0.70	0.00	0.00	0.70
Regulation Cost Distribution Amount	02/10/2019	10/28/2018	0.61	0.00	0.00	0.61
Regulation Cost Distribution Amount	02/11/2019	10/29/2018	(0.39)	0.00	0.00	(0.39)
Regulation Cost Distribution Amount	02/12/2019	10/30/2018	0.33	0.00	0.00	0.33
Regulation Cost Distribution Amount	02/13/2019	10/31/2018	0.06	0.00	0.00	0.06
Regulation Cost Distribution Amount	02/14/2019	11/01/2018	(0.94)	0.00	0.00	(0.94)
Regulation Cost Distribution Amount	02/15/2019	11/02/2018	0.34	0.00	0.00	0.34
Revenue Neutrality Uplift Amount	02/09/2019	10/27/2018	259.34	0.00	0.00	259.34
Revenue Neutrality Uplift Amount	02/10/2019	10/28/2018	34.29	0.00	0.00	34.29
Revenue Neutrality Uplift Amount	02/11/2019	10/29/2018	83.41	0.00	0.00	83.41

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589799

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	02/12/2019	10/30/2018	\$199.66	\$0.00	\$0.00	\$199.66
Revenue Neutrality Uplift Amount	02/13/2019	10/31/2018	81.14	0.00	0.00	81.14
Revenue Neutrality Uplift Amount	02/14/2019	11/01/2018	3.81	0.00	0.00	3.81
Revenue Neutrality Uplift Amount	02/15/2019	11/02/2018	(1.49)	0.00	0.00	(1.49)
Revenue Sufficiency Guarantee Distribution Amount	02/11/2019	10/29/2018	0.00	(40.47)	0.00	(40.47)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/09/2019	10/27/2018	(4.87)	0.00	0.00	(4.87)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/10/2019	10/28/2018	(0.03)	0.00	0.00	(0.03)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/11/2019	10/29/2018	(21.01)	0.00	0.00	(21.01)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/12/2019	10/30/2018	4.04	0.00	0.00	4.04
Revenue Sufficiency Guarantee First Pass Dist Amount	02/13/2019	10/31/2018	(2.60)	0.00	0.00	(2.60)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/14/2019	11/01/2018	(13.23)	0.00	0.00	(13.23)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/15/2019	11/02/2018	(12.03)	0.00	0.00	(12.03)
Schedule 24 Distribution Amount	02/09/2019	10/27/2018	0.72	0.00	0.00	0.72
Schedule 24 Distribution Amount	02/10/2019	10/28/2018	0.80	0.00	0.00	0.80
Schedule 24 Distribution Amount	02/12/2019	10/30/2018	0.78	0.00	0.00	0.78
Schedule 24 Distribution Amount	02/13/2019	10/31/2018	(0.02)	0.00	0.00	(0.02)
Schedule 24 Distribution Amount	02/14/2019	11/01/2018	0.58	0.00	0.00	0.58
Schedule 24 Distribution Amount	02/15/2019	11/02/2018	(0.50)	0.00	0.00	(0.50)
Spinning Reserve Cost Distribution Amount	02/09/2019	10/27/2018	(0.12)	0.00	0.00	(0.12)
Spinning Reserve Cost Distribution Amount	02/10/2019	10/28/2018	(0.27)	0.00	0.00	(0.27)
Spinning Reserve Cost Distribution Amount	02/11/2019	10/29/2018	(0.12)	0.00	0.00	(0.12)
Spinning Reserve Cost Distribution Amount	02/12/2019	10/30/2018	(0.13)	0.00	0.00	(0.13)
Spinning Reserve Cost Distribution Amount	02/13/2019	10/31/2018	(0.23)	0.00	0.00	(0.23)
Spinning Reserve Cost Distribution Amount	02/14/2019	11/01/2018	0.50	0.00	0.00	0.50
Supplemental Reserve Cost Distribution Amount	02/11/2019	10/29/2018	0.11	0.00	0.00	0.11
Supplemental Reserve Cost Distribution Amount	02/12/2019	10/30/2018	(0.13)	0.00	0.00	(0.13)
Supplemental Reserve Cost Distribution Amount	02/14/2019	11/01/2018	0.12	0.00	0.00	0.12
Transmission Guarantee Uplift Amount	02/11/2019	10/29/2018	0.00	0.00	(0.33)	(0.33)
Transmission Guarantee Uplift Amount	02/13/2019	10/31/2018	0.00	0.00	0.04	0.04
Transmission Rights Full Funding Guarantee Amount	02/11/2019	10/29/2018	0.00	0.00	0.33	0.33

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589800

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$32,108.65
S14 Prior Period Adjustments:	(6.49)
S55 Prior Period Adjustments:	(14.10)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$32,088.06

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1589800

For Statements Issued: 02/09/2019 - 02/15/2019

Invoice Date: 02/19/2019

Participant ID: MPM

Payment Due Date: 02/26/2019

Invoice Type: Administration Fee Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	02/09/2019	02/02/2019	\$351.16	\$3,870.61	\$0.00	\$4,221.77
Market Administration Amount	02/10/2019	02/03/2019	423.28	3,684.75	0.00	4,108.03
Market Administration Amount	02/11/2019	02/04/2019	618.29	3,877.40	0.00	4,495.69
Market Administration Amount	02/12/2019	02/05/2019	132.17	4,035.29	0.00	4,167.46
Market Administration Amount	02/13/2019	02/06/2019	697.54	4,173.53	0.00	4,871.07
Market Administration Amount	02/14/2019	02/07/2019	1,221.12	4,575.30	0.00	5,796.42
Market Administration Amount	02/15/2019	02/08/2019	155.87	4,087.70	0.00	4,243.57
Transmission Rights Market Administration Amount	02/09/2019	02/02/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/10/2019	02/03/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/11/2019	02/04/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/12/2019	02/05/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/13/2019	02/06/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/14/2019	02/07/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/15/2019	02/08/2019	0.00	0.00	29.60	29.60
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$3,599.43	\$28,304.58	\$204.64	\$32,108.65

MISO MARKET & ADMINISTRATION INVOICE

FEBRUARY 26, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$3,502,073.01
S14 Prior Period Adjustments:	3,099.22
S55 Prior Period Adjustments:	(428.31)
S105 Prior Period Adjustments:	19,619.70
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$3,524,363.62

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	02/16/2019	02/09/2019	(\$6,151.76)	\$598,356.37	\$0.00	\$592,204.61
Asset Energy Amount	02/17/2019	02/10/2019	(9,827.42)	568,303.02	0.00	558,475.60
Asset Energy Amount	02/18/2019	02/11/2019	(30,574.88)	469,502.24	0.00	438,927.36
Asset Energy Amount	02/19/2019	02/12/2019	(26,644.83)	507,482.82	0.00	480,837.99
Asset Energy Amount	02/20/2019	02/13/2019	10,238.74	532,057.77	0.00	542,296.51
Asset Energy Amount	02/21/2019	02/14/2019	6,694.78	401,752.32	0.00	408,447.10
Asset Energy Amount	02/22/2019	02/15/2019	25,173.72	792,938.20	0.00	818,111.92
Distribution of Losses Amount	02/16/2019	02/09/2019	(23,628.45)	0.00	0.00	(23,628.45)
Distribution of Losses Amount	02/17/2019	02/10/2019	(25,252.95)	0.00	0.00	(25,252.95)
Distribution of Losses Amount	02/18/2019	02/11/2019	(30,512.70)	0.00	0.00	(30,512.70)
Distribution of Losses Amount	02/19/2019	02/12/2019	(17,212.17)	0.00	0.00	(17,212.17)
Distribution of Losses Amount	02/20/2019	02/13/2019	(21,893.48)	0.00	0.00	(21,893.48)
Distribution of Losses Amount	02/21/2019	02/14/2019	(18,574.51)	0.00	0.00	(18,574.51)
Distribution of Losses Amount	02/22/2019	02/15/2019	(26,538.18)	0.00	0.00	(26,538.18)
Excessive Deficient Energy Deployment Charge Amount	02/16/2019	02/09/2019	10.85	0.00	0.00	10.85
Excessive Deficient Energy Deployment Charge Amount	02/17/2019	02/10/2019	3.27	0.00	0.00	3.27
Excessive Deficient Energy Deployment Charge Amount	02/18/2019	02/11/2019	38.21	0.00	0.00	38.21
Excessive Deficient Energy Deployment Charge Amount	02/19/2019	02/12/2019	99.95	0.00	0.00	99.95
Excessive Deficient Energy Deployment Charge Amount	02/20/2019	02/13/2019	46.13	0.00	0.00	46.13
Excessive Deficient Energy Deployment Charge Amount	02/21/2019	02/14/2019	39.52	0.00	0.00	39.52
Excessive Deficient Energy Deployment Charge Amount	02/22/2019	02/15/2019	3.32	0.00	0.00	3.32
Excessive Energy Amount	02/16/2019	02/09/2019	14.58	0.00	0.00	14.58
Excessive Energy Amount	02/18/2019	02/11/2019	59.10	0.00	0.00	59.10
Excessive Energy Amount	02/19/2019	02/12/2019	105.95	0.00	0.00	105.95
Excessive Energy Amount	02/20/2019	02/13/2019	751.13	0.00	0.00	751.13
Excessive Energy Amount	02/21/2019	02/14/2019	274.36	0.00	0.00	274.36
Excessive Energy Amount	02/22/2019	02/15/2019	(0.01)	0.00	0.00	(0.01)
Financial Bilateral Transaction Congestion Amount	02/16/2019	02/09/2019	0.00	1,222.70	0.00	1,222.70
Financial Bilateral Transaction Congestion Amount	02/17/2019	02/10/2019	0.00	274.80	0.00	274.80
Financial Bilateral Transaction Congestion Amount	02/18/2019	02/11/2019	0.00	(4,739.70)	0.00	(4,739.70)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/05/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Financial Bilateral Transaction Congestion Amount	02/19/2019	02/12/2019	\$0.00	(\$1,043.50)	\$0.00	(\$1,043.50)
Financial Bilateral Transaction Congestion Amount	02/20/2019	02/13/2019	0.00	(6,560.20)	0.00	(6,560.20)
Financial Bilateral Transaction Congestion Amount	02/21/2019	02/14/2019	0.00	(841.10)	0.00	(841.10)
Financial Bilateral Transaction Congestion Amount	02/22/2019	02/15/2019	0.00	(2,063.90)	0.00	(2,063.90)
Financial Bilateral Transaction Loss Amount	02/16/2019	02/09/2019	0.00	5,725.75	0.00	5,725.75
Financial Bilateral Transaction Loss Amount	02/17/2019	02/10/2019	0.00	4,391.60	0.00	4,391.60
Financial Bilateral Transaction Loss Amount	02/18/2019	02/11/2019	0.00	5,524.60	0.00	5,524.60
Financial Bilateral Transaction Loss Amount	02/19/2019	02/12/2019	0.00	5,950.30	0.00	5,950.30
Financial Bilateral Transaction Loss Amount	02/20/2019	02/13/2019	0.00	5,081.55	0.00	5,081.55
Financial Bilateral Transaction Loss Amount	02/21/2019	02/14/2019	0.00	5,521.30	0.00	5,521.30
Financial Bilateral Transaction Loss Amount	02/22/2019	02/15/2019	0.00	4,677.50	0.00	4,677.50
Net Inadvertent Distribution Amount	02/16/2019	02/09/2019	(452.43)	0.00	0.00	(452.43)
Net Inadvertent Distribution Amount	02/17/2019	02/10/2019	(859.07)	0.00	0.00	(859.07)
Net Inadvertent Distribution Amount	02/18/2019	02/11/2019	(638.70)	0.00	0.00	(638.70)
Net Inadvertent Distribution Amount	02/19/2019	02/12/2019	181.33	0.00	0.00	181.33
Net Inadvertent Distribution Amount	02/20/2019	02/13/2019	(229.80)	0.00	0.00	(229.80)
Net Inadvertent Distribution Amount	02/21/2019	02/14/2019	170.53	0.00	0.00	170.53
Net Inadvertent Distribution Amount	02/22/2019	02/15/2019	(308.64)	0.00	0.00	(308.64)
Net Regulation Adjustment Amount	02/18/2019	02/11/2019	(15.69)	0.00	0.00	(15.69)
Net Regulation Adjustment Amount	02/19/2019	02/12/2019	(25.18)	0.00	0.00	(25.18)
Non-Asset Energy Amount	02/16/2019	02/09/2019	(14,679.78)	(34,004.50)	0.00	(48,684.28)
Non-Asset Energy Amount	02/17/2019	02/10/2019	(9,697.57)	(28,059.00)	0.00	(37,756.57)
Non-Asset Energy Amount	02/18/2019	02/11/2019	(5,123.96)	(24,952.50)	0.00	(30,076.46)
Non-Asset Energy Amount	02/19/2019	02/12/2019	7,467.52	(37,765.75)	0.00	(30,298.23)
Non-Asset Energy Amount	02/20/2019	02/13/2019	15,321.00	(20,203.00)	0.00	(4,882.00)
Non-Asset Energy Amount	02/21/2019	02/14/2019	7,040.47	(26,653.00)	0.00	(19,612.53)
Non-Asset Energy Amount	02/22/2019	02/15/2019	(31,235.82)	(38,151.00)	0.00	(69,386.82)
Non-Excessive Energy Amount	02/16/2019	02/09/2019	(8,519.01)	0.00	0.00	(8,519.01)
Non-Excessive Energy Amount	02/17/2019	02/10/2019	44,437.38	0.00	0.00	44,437.38
Non-Excessive Energy Amount	02/18/2019	02/11/2019	50,227.97	0.00	0.00	50,227.97

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/05/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Non-Excessive Energy Amount	02/19/2019	02/12/2019	(\$2,667.33)	\$0.00	\$0.00	(\$2,667.33)
Non-Excessive Energy Amount	02/20/2019	02/13/2019	(61,194.36)	0.00	0.00	(61,194.36)
Non-Excessive Energy Amount	02/21/2019	02/14/2019	(15,724.76)	0.00	0.00	(15,724.76)
Non-Excessive Energy Amount	02/22/2019	02/15/2019	8,483.78	0.00	0.00	8,483.78
Price Volatility Make Whole Payment Amt	02/22/2019	02/15/2019	(0.04)	0.00	0.00	(0.04)
Ramp Capability Amount	02/16/2019	02/09/2019	0.00	(0.52)	0.00	(0.52)
Ramp Capability Amount	02/18/2019	02/11/2019	0.05	(0.14)	0.00	(0.09)
Ramp Capability Amount	02/19/2019	02/12/2019	0.00	(0.48)	0.00	(0.48)
Regulation Amount	02/16/2019	02/09/2019	(0.05)	0.00	0.00	(0.05)
Regulation Amount	02/18/2019	02/11/2019	(40.30)	0.00	0.00	(40.30)
Regulation Amount	02/19/2019	02/12/2019	(53.62)	0.00	0.00	(53.62)
Regulation Cost Distribution Amount	02/16/2019	02/09/2019	905.38	0.00	0.00	905.38
Regulation Cost Distribution Amount	02/17/2019	02/10/2019	604.11	0.00	0.00	604.11
Regulation Cost Distribution Amount	02/18/2019	02/11/2019	869.54	0.00	0.00	869.54
Regulation Cost Distribution Amount	02/19/2019	02/12/2019	515.84	0.00	0.00	515.84
Regulation Cost Distribution Amount	02/20/2019	02/13/2019	819.35	0.00	0.00	819.35
Regulation Cost Distribution Amount	02/21/2019	02/14/2019	643.35	0.00	0.00	643.35
Regulation Cost Distribution Amount	02/22/2019	02/15/2019	929.45	0.00	0.00	929.45
Resource Adequacy Auction Amount	02/16/2019	02/09/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/17/2019	02/10/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/18/2019	02/11/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/19/2019	02/12/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/20/2019	02/13/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/21/2019	02/14/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/22/2019	02/15/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	02/16/2019	02/09/2019	2,278.22	0.00	0.00	2,278.22
Revenue Neutrality Uplift Amount	02/17/2019	02/10/2019	2,998.31	0.00	0.00	2,998.31
Revenue Neutrality Uplift Amount	02/18/2019	02/11/2019	3,448.90	0.00	0.00	3,448.90
Revenue Neutrality Uplift Amount	02/19/2019	02/12/2019	(313.26)	0.00	0.00	(313.26)
Revenue Neutrality Uplift Amount	02/20/2019	02/13/2019	7,912.03	0.00	0.00	7,912.03

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Revenue Neutrality Uplift Amount	02/21/2019	02/14/2019	\$2,875.37	\$0.00	\$0.00	\$2,875.37
Revenue Neutrality Uplift Amount	02/22/2019	02/15/2019	1,429.51	0.00	0.00	1,429.51
Revenue Sufficiency Guarantee Distribution Amount	02/16/2019	02/09/2019	0.00	245.70	0.00	245.70
Revenue Sufficiency Guarantee Distribution Amount	02/17/2019	02/10/2019	0.00	521.41	0.00	521.41
Revenue Sufficiency Guarantee Distribution Amount	02/18/2019	02/11/2019	0.00	704.60	0.00	704.60
Revenue Sufficiency Guarantee Distribution Amount	02/19/2019	02/12/2019	0.00	526.36	0.00	526.36
Revenue Sufficiency Guarantee Distribution Amount	02/20/2019	02/13/2019	0.00	471.19	0.00	471.19
Revenue Sufficiency Guarantee Distribution Amount	02/21/2019	02/14/2019	0.00	591.96	0.00	591.96
Revenue Sufficiency Guarantee Distribution Amount	02/22/2019	02/15/2019	0.00	479.27	0.00	479.27
Revenue Sufficiency Guarantee First Pass Dist Amount	02/16/2019	02/09/2019	12.78	0.00	0.00	12.78
Revenue Sufficiency Guarantee First Pass Dist Amount	02/17/2019	02/10/2019	704.00	0.00	0.00	704.00
Revenue Sufficiency Guarantee First Pass Dist Amount	02/18/2019	02/11/2019	870.46	0.00	0.00	870.46
Revenue Sufficiency Guarantee First Pass Dist Amount	02/19/2019	02/12/2019	87.47	0.00	0.00	87.47
Revenue Sufficiency Guarantee First Pass Dist Amount	02/20/2019	02/13/2019	132.91	0.00	0.00	132.91
Revenue Sufficiency Guarantee First Pass Dist Amount	02/21/2019	02/14/2019	71.33	0.00	0.00	71.33
Schedule 24 Allocation Amount	02/16/2019	02/09/2019	29.48	660.78	0.00	690.26
Schedule 24 Allocation Amount	02/17/2019	02/10/2019	31.05	636.74	0.00	667.79
Schedule 24 Allocation Amount	02/18/2019	02/11/2019	44.72	668.20	0.00	712.92
Schedule 24 Allocation Amount	02/19/2019	02/12/2019	70.11	630.18	0.00	700.29
Schedule 24 Allocation Amount	02/20/2019	02/13/2019	39.07	598.45	0.00	637.52
Schedule 24 Allocation Amount	02/21/2019	02/14/2019	30.18	658.97	0.00	689.15
Schedule 24 Allocation Amount	02/22/2019	02/15/2019	29.73	606.24	0.00	635.97
Schedule 24 Distribution Amount	02/16/2019	02/09/2019	(5,163.78)	0.00	0.00	(5,163.78)
Schedule 24 Distribution Amount	02/17/2019	02/10/2019	(4,615.45)	0.00	0.00	(4,615.45)
Schedule 24 Distribution Amount	02/18/2019	02/11/2019	(4,858.88)	0.00	0.00	(4,858.88)
Schedule 24 Distribution Amount	02/19/2019	02/12/2019	(5,109.16)	0.00	0.00	(5,109.16)
Schedule 24 Distribution Amount	02/20/2019	02/13/2019	(5,016.39)	0.00	0.00	(5,016.39)
Schedule 24 Distribution Amount	02/21/2019	02/14/2019	(4,979.66)	0.00	0.00	(4,979.66)
Schedule 24 Distribution Amount	02/22/2019	02/15/2019	(5,039.56)	0.00	0.00	(5,039.56)
Spinning Reserve Amount	02/16/2019	02/09/2019	72.41	(845.20)	0.00	(772.79)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Spinning Reserve Amount	02/17/2019	02/10/2019	\$55.95	(\$709.76)	\$0.00	(\$653.81)
Spinning Reserve Amount	02/18/2019	02/11/2019	133.40	(646.84)	0.00	(513.44)
Spinning Reserve Amount	02/19/2019	02/12/2019	158.87	(813.80)	0.00	(654.93)
Spinning Reserve Amount	02/20/2019	02/13/2019	32.21	(465.40)	0.00	(433.19)
Spinning Reserve Amount	02/21/2019	02/14/2019	(38.66)	(337.36)	0.00	(376.02)
Spinning Reserve Amount	02/22/2019	02/15/2019	65.99	(789.04)	0.00	(723.05)
Spinning Reserve Cost Distribution Amount	02/16/2019	02/09/2019	623.77	0.00	0.00	623.77
Spinning Reserve Cost Distribution Amount	02/17/2019	02/10/2019	549.23	0.00	0.00	549.23
Spinning Reserve Cost Distribution Amount	02/18/2019	02/11/2019	534.03	0.00	0.00	534.03
Spinning Reserve Cost Distribution Amount	02/19/2019	02/12/2019	661.34	0.00	0.00	661.34
Spinning Reserve Cost Distribution Amount	02/20/2019	02/13/2019	699.55	0.00	0.00	699.55
Spinning Reserve Cost Distribution Amount	02/21/2019	02/14/2019	591.54	0.00	0.00	591.54
Spinning Reserve Cost Distribution Amount	02/22/2019	02/15/2019	889.75	0.00	0.00	889.75
Supplemental Reserve Amount	02/16/2019	02/09/2019	(0.20)	0.00	0.00	(0.20)
Supplemental Reserve Amount	02/20/2019	02/13/2019	(0.14)	0.00	0.00	(0.14)
Supplemental Reserve Amount	02/21/2019	02/14/2019	(0.54)	0.00	0.00	(0.54)
Supplemental Reserve Cost Distribution Amount	02/16/2019	02/09/2019	98.54	0.00	0.00	98.54
Supplemental Reserve Cost Distribution Amount	02/17/2019	02/10/2019	103.61	0.00	0.00	103.61
Supplemental Reserve Cost Distribution Amount	02/18/2019	02/11/2019	99.20	0.00	0.00	99.20
Supplemental Reserve Cost Distribution Amount	02/19/2019	02/12/2019	100.88	0.00	0.00	100.88
Supplemental Reserve Cost Distribution Amount	02/20/2019	02/13/2019	103.55	0.00	0.00	103.55
Supplemental Reserve Cost Distribution Amount	02/21/2019	02/14/2019	111.87	0.00	0.00	111.87
Supplemental Reserve Cost Distribution Amount	02/22/2019	02/15/2019	117.03	0.00	0.00	117.03
Transmission Guarantee Uplift Amount	02/16/2019	02/09/2019	0.00	0.00	30.10	30.10
Transmission Guarantee Uplift Amount	02/17/2019	02/10/2019	0.00	0.00	42.45	42.45
Transmission Guarantee Uplift Amount	02/18/2019	02/11/2019	0.00	0.00	195.83	195.83
Transmission Guarantee Uplift Amount	02/19/2019	02/12/2019	0.00	0.00	95.00	95.00
Transmission Guarantee Uplift Amount	02/20/2019	02/13/2019	0.00	0.00	5.93	5.93
Transmission Guarantee Uplift Amount	02/21/2019	02/14/2019	0.00	0.00	40.20	40.20
Transmission Guarantee Uplift Amount	02/22/2019	02/15/2019	0.00	0.00	589.88	589.88

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Transmission Rights Full Funding Guarantee Amount	02/16/2019	02/09/2019	\$0.00	\$0.00	(\$30.10)	(\$30.10)
Transmission Rights Full Funding Guarantee Amount	02/17/2019	02/10/2019	0.00	0.00	(42.45)	(42.45)
Transmission Rights Full Funding Guarantee Amount	02/18/2019	02/11/2019	0.00	0.00	(195.83)	(195.83)
Transmission Rights Full Funding Guarantee Amount	02/19/2019	02/12/2019	0.00	0.00	(95.00)	(95.00)
Transmission Rights Full Funding Guarantee Amount	02/20/2019	02/13/2019	0.00	0.00	(5.93)	(5.93)
Transmission Rights Full Funding Guarantee Amount	02/21/2019	02/14/2019	0.00	0.00	(40.20)	(40.20)
Transmission Rights Full Funding Guarantee Amount	02/22/2019	02/15/2019	0.00	0.00	(589.88)	(589.88)
Transmission Rights Hourly Allocation Amount	02/16/2019	02/09/2019	0.00	0.00	(599.21)	(599.21)
Transmission Rights Hourly Allocation Amount	02/17/2019	02/10/2019	0.00	0.00	(361.26)	(361.26)
Transmission Rights Hourly Allocation Amount	02/18/2019	02/11/2019	0.00	0.00	(86.48)	(86.48)
Transmission Rights Hourly Allocation Amount	02/19/2019	02/12/2019	0.00	0.00	7,092.89	7,092.89
Transmission Rights Hourly Allocation Amount	02/20/2019	02/13/2019	0.00	0.00	18,293.28	18,293.28
Transmission Rights Hourly Allocation Amount	02/21/2019	02/14/2019	0.00	0.00	4,661.89	4,661.89
Transmission Rights Hourly Allocation Amount	02/22/2019	02/15/2019	0.00	0.00	(1,624.53)	(1,624.53)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$212,420.77)	\$3,687,117.20	\$27,376.58	\$3,502,073.01



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	02/16/2019	02/02/2019	\$20.58	\$0.00	\$0.00	\$20.58
Asset Energy Amount	02/17/2019	02/03/2019	29.69	0.00	0.00	29.69
Asset Energy Amount	02/18/2019	02/04/2019	31.74	0.00	0.00	31.74
Asset Energy Amount	02/19/2019	02/05/2019	30.42	0.00	0.00	30.42
Asset Energy Amount	02/20/2019	02/06/2019	(261.11)	0.00	0.00	(261.11)
Distribution of Losses Amount	02/16/2019	02/02/2019	(13.34)	0.00	0.00	(13.34)
Distribution of Losses Amount	02/17/2019	02/03/2019	(355.82)	0.00	0.00	(355.82)
Distribution of Losses Amount	02/18/2019	02/04/2019	(255.38)	0.00	0.00	(255.38)
Distribution of Losses Amount	02/19/2019	02/05/2019	705.97	0.00	0.00	705.97
Distribution of Losses Amount	02/20/2019	02/06/2019	(135.23)	0.00	0.00	(135.23)
Distribution of Losses Amount	02/21/2019	02/07/2019	2,967.23	0.00	0.00	2,967.23
Distribution of Losses Amount	02/22/2019	02/08/2019	171.09	0.00	0.00	171.09
Excessive Deficient Energy Deployment Charge Amount	02/16/2019	02/02/2019	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	02/17/2019	02/03/2019	(0.09)	0.00	0.00	(0.09)
Excessive Deficient Energy Deployment Charge Amount	02/20/2019	02/06/2019	3.49	0.00	0.00	3.49
Excessive Deficient Energy Deployment Charge Amount	02/21/2019	02/07/2019	(0.05)	0.00	0.00	(0.05)
Excessive Deficient Energy Deployment Charge Amount	02/22/2019	02/08/2019	(0.04)	0.00	0.00	(0.04)
Excessive Energy Amount	02/20/2019	02/06/2019	(61.03)	0.00	0.00	(61.03)
Net Inadvertent Distribution Amount	02/16/2019	02/02/2019	(0.59)	0.00	0.00	(0.59)
Net Inadvertent Distribution Amount	02/17/2019	02/03/2019	(86.60)	0.00	0.00	(86.60)
Net Inadvertent Distribution Amount	02/18/2019	02/04/2019	(296.54)	0.00	0.00	(296.54)
Net Inadvertent Distribution Amount	02/19/2019	02/05/2019	(81.99)	0.00	0.00	(81.99)
Net Inadvertent Distribution Amount	02/20/2019	02/06/2019	(47.74)	0.00	0.00	(47.74)
Net Inadvertent Distribution Amount	02/21/2019	02/07/2019	1,005.13	0.00	0.00	1,005.13
Net Inadvertent Distribution Amount	02/22/2019	02/08/2019	(199.11)	0.00	0.00	(199.11)
Non-Excessive Energy Amount	02/20/2019	02/06/2019	(123.73)	0.00	0.00	(123.73)
Regulation Cost Distribution Amount	02/16/2019	02/02/2019	0.39	0.00	0.00	0.39
Regulation Cost Distribution Amount	02/17/2019	02/03/2019	1.22	0.00	0.00	1.22
Regulation Cost Distribution Amount	02/18/2019	02/04/2019	0.89	0.00	0.00	0.89
Regulation Cost Distribution Amount	02/19/2019	02/05/2019	0.71	0.00	0.00	0.71

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Regulation Cost Distribution Amount	02/20/2019	02/06/2019	\$0.18	\$0.00	\$0.00	\$0.18
Regulation Cost Distribution Amount	02/21/2019	02/07/2019	(0.88)	0.00	0.00	(0.88)
Regulation Cost Distribution Amount	02/22/2019	02/08/2019	0.11	0.00	0.00	0.11
Revenue Neutrality Uplift Amount	02/16/2019	02/02/2019	39.05	0.00	0.00	39.05
Revenue Neutrality Uplift Amount	02/17/2019	02/03/2019	216.24	0.00	0.00	216.24
Revenue Neutrality Uplift Amount	02/18/2019	02/04/2019	507.57	0.00	0.00	507.57
Revenue Neutrality Uplift Amount	02/19/2019	02/05/2019	63.75	0.00	0.00	63.75
Revenue Neutrality Uplift Amount	02/20/2019	02/06/2019	127.21	0.00	0.00	127.21
Revenue Neutrality Uplift Amount	02/21/2019	02/07/2019	(1,012.06)	0.00	0.00	(1,012.06)
Revenue Neutrality Uplift Amount	02/22/2019	02/08/2019	318.10	0.00	0.00	318.10
Revenue Sufficiency Guarantee Distribution Amount	02/16/2019	02/02/2019	0.00	0.49	0.00	0.49
Revenue Sufficiency Guarantee Distribution Amount	02/17/2019	02/03/2019	0.00	0.65	0.00	0.65
Revenue Sufficiency Guarantee Distribution Amount	02/18/2019	02/04/2019	0.00	0.69	0.00	0.69
Revenue Sufficiency Guarantee Distribution Amount	02/19/2019	02/05/2019	0.00	0.24	0.00	0.24
Revenue Sufficiency Guarantee First Pass Dist Amount	02/16/2019	02/02/2019	(17.10)	0.00	0.00	(17.10)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/17/2019	02/03/2019	(9.66)	0.00	0.00	(9.66)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/18/2019	02/04/2019	(20.05)	0.00	0.00	(20.05)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/19/2019	02/05/2019	(265.04)	0.00	0.00	(265.04)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/20/2019	02/06/2019	82.88	0.00	0.00	82.88
Revenue Sufficiency Guarantee First Pass Dist Amount	02/21/2019	02/07/2019	8.00	0.00	0.00	8.00
Revenue Sufficiency Guarantee First Pass Dist Amount	02/22/2019	02/08/2019	(10.22)	0.00	0.00	(10.22)
Schedule 24 Allocation Amount	02/17/2019	02/03/2019	(0.01)	0.00	0.00	(0.01)
Schedule 24 Allocation Amount	02/18/2019	02/04/2019	(0.03)	0.00	0.00	(0.03)
Schedule 24 Allocation Amount	02/20/2019	02/06/2019	0.12	0.00	0.00	0.12
Schedule 24 Distribution Amount	02/16/2019	02/02/2019	2.04	0.00	0.00	2.04
Schedule 24 Distribution Amount	02/17/2019	02/03/2019	2.60	0.00	0.00	2.60
Schedule 24 Distribution Amount	02/18/2019	02/04/2019	2.04	0.00	0.00	2.04
Schedule 24 Distribution Amount	02/19/2019	02/05/2019	0.30	0.00	0.00	0.30
Schedule 24 Distribution Amount	02/20/2019	02/06/2019	(3.28)	0.00	0.00	(3.28)
Schedule 24 Distribution Amount	02/21/2019	02/07/2019	15.11	0.00	0.00	15.11

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/05/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	02/16/2019	12/23/2018	(\$487.96)	\$0.00	\$0.00	(\$487.96)
Asset Energy Amount	02/17/2019	12/24/2018	(492.66)	0.00	0.00	(492.66)
Asset Energy Amount	02/18/2019	12/25/2018	(533.89)	0.00	0.00	(533.89)
Asset Energy Amount	02/19/2019	12/26/2018	(532.72)	0.00	0.00	(532.72)
Asset Energy Amount	02/20/2019	12/27/2018	(13.79)	0.00	0.00	(13.79)
Asset Energy Amount	02/21/2019	12/28/2018	549.39	0.00	0.00	549.39
Asset Energy Amount	02/22/2019	12/29/2018	(2,923.35)	0.00	0.00	(2,923.35)
Distribution of Losses Amount	02/16/2019	12/23/2018	86.66	0.00	0.00	86.66
Distribution of Losses Amount	02/17/2019	12/24/2018	52.88	0.00	0.00	52.88
Distribution of Losses Amount	02/18/2019	12/25/2018	418.98	0.00	0.00	418.98
Distribution of Losses Amount	02/19/2019	12/26/2018	117.28	0.00	0.00	117.28
Distribution of Losses Amount	02/20/2019	12/27/2018	(19.72)	0.00	0.00	(19.72)
Distribution of Losses Amount	02/21/2019	12/28/2018	38.47	0.00	0.00	38.47
Distribution of Losses Amount	02/22/2019	12/29/2018	(98.20)	0.00	0.00	(98.20)
Excessive Deficient Energy Deployment Charge Amount	02/16/2019	12/23/2018	0.17	0.00	0.00	0.17
Excessive Deficient Energy Deployment Charge Amount	02/17/2019	12/24/2018	0.06	0.00	0.00	0.06
Excessive Deficient Energy Deployment Charge Amount	02/18/2019	12/25/2018	(0.06)	0.00	0.00	(0.06)
Excessive Deficient Energy Deployment Charge Amount	02/19/2019	12/26/2018	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	02/20/2019	12/27/2018	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	02/22/2019	12/29/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	02/16/2019	12/23/2018	(274.40)	0.00	0.00	(274.40)
Net Inadvertent Distribution Amount	02/17/2019	12/24/2018	(240.93)	0.00	0.00	(240.93)
Net Inadvertent Distribution Amount	02/18/2019	12/25/2018	(79.80)	0.00	0.00	(79.80)
Net Inadvertent Distribution Amount	02/19/2019	12/26/2018	(231.41)	0.00	0.00	(231.41)
Net Inadvertent Distribution Amount	02/20/2019	12/27/2018	(281.25)	0.00	0.00	(281.25)
Net Inadvertent Distribution Amount	02/21/2019	12/28/2018	(248.02)	0.00	0.00	(248.02)
Net Inadvertent Distribution Amount	02/22/2019	12/29/2018	(350.60)	0.00	0.00	(350.60)
Non-Asset Energy Amount	02/21/2019	12/28/2018	198.40	0.00	0.00	198.40
Non-Asset Energy Amount	02/22/2019	12/29/2018	2,459.94	0.00	0.00	2,459.94
Regulation Cost Distribution Amount	02/16/2019	12/23/2018	(0.57)	0.00	0.00	(0.57)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Regulation Cost Distribution Amount	02/17/2019	12/24/2018	\$0.72	\$0.00	\$0.00	\$0.72
Regulation Cost Distribution Amount	02/18/2019	12/25/2018	(0.34)	0.00	0.00	(0.34)
Regulation Cost Distribution Amount	02/19/2019	12/26/2018	(0.74)	0.00	0.00	(0.74)
Regulation Cost Distribution Amount	02/20/2019	12/27/2018	0.63	0.00	0.00	0.63
Regulation Cost Distribution Amount	02/21/2019	12/28/2018	1.81	0.00	0.00	1.81
Regulation Cost Distribution Amount	02/22/2019	12/29/2018	(2.66)	0.00	0.00	(2.66)
Revenue Neutrality Uplift Amount	02/16/2019	12/23/2018	342.51	0.00	0.00	342.51
Revenue Neutrality Uplift Amount	02/17/2019	12/24/2018	396.05	0.00	0.00	396.05
Revenue Neutrality Uplift Amount	02/18/2019	12/25/2018	116.82	0.00	0.00	116.82
Revenue Neutrality Uplift Amount	02/19/2019	12/26/2018	326.27	0.00	0.00	326.27
Revenue Neutrality Uplift Amount	02/20/2019	12/27/2018	389.39	0.00	0.00	389.39
Revenue Neutrality Uplift Amount	02/21/2019	12/28/2018	366.83	0.00	0.00	366.83
Revenue Neutrality Uplift Amount	02/22/2019	12/29/2018	498.05	0.00	0.00	498.05
Revenue Sufficiency Guarantee Distribution Amount	02/21/2019	12/28/2018	0.00	10.26	0.00	10.26
Revenue Sufficiency Guarantee First Pass Dist Amount	02/16/2019	12/23/2018	6.84	0.00	0.00	6.84
Revenue Sufficiency Guarantee First Pass Dist Amount	02/17/2019	12/24/2018	0.05	0.00	0.00	0.05
Revenue Sufficiency Guarantee First Pass Dist Amount	02/20/2019	12/27/2018	1.57	0.00	0.00	1.57
Revenue Sufficiency Guarantee First Pass Dist Amount	02/21/2019	12/28/2018	0.37	0.00	0.00	0.37
Revenue Sufficiency Guarantee First Pass Dist Amount	02/22/2019	12/29/2018	0.29	0.00	0.00	0.29
Schedule 24 Allocation Amount	02/16/2019	12/23/2018	(0.24)	0.00	0.00	(0.24)
Schedule 24 Allocation Amount	02/17/2019	12/24/2018	(0.24)	0.00	0.00	(0.24)
Schedule 24 Allocation Amount	02/18/2019	12/25/2018	0.10	0.00	0.00	0.10
Schedule 24 Allocation Amount	02/19/2019	12/26/2018	(0.29)	0.00	0.00	(0.29)
Schedule 24 Allocation Amount	02/20/2019	12/27/2018	0.01	0.00	0.00	0.01
Schedule 24 Allocation Amount	02/21/2019	12/28/2018	0.29	0.00	0.00	0.29
Schedule 24 Allocation Amount	02/22/2019	12/29/2018	(0.64)	0.00	0.00	(0.64)
Schedule 24 Distribution Amount	02/16/2019	12/23/2018	(0.23)	0.00	0.00	(0.23)
Schedule 24 Distribution Amount	02/17/2019	12/24/2018	2.14	0.00	0.00	2.14
Schedule 24 Distribution Amount	02/18/2019	12/25/2018	4.23	0.00	0.00	4.23
Schedule 24 Distribution Amount	02/19/2019	12/26/2018	4.57	0.00	0.00	4.57

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Distribution Amount	02/20/2019	12/27/2018	\$0.19	\$0.00	\$0.00	\$0.19
Schedule 24 Distribution Amount	02/21/2019	12/28/2018	(0.57)	0.00	0.00	(0.57)
Schedule 24 Distribution Amount	02/22/2019	12/29/2018	(1.93)	0.00	0.00	(1.93)
Spinning Reserve Cost Distribution Amount	02/16/2019	12/23/2018	(0.34)	0.00	0.00	(0.34)
Spinning Reserve Cost Distribution Amount	02/17/2019	12/24/2018	(0.26)	0.00	0.00	(0.26)
Spinning Reserve Cost Distribution Amount	02/18/2019	12/25/2018	(0.12)	0.00	0.00	(0.12)
Spinning Reserve Cost Distribution Amount	02/19/2019	12/26/2018	(0.16)	0.00	0.00	(0.16)
Spinning Reserve Cost Distribution Amount	02/20/2019	12/27/2018	0.09	0.00	0.00	0.09
Spinning Reserve Cost Distribution Amount	02/21/2019	12/28/2018	0.65	0.00	0.00	0.65
Spinning Reserve Cost Distribution Amount	02/22/2019	12/29/2018	(2.71)	0.00	0.00	(2.71)
Supplemental Reserve Cost Distribution Amount	02/16/2019	12/23/2018	0.02	0.00	0.00	0.02
Supplemental Reserve Cost Distribution Amount	02/17/2019	12/24/2018	(0.01)	0.00	0.00	(0.01)
Supplemental Reserve Cost Distribution Amount	02/18/2019	12/25/2018	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/19/2019	12/26/2018	(0.14)	0.00	0.00	(0.14)
Supplemental Reserve Cost Distribution Amount	02/20/2019	12/27/2018	(0.01)	0.00	0.00	(0.01)
Supplemental Reserve Cost Distribution Amount	02/21/2019	12/28/2018	0.11	0.00	0.00	0.11
Supplemental Reserve Cost Distribution Amount	02/22/2019	12/29/2018	(0.38)	0.00	0.00	(0.38)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$438.57)	\$10.26	\$0.00	(\$428.31)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	02/16/2019	11/03/2018	(\$6.87)	\$0.00	\$0.00	(\$6.87)
Distribution of Losses Amount	02/17/2019	11/04/2018	(47.85)	0.00	0.00	(47.85)
Distribution of Losses Amount	02/18/2019	11/05/2018	8.40	0.00	0.00	8.40
Distribution of Losses Amount	02/19/2019	11/06/2018	(58.27)	0.00	0.00	(58.27)
Distribution of Losses Amount	02/20/2019	11/07/2018	(14.72)	0.00	0.00	(14.72)
Distribution of Losses Amount	02/21/2019	11/08/2018	(4.21)	0.00	0.00	(4.21)
Distribution of Losses Amount	02/22/2019	11/09/2018	(51.38)	0.00	0.00	(51.38)
Excessive Deficient Energy Deployment Charge Amount	02/16/2019	11/03/2018	(0.02)	0.00	0.00	(0.02)
Excessive Deficient Energy Deployment Charge Amount	02/17/2019	11/04/2018	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	02/19/2019	11/06/2018	(0.27)	0.00	0.00	(0.27)
Excessive Deficient Energy Deployment Charge Amount	02/20/2019	11/07/2018	(0.28)	0.00	0.00	(0.28)
Excessive Deficient Energy Deployment Charge Amount	02/21/2019	11/08/2018	(0.03)	0.00	0.00	(0.03)
Excessive Deficient Energy Deployment Charge Amount	02/22/2019	11/09/2018	(0.16)	0.00	0.00	(0.16)
Miscellaneous Amount	02/20/2019	11/07/2018	(64.54)	0.00	0.00	(64.54)
Net Inadvertent Distribution Amount	02/17/2019	11/04/2018	(43.92)	0.00	0.00	(43.92)
Net Inadvertent Distribution Amount	02/18/2019	11/05/2018	12.59	0.00	0.00	12.59
Net Inadvertent Distribution Amount	02/19/2019	11/06/2018	0.03	0.00	0.00	0.03
Net Inadvertent Distribution Amount	02/20/2019	11/07/2018	14.36	0.00	0.00	14.36
Net Inadvertent Distribution Amount	02/21/2019	11/08/2018	0.08	0.00	0.00	0.08
Net Inadvertent Distribution Amount	02/22/2019	11/09/2018	(0.69)	0.00	0.00	(0.69)
Regulation Cost Distribution Amount	02/16/2019	11/03/2018	(0.46)	0.00	0.00	(0.46)
Regulation Cost Distribution Amount	02/17/2019	11/04/2018	0.01	0.00	0.00	0.01
Regulation Cost Distribution Amount	02/18/2019	11/05/2018	(0.29)	0.00	0.00	(0.29)
Regulation Cost Distribution Amount	02/19/2019	11/06/2018	0.28	0.00	0.00	0.28
Regulation Cost Distribution Amount	02/20/2019	11/07/2018	0.40	0.00	0.00	0.40
Regulation Cost Distribution Amount	02/21/2019	11/08/2018	0.45	0.00	0.00	0.45
Regulation Cost Distribution Amount	02/22/2019	11/09/2018	(0.21)	0.00	0.00	(0.21)
Revenue Neutrality Uplift Amount	02/16/2019	11/03/2018	(5.70)	0.00	0.00	(5.70)
Revenue Neutrality Uplift Amount	02/17/2019	11/04/2018	69.11	0.00	0.00	69.11
Revenue Neutrality Uplift Amount	02/18/2019	11/05/2018	2,873.17	0.00	0.00	2,873.17

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590740

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	02/19/2019	11/06/2018	\$17,127.98	\$0.00	\$0.00	\$17,127.98
Revenue Neutrality Uplift Amount	02/20/2019	11/07/2018	(72.19)	0.00	0.00	(72.19)
Revenue Neutrality Uplift Amount	02/21/2019	11/08/2018	6.28	0.00	0.00	6.28
Revenue Neutrality Uplift Amount	02/22/2019	11/09/2018	(66.43)	0.00	0.00	(66.43)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/16/2019	11/03/2018	(8.79)	0.00	0.00	(8.79)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/18/2019	11/05/2018	(2.14)	0.00	0.00	(2.14)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/19/2019	11/06/2018	0.93	0.00	0.00	0.93
Revenue Sufficiency Guarantee First Pass Dist Amount	02/20/2019	11/07/2018	(25.38)	0.00	0.00	(25.38)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/21/2019	11/08/2018	(22.31)	0.00	0.00	(22.31)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/22/2019	11/09/2018	7.33	0.00	0.00	7.33
Schedule 24 Distribution Amount	02/16/2019	11/03/2018	(0.31)	0.00	0.00	(0.31)
Schedule 24 Distribution Amount	02/17/2019	11/04/2018	(0.01)	0.00	0.00	(0.01)
Schedule 24 Distribution Amount	02/18/2019	11/05/2018	0.45	0.00	0.00	0.45
Schedule 24 Distribution Amount	02/19/2019	11/06/2018	0.24	0.00	0.00	0.24
Schedule 24 Distribution Amount	02/20/2019	11/07/2018	(0.98)	0.00	0.00	(0.98)
Schedule 24 Distribution Amount	02/21/2019	11/08/2018	(0.32)	0.00	0.00	(0.32)
Schedule 24 Distribution Amount	02/22/2019	11/09/2018	0.06	0.00	0.00	0.06
Spinning Reserve Cost Distribution Amount	02/16/2019	11/03/2018	(0.37)	0.00	0.00	(0.37)
Spinning Reserve Cost Distribution Amount	02/17/2019	11/04/2018	(0.50)	0.00	0.00	(0.50)
Spinning Reserve Cost Distribution Amount	02/18/2019	11/05/2018	(0.14)	0.00	0.00	(0.14)
Spinning Reserve Cost Distribution Amount	02/19/2019	11/06/2018	(0.75)	0.00	0.00	(0.75)
Spinning Reserve Cost Distribution Amount	02/20/2019	11/07/2018	(0.88)	0.00	0.00	(0.88)
Spinning Reserve Cost Distribution Amount	02/21/2019	11/08/2018	(0.13)	0.00	0.00	(0.13)
Spinning Reserve Cost Distribution Amount	02/22/2019	11/09/2018	(0.70)	0.00	0.00	(0.70)
Supplemental Reserve Cost Distribution Amount	02/17/2019	11/04/2018	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/18/2019	11/05/2018	0.13	0.00	0.00	0.13
Supplemental Reserve Cost Distribution Amount	02/19/2019	11/06/2018	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/20/2019	11/07/2018	(0.13)	0.00	0.00	(0.13)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$19,619.70	\$0.00	\$0.00	\$19,619.70



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590741

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$29,462.00
S14 Prior Period Adjustments:	0.75
S55 Prior Period Adjustments:	(6.63)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$29,456.12

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1590741

For Statements Issued: 02/16/2019 - 02/22/2019

Invoice Date: 02/26/2019

Participant ID: MPM

Payment Due Date: 03/05/2019

Invoice Type: Administration Fee Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	02/16/2019	02/09/2019	\$182.12	\$4,083.88	\$0.00	\$4,266.00
Market Administration Amount	02/17/2019	02/10/2019	191.87	3,935.50	0.00	4,127.37
Market Administration Amount	02/18/2019	02/11/2019	276.46	4,129.74	0.00	4,406.20
Market Administration Amount	02/19/2019	02/12/2019	433.05	3,894.75	0.00	4,327.80
Market Administration Amount	02/20/2019	02/13/2019	241.58	3,698.70	0.00	3,940.28
Market Administration Amount	02/21/2019	02/14/2019	186.47	4,072.74	0.00	4,259.21
Market Administration Amount	02/22/2019	02/15/2019	183.72	3,746.78	0.00	3,930.50
Transmission Rights Market Administration Amount	02/16/2019	02/09/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/17/2019	02/10/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/18/2019	02/11/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/19/2019	02/12/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/20/2019	02/13/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/21/2019	02/14/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/22/2019	02/15/2019	0.00	0.00	29.60	29.60
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$1,695.27	\$27,562.09	\$204.64	\$29,462.00

MISO MARKET & ADMINISTRATION INVOICE

March 05, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$4,247,381.54
S14 Prior Period Adjustments:	310.41
S55 Prior Period Adjustments:	37,295.55
S105 Prior Period Adjustments:	(2,053.70)
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$4,282,933.80

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/12/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	02/23/2019	02/16/2019	\$23,083.82	\$655,307.26	\$0.00	\$678,391.08
Asset Energy Amount	02/24/2019	02/17/2019	(28,945.54)	600,011.86	0.00	571,066.32
Asset Energy Amount	02/25/2019	02/18/2019	(30,709.49)	952,738.93	0.00	922,029.44
Asset Energy Amount	02/26/2019	02/19/2019	14,807.11	665,430.36	0.00	680,237.47
Asset Energy Amount	02/27/2019	02/20/2019	(6,507.96)	629,666.25	0.00	623,158.29
Asset Energy Amount	02/28/2019	02/21/2019	(20,213.57)	647,790.05	0.00	627,576.48
Asset Energy Amount	03/01/2019	02/22/2019	8,274.16	592,739.72	0.00	601,013.88
Distribution of Losses Amount	02/23/2019	02/16/2019	(25,505.16)	0.00	0.00	(25,505.16)
Distribution of Losses Amount	02/24/2019	02/17/2019	(15,142.64)	0.00	0.00	(15,142.64)
Distribution of Losses Amount	02/25/2019	02/18/2019	(28,167.19)	0.00	0.00	(28,167.19)
Distribution of Losses Amount	02/26/2019	02/19/2019	(20,108.03)	0.00	0.00	(20,108.03)
Distribution of Losses Amount	02/27/2019	02/20/2019	(15,520.05)	0.00	0.00	(15,520.05)
Distribution of Losses Amount	02/28/2019	02/21/2019	(20,649.77)	0.00	0.00	(20,649.77)
Distribution of Losses Amount	03/01/2019	02/22/2019	(19,354.01)	0.00	0.00	(19,354.01)
Excessive Deficient Energy Deployment Charge Amount	02/23/2019	02/16/2019	16.22	0.00	0.00	16.22
Excessive Deficient Energy Deployment Charge Amount	02/24/2019	02/17/2019	46.57	0.00	0.00	46.57
Excessive Deficient Energy Deployment Charge Amount	02/25/2019	02/18/2019	0.54	0.00	0.00	0.54
Excessive Deficient Energy Deployment Charge Amount	02/26/2019	02/19/2019	49.55	0.00	0.00	49.55
Excessive Deficient Energy Deployment Charge Amount	02/27/2019	02/20/2019	53.74	0.00	0.00	53.74
Excessive Deficient Energy Deployment Charge Amount	02/28/2019	02/21/2019	29.90	0.00	0.00	29.90
Excessive Deficient Energy Deployment Charge Amount	03/01/2019	02/22/2019	72.11	0.00	0.00	72.11
Excessive Energy Amount	02/24/2019	02/17/2019	24.44	0.00	0.00	24.44
Excessive Energy Amount	02/27/2019	02/20/2019	8.13	0.00	0.00	8.13
Excessive Energy Amount	02/28/2019	02/21/2019	63.40	0.00	0.00	63.40
Excessive Energy Amount	03/01/2019	02/22/2019	366.10	0.00	0.00	366.10
Financial Bilateral Transaction Congestion Amount	02/23/2019	02/16/2019	0.00	(5,167.60)	0.00	(5,167.60)
Financial Bilateral Transaction Congestion Amount	02/24/2019	02/17/2019	0.00	2,730.45	0.00	2,730.45
Financial Bilateral Transaction Congestion Amount	02/25/2019	02/18/2019	0.00	(19,670.60)	0.00	(19,670.60)
Financial Bilateral Transaction Congestion Amount	02/26/2019	02/19/2019	0.00	(9,654.95)	0.00	(9,654.95)
Financial Bilateral Transaction Congestion Amount	02/27/2019	02/20/2019	0.00	(14,746.00)	0.00	(14,746.00)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Financial Bilateral Transaction Congestion Amount	02/28/2019	02/21/2019	\$0.00	(\$21,230.15)	\$0.00	(\$21,230.15)
Financial Bilateral Transaction Congestion Amount	03/01/2019	02/22/2019	0.00	37,171.50	0.00	37,171.50
Financial Bilateral Transaction Loss Amount	02/23/2019	02/16/2019	0.00	4,263.50	0.00	4,263.50
Financial Bilateral Transaction Loss Amount	02/24/2019	02/17/2019	0.00	4,008.85	0.00	4,008.85
Financial Bilateral Transaction Loss Amount	02/25/2019	02/18/2019	0.00	3,267.85	0.00	3,267.85
Financial Bilateral Transaction Loss Amount	02/26/2019	02/19/2019	0.00	2,653.85	0.00	2,653.85
Financial Bilateral Transaction Loss Amount	02/27/2019	02/20/2019	0.00	1,131.55	0.00	1,131.55
Financial Bilateral Transaction Loss Amount	02/28/2019	02/21/2019	0.00	1,446.00	0.00	1,446.00
Financial Bilateral Transaction Loss Amount	03/01/2019	02/22/2019	0.00	5,404.85	0.00	5,404.85
Net Inadvertent Distribution Amount	02/23/2019	02/16/2019	(198.71)	0.00	0.00	(198.71)
Net Inadvertent Distribution Amount	02/24/2019	02/17/2019	(514.45)	0.00	0.00	(514.45)
Net Inadvertent Distribution Amount	02/25/2019	02/18/2019	(809.50)	0.00	0.00	(809.50)
Net Inadvertent Distribution Amount	02/26/2019	02/19/2019	512.67	0.00	0.00	512.67
Net Inadvertent Distribution Amount	02/27/2019	02/20/2019	95.94	0.00	0.00	95.94
Net Inadvertent Distribution Amount	02/28/2019	02/21/2019	(223.76)	0.00	0.00	(223.76)
Net Inadvertent Distribution Amount	03/01/2019	02/22/2019	(272.33)	0.00	0.00	(272.33)
Net Regulation Adjustment Amount	02/24/2019	02/17/2019	(7.70)	0.00	0.00	(7.70)
Net Regulation Adjustment Amount	02/26/2019	02/19/2019	(12.97)	0.00	0.00	(12.97)
Net Regulation Adjustment Amount	02/27/2019	02/20/2019	(29.10)	0.00	0.00	(29.10)
Net Regulation Adjustment Amount	02/28/2019	02/21/2019	(14.66)	0.00	0.00	(14.66)
Net Regulation Adjustment Amount	03/01/2019	02/22/2019	(35.43)	0.00	0.00	(35.43)
Non-Asset Energy Amount	02/23/2019	02/16/2019	(6,595.82)	(20,634.50)	0.00	(27,230.32)
Non-Asset Energy Amount	02/24/2019	02/17/2019	(8,941.19)	(30,832.00)	0.00	(39,773.19)
Non-Asset Energy Amount	02/25/2019	02/18/2019	3,928.89	(29,407.50)	0.00	(25,478.61)
Non-Asset Energy Amount	02/26/2019	02/19/2019	(5,039.75)	(45,414.00)	0.00	(50,453.75)
Non-Asset Energy Amount	02/27/2019	02/20/2019	3,052.79	(21,657.00)	0.00	(18,604.21)
Non-Asset Energy Amount	02/28/2019	02/21/2019	(6,602.47)	(16,714.00)	0.00	(23,316.47)
Non-Asset Energy Amount	03/01/2019	02/22/2019	(9,735.50)	(24,874.00)	0.00	(34,609.50)
Non-Excessive Energy Amount	02/23/2019	02/16/2019	(114,278.86)	0.00	0.00	(114,278.86)
Non-Excessive Energy Amount	02/24/2019	02/17/2019	56,737.58	0.00	0.00	56,737.58

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/12/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Non-Excessive Energy Amount	02/25/2019	02/18/2019	(\$24,042.85)	\$0.00	\$0.00	(\$24,042.85)
Non-Excessive Energy Amount	02/26/2019	02/19/2019	(5,402.67)	0.00	0.00	(5,402.67)
Non-Excessive Energy Amount	02/27/2019	02/20/2019	(7,035.60)	0.00	0.00	(7,035.60)
Non-Excessive Energy Amount	02/28/2019	02/21/2019	(5,073.63)	0.00	0.00	(5,073.63)
Non-Excessive Energy Amount	03/01/2019	02/22/2019	(9,449.44)	0.00	0.00	(9,449.44)
Price Volatility Make Whole Payment Amt	02/24/2019	02/17/2019	(2.87)	0.00	0.00	(2.87)
Regulation Amount	02/23/2019	02/16/2019	(0.26)	0.00	0.00	(0.26)
Regulation Amount	02/24/2019	02/17/2019	(17.82)	0.00	0.00	(17.82)
Regulation Amount	02/26/2019	02/19/2019	(48.94)	0.00	0.00	(48.94)
Regulation Amount	02/27/2019	02/20/2019	(20.29)	(48.94)	0.00	(69.23)
Regulation Amount	02/28/2019	02/21/2019	(3.30)	(48.21)	0.00	(51.51)
Regulation Amount	03/01/2019	02/22/2019	(25.54)	(43.65)	0.00	(69.19)
Regulation Cost Distribution Amount	02/23/2019	02/16/2019	942.27	0.00	0.00	942.27
Regulation Cost Distribution Amount	02/24/2019	02/17/2019	973.17	0.00	0.00	973.17
Regulation Cost Distribution Amount	02/25/2019	02/18/2019	1,007.35	0.00	0.00	1,007.35
Regulation Cost Distribution Amount	02/26/2019	02/19/2019	714.66	0.00	0.00	714.66
Regulation Cost Distribution Amount	02/27/2019	02/20/2019	579.05	0.00	0.00	579.05
Regulation Cost Distribution Amount	02/28/2019	02/21/2019	705.42	0.00	0.00	705.42
Regulation Cost Distribution Amount	03/01/2019	02/22/2019	580.19	0.00	0.00	580.19
Resource Adequacy Auction Amount	02/23/2019	02/16/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/24/2019	02/17/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/25/2019	02/18/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/26/2019	02/19/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/27/2019	02/20/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	02/28/2019	02/21/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/01/2019	02/22/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	02/23/2019	02/16/2019	1,550.82	0.00	0.00	1,550.82
Revenue Neutrality Uplift Amount	02/24/2019	02/17/2019	351.03	0.00	0.00	351.03
Revenue Neutrality Uplift Amount	02/25/2019	02/18/2019	8,713.33	0.00	0.00	8,713.33
Revenue Neutrality Uplift Amount	02/26/2019	02/19/2019	4,069.73	0.00	0.00	4,069.73

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Revenue Neutrality Uplift Amount	02/27/2019	02/20/2019	(\$2,301.43)	\$0.00	\$0.00	(\$2,301.43)
Revenue Neutrality Uplift Amount	02/28/2019	02/21/2019	1,352.60	0.00	0.00	1,352.60
Revenue Neutrality Uplift Amount	03/01/2019	02/22/2019	782.68	0.00	0.00	782.68
Revenue Sufficiency Guarantee Distribution Amount	02/23/2019	02/16/2019	0.00	698.07	0.00	698.07
Revenue Sufficiency Guarantee Distribution Amount	02/24/2019	02/17/2019	0.00	1,619.27	0.00	1,619.27
Revenue Sufficiency Guarantee Distribution Amount	02/25/2019	02/18/2019	0.00	1,418.23	0.00	1,418.23
Revenue Sufficiency Guarantee Distribution Amount	02/26/2019	02/19/2019	0.00	420.26	0.00	420.26
Revenue Sufficiency Guarantee Distribution Amount	02/27/2019	02/20/2019	0.00	1,164.14	0.00	1,164.14
Revenue Sufficiency Guarantee Distribution Amount	02/28/2019	02/21/2019	0.00	1,230.71	0.00	1,230.71
Revenue Sufficiency Guarantee Distribution Amount	03/01/2019	02/22/2019	0.00	908.53	0.00	908.53
Revenue Sufficiency Guarantee First Pass Dist Amount	02/23/2019	02/16/2019	37.79	0.00	0.00	37.79
Revenue Sufficiency Guarantee First Pass Dist Amount	02/25/2019	02/18/2019	911.66	0.00	0.00	911.66
Revenue Sufficiency Guarantee First Pass Dist Amount	02/26/2019	02/19/2019	1,911.83	0.00	0.00	1,911.83
Revenue Sufficiency Guarantee First Pass Dist Amount	02/27/2019	02/20/2019	173.79	0.00	0.00	173.79
Revenue Sufficiency Guarantee First Pass Dist Amount	02/28/2019	02/21/2019	362.92	0.00	0.00	362.92
Revenue Sufficiency Guarantee First Pass Dist Amount	03/01/2019	02/22/2019	263.88	0.00	0.00	263.88
Schedule 24 Allocation Amount	02/23/2019	02/16/2019	75.77	594.21	0.00	669.98
Schedule 24 Allocation Amount	02/24/2019	02/17/2019	54.28	629.87	0.00	684.15
Schedule 24 Allocation Amount	02/25/2019	02/18/2019	23.89	569.98	0.00	593.87
Schedule 24 Allocation Amount	02/26/2019	02/19/2019	39.17	635.61	0.00	674.78
Schedule 24 Allocation Amount	02/27/2019	02/20/2019	24.95	597.38	0.00	622.33
Schedule 24 Allocation Amount	02/28/2019	02/21/2019	23.21	592.05	0.00	615.26
Schedule 24 Allocation Amount	03/01/2019	02/22/2019	18.88	535.76	0.00	554.64
Schedule 24 Distribution Amount	02/23/2019	02/16/2019	(4,558.36)	0.00	0.00	(4,558.36)
Schedule 24 Distribution Amount	02/24/2019	02/17/2019	(4,396.24)	0.00	0.00	(4,396.24)
Schedule 24 Distribution Amount	02/25/2019	02/18/2019	(4,840.52)	0.00	0.00	(4,840.52)
Schedule 24 Distribution Amount	02/26/2019	02/19/2019	(4,954.27)	0.00	0.00	(4,954.27)
Schedule 24 Distribution Amount	02/27/2019	02/20/2019	(4,992.08)	0.00	0.00	(4,992.08)
Schedule 24 Distribution Amount	02/28/2019	02/21/2019	(4,799.74)	0.00	0.00	(4,799.74)
Schedule 24 Distribution Amount	03/01/2019	02/22/2019	(4,707.34)	0.00	0.00	(4,707.34)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Spinning Reserve Amount	02/23/2019	02/16/2019	(\$15.89)	(\$547.52)	\$0.00	(\$563.41)
Spinning Reserve Amount	02/24/2019	02/17/2019	113.56	(565.44)	0.00	(451.88)
Spinning Reserve Amount	02/25/2019	02/18/2019	(16.17)	(853.42)	0.00	(869.59)
Spinning Reserve Amount	02/26/2019	02/19/2019	87.49	(790.92)	0.00	(703.43)
Spinning Reserve Amount	02/27/2019	02/20/2019	(88.88)	(816.68)	0.00	(905.56)
Spinning Reserve Amount	02/28/2019	02/21/2019	(8.37)	(838.26)	0.00	(846.63)
Spinning Reserve Amount	03/01/2019	02/22/2019	3.35	(669.26)	0.00	(665.91)
Spinning Reserve Cost Distribution Amount	02/23/2019	02/16/2019	649.03	0.00	0.00	649.03
Spinning Reserve Cost Distribution Amount	02/24/2019	02/17/2019	549.21	0.00	0.00	549.21
Spinning Reserve Cost Distribution Amount	02/25/2019	02/18/2019	948.83	0.00	0.00	948.83
Spinning Reserve Cost Distribution Amount	02/26/2019	02/19/2019	820.19	0.00	0.00	820.19
Spinning Reserve Cost Distribution Amount	02/27/2019	02/20/2019	726.87	0.00	0.00	726.87
Spinning Reserve Cost Distribution Amount	02/28/2019	02/21/2019	754.40	0.00	0.00	754.40
Spinning Reserve Cost Distribution Amount	03/01/2019	02/22/2019	600.29	0.00	0.00	600.29
Supplemental Reserve Amount	02/26/2019	02/19/2019	(0.39)	0.00	0.00	(0.39)
Supplemental Reserve Amount	02/27/2019	02/20/2019	(0.02)	0.00	0.00	(0.02)
Supplemental Reserve Amount	02/28/2019	02/21/2019	(1.74)	0.00	0.00	(1.74)
Supplemental Reserve Cost Distribution Amount	02/23/2019	02/16/2019	114.39	0.00	0.00	114.39
Supplemental Reserve Cost Distribution Amount	02/24/2019	02/17/2019	105.72	0.00	0.00	105.72
Supplemental Reserve Cost Distribution Amount	02/25/2019	02/18/2019	105.18	0.00	0.00	105.18
Supplemental Reserve Cost Distribution Amount	02/26/2019	02/19/2019	207.95	0.00	0.00	207.95
Supplemental Reserve Cost Distribution Amount	02/27/2019	02/20/2019	128.12	0.00	0.00	128.12
Supplemental Reserve Cost Distribution Amount	02/28/2019	02/21/2019	104.59	0.00	0.00	104.59
Supplemental Reserve Cost Distribution Amount	03/01/2019	02/22/2019	113.61	0.00	0.00	113.61
Transmission Guarantee Uplift Amount	02/23/2019	02/16/2019	0.00	0.00	0.09	0.09
Transmission Guarantee Uplift Amount	02/26/2019	02/19/2019	0.00	0.00	143.75	143.75
Transmission Guarantee Uplift Amount	02/27/2019	02/20/2019	0.00	0.00	37.87	37.87
Transmission Guarantee Uplift Amount	02/28/2019	02/21/2019	0.00	0.00	36.74	36.74
Transmission Guarantee Uplift Amount	03/01/2019	02/22/2019	0.00	0.00	688.23	688.23
Transmission Rights Full Funding Guarantee Amount	02/23/2019	02/16/2019	0.00	0.00	(0.09)	(0.09)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Transmission Rights Full Funding Guarantee Amount	02/26/2019	02/19/2019	\$0.00	\$0.00	(\$143.75)	(\$143.75)
Transmission Rights Full Funding Guarantee Amount	02/27/2019	02/20/2019	0.00	0.00	(37.87)	(37.87)
Transmission Rights Full Funding Guarantee Amount	02/28/2019	02/21/2019	0.00	0.00	(36.74)	(36.74)
Transmission Rights Full Funding Guarantee Amount	03/01/2019	02/22/2019	0.00	0.00	(688.23)	(688.23)
Transmission Rights Hourly Allocation Amount	02/23/2019	02/16/2019	0.00	0.00	9,302.35	9,302.35
Transmission Rights Hourly Allocation Amount	02/24/2019	02/17/2019	0.00	0.00	(4,852.25)	(4,852.25)
Transmission Rights Hourly Allocation Amount	02/25/2019	02/18/2019	0.00	0.00	5,582.21	5,582.21
Transmission Rights Hourly Allocation Amount	02/26/2019	02/19/2019	0.00	0.00	(10,715.45)	(10,715.45)
Transmission Rights Hourly Allocation Amount	02/27/2019	02/20/2019	0.00	0.00	13,260.16	13,260.16
Transmission Rights Hourly Allocation Amount	02/28/2019	02/21/2019	0.00	0.00	11,218.97	11,218.97
Transmission Rights Hourly Allocation Amount	03/01/2019	02/22/2019	0.00	0.00	(1,150.60)	(1,150.60)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$327,416.15)	\$4,552,152.30	\$22,645.39	\$4,247,381.54



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	02/24/2019	02/10/2019	(\$379.12)	\$0.00	\$0.00	(\$379.12)
Asset Energy Amount	02/25/2019	02/11/2019	5.71	0.00	0.00	5.71
Asset Energy Amount	02/26/2019	02/12/2019	(462.02)	0.00	0.00	(462.02)
Asset Energy Amount	03/01/2019	02/15/2019	28.30	0.00	0.00	28.30
Distribution of Losses Amount	02/23/2019	02/09/2019	(201.06)	0.00	0.00	(201.06)
Distribution of Losses Amount	02/24/2019	02/10/2019	(9.68)	0.00	0.00	(9.68)
Distribution of Losses Amount	02/25/2019	02/11/2019	0.38	0.00	0.00	0.38
Distribution of Losses Amount	02/26/2019	02/12/2019	8.83	0.00	0.00	8.83
Distribution of Losses Amount	02/27/2019	02/13/2019	304.21	0.00	0.00	304.21
Distribution of Losses Amount	02/28/2019	02/14/2019	7.83	0.00	0.00	7.83
Distribution of Losses Amount	03/01/2019	02/15/2019	(8.12)	0.00	0.00	(8.12)
Excessive Deficient Energy Deployment Charge Amount	03/01/2019	02/15/2019	(0.25)	0.00	0.00	(0.25)
Excessive Energy Amount	03/01/2019	02/15/2019	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	02/23/2019	02/09/2019	(270.75)	0.00	0.00	(270.75)
Net Inadvertent Distribution Amount	02/24/2019	02/10/2019	3.50	0.00	0.00	3.50
Net Inadvertent Distribution Amount	02/25/2019	02/11/2019	(0.05)	0.00	0.00	(0.05)
Net Inadvertent Distribution Amount	02/26/2019	02/12/2019	5.66	0.00	0.00	5.66
Net Inadvertent Distribution Amount	02/27/2019	02/13/2019	(138.62)	0.00	0.00	(138.62)
Net Inadvertent Distribution Amount	02/28/2019	02/14/2019	(233.86)	0.00	0.00	(233.86)
Net Inadvertent Distribution Amount	03/01/2019	02/15/2019	(0.90)	0.00	0.00	(0.90)
Non-Excessive Energy Amount	03/01/2019	02/15/2019	(28.89)	0.00	0.00	(28.89)
Regulation Cost Distribution Amount	02/23/2019	02/09/2019	(0.14)	0.00	0.00	(0.14)
Regulation Cost Distribution Amount	02/24/2019	02/10/2019	(0.36)	0.00	0.00	(0.36)
Regulation Cost Distribution Amount	02/25/2019	02/11/2019	0.14	0.00	0.00	0.14
Regulation Cost Distribution Amount	02/26/2019	02/12/2019	0.51	0.00	0.00	0.51
Regulation Cost Distribution Amount	02/27/2019	02/13/2019	(0.14)	0.00	0.00	(0.14)
Regulation Cost Distribution Amount	02/28/2019	02/14/2019	(0.01)	0.00	0.00	(0.01)
Regulation Cost Distribution Amount	03/01/2019	02/15/2019	3.89	0.00	0.00	3.89
Revenue Neutrality Uplift Amount	02/23/2019	02/09/2019	441.12	0.00	0.00	441.12
Revenue Neutrality Uplift Amount	02/24/2019	02/10/2019	207.49	0.00	0.00	207.49

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Revenue Neutrality Uplift Amount	02/25/2019	02/11/2019	\$2.99	\$0.00	\$0.00	\$2.99
Revenue Neutrality Uplift Amount	02/26/2019	02/12/2019	77.09	0.00	0.00	77.09
Revenue Neutrality Uplift Amount	02/27/2019	02/13/2019	228.13	0.00	0.00	228.13
Revenue Neutrality Uplift Amount	02/28/2019	02/14/2019	441.67	0.00	0.00	441.67
Revenue Neutrality Uplift Amount	03/01/2019	02/15/2019	53.54	0.00	0.00	53.54
Revenue Sufficiency Guarantee Distribution Amount	02/25/2019	02/11/2019	0.00	0.08	0.00	0.08
Revenue Sufficiency Guarantee Distribution Amount	02/28/2019	02/14/2019	0.00	(0.01)	0.00	(0.01)
Revenue Sufficiency Guarantee Distribution Amount	03/01/2019	02/15/2019	0.00	0.44	0.00	0.44
Revenue Sufficiency Guarantee First Pass Dist Amount	02/23/2019	02/09/2019	3.58	0.00	0.00	3.58
Revenue Sufficiency Guarantee First Pass Dist Amount	02/24/2019	02/10/2019	109.55	0.00	0.00	109.55
Revenue Sufficiency Guarantee First Pass Dist Amount	02/25/2019	02/11/2019	17.52	0.00	0.00	17.52
Revenue Sufficiency Guarantee First Pass Dist Amount	02/26/2019	02/12/2019	(0.11)	0.00	0.00	(0.11)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/27/2019	02/13/2019	35.26	0.00	0.00	35.26
Revenue Sufficiency Guarantee First Pass Dist Amount	02/28/2019	02/14/2019	37.20	0.00	0.00	37.20
Schedule 24 Allocation Amount	02/24/2019	02/10/2019	(0.17)	0.00	0.00	(0.17)
Schedule 24 Allocation Amount	02/26/2019	02/12/2019	0.16	0.00	0.00	0.16
Schedule 24 Allocation Amount	03/01/2019	02/15/2019	(0.02)	0.00	0.00	(0.02)
Schedule 24 Distribution Amount	02/23/2019	02/09/2019	(0.15)	0.00	0.00	(0.15)
Schedule 24 Distribution Amount	02/24/2019	02/10/2019	3.49	0.00	0.00	3.49
Schedule 24 Distribution Amount	02/25/2019	02/11/2019	0.48	0.00	0.00	0.48
Schedule 24 Distribution Amount	02/26/2019	02/12/2019	(0.59)	0.00	0.00	(0.59)
Schedule 24 Distribution Amount	02/27/2019	02/13/2019	1.08	0.00	0.00	1.08
Schedule 24 Distribution Amount	02/28/2019	02/14/2019	3.34	0.00	0.00	3.34
Schedule 24 Distribution Amount	03/01/2019	02/15/2019	9.29	0.00	0.00	9.29
Spinning Reserve Cost Distribution Amount	02/23/2019	02/09/2019	(0.13)	0.00	0.00	(0.13)
Spinning Reserve Cost Distribution Amount	02/24/2019	02/10/2019	(0.44)	0.00	0.00	(0.44)
Spinning Reserve Cost Distribution Amount	02/25/2019	02/11/2019	0.13	0.00	0.00	0.13
Spinning Reserve Cost Distribution Amount	02/26/2019	02/12/2019	(0.20)	0.00	0.00	(0.20)
Spinning Reserve Cost Distribution Amount	02/27/2019	02/13/2019	0.13	0.00	0.00	0.13
Spinning Reserve Cost Distribution Amount	03/01/2019	02/15/2019	2.92	0.00	0.00	2.92

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/12/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	02/25/2019	01/01/2019	(\$1,229.74)	\$0.00	\$0.00	(\$1,229.74)
Asset Energy Amount	02/26/2019	01/02/2019	1,281.56	0.00	0.00	1,281.56
Asset Energy Amount	02/27/2019	01/03/2019	729.82	0.00	0.00	729.82
Asset Energy Amount	02/28/2019	01/04/2019	(16.81)	0.00	0.00	(16.81)
Asset Energy Amount	03/01/2019	01/05/2019	(303.47)	0.00	0.00	(303.47)
Asset Energy Amount	02/23/2019	12/30/2018	(1,336.10)	0.00	0.00	(1,336.10)
Asset Energy Amount	02/24/2019	12/31/2018	(2,620.62)	0.00	0.00	(2,620.62)
Distribution of Losses Amount	02/25/2019	01/01/2019	1,843.89	0.00	0.00	1,843.89
Distribution of Losses Amount	02/26/2019	01/02/2019	137.44	0.00	0.00	137.44
Distribution of Losses Amount	02/27/2019	01/03/2019	61.06	0.00	0.00	61.06
Distribution of Losses Amount	02/28/2019	01/04/2019	65.35	0.00	0.00	65.35
Distribution of Losses Amount	03/01/2019	01/05/2019	73.81	0.00	0.00	73.81
Distribution of Losses Amount	02/23/2019	12/30/2018	45.21	0.00	0.00	45.21
Distribution of Losses Amount	02/24/2019	12/31/2018	(51.80)	0.00	0.00	(51.80)
Excessive Deficient Energy Deployment Charge Amount	02/25/2019	01/01/2019	0.11	0.00	0.00	0.11
Excessive Deficient Energy Deployment Charge Amount	02/26/2019	01/02/2019	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	02/28/2019	01/04/2019	0.18	0.00	0.00	0.18
Excessive Deficient Energy Deployment Charge Amount	03/01/2019	01/05/2019	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	02/24/2019	12/31/2018	0.01	0.00	0.00	0.01
Excessive Energy Amount	02/28/2019	01/04/2019	(236.51)	0.00	0.00	(236.51)
MVP Distribution Amount	02/24/2019	12/31/2018	(567.00)	0.00	0.00	(567.00)
Miscellaneous Amount	02/25/2019	01/01/2019	38,671.77	0.00	0.00	38,671.77
Net Inadvertent Distribution Amount	02/25/2019	01/01/2019	462.57	0.00	0.00	462.57
Net Inadvertent Distribution Amount	02/26/2019	01/02/2019	77.71	0.00	0.00	77.71
Net Inadvertent Distribution Amount	02/27/2019	01/03/2019	33.62	0.00	0.00	33.62
Net Inadvertent Distribution Amount	02/28/2019	01/04/2019	43.62	0.00	0.00	43.62
Net Inadvertent Distribution Amount	03/01/2019	01/05/2019	39.52	0.00	0.00	39.52
Net Inadvertent Distribution Amount	02/23/2019	12/30/2018	(235.39)	0.00	0.00	(235.39)
Net Inadvertent Distribution Amount	02/24/2019	12/31/2018	(320.36)	0.00	0.00	(320.36)
Net Regulation Adjustment Amount	02/26/2019	01/02/2019	(1.47)	0.00	0.00	(1.47)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Net Regulation Adjustment Amount	02/28/2019	01/04/2019	(\$0.97)	\$0.00	\$0.00	(\$0.97)
Non-Excessive Energy Amount	02/26/2019	01/02/2019	(237.74)	0.00	0.00	(237.74)
Non-Excessive Energy Amount	02/28/2019	01/04/2019	288.07	0.00	0.00	288.07
Regulation Cost Distribution Amount	02/25/2019	01/01/2019	0.65	0.00	0.00	0.65
Regulation Cost Distribution Amount	02/26/2019	01/02/2019	2.40	0.00	0.00	2.40
Regulation Cost Distribution Amount	02/27/2019	01/03/2019	1.10	0.00	0.00	1.10
Regulation Cost Distribution Amount	02/28/2019	01/04/2019	0.97	0.00	0.00	0.97
Regulation Cost Distribution Amount	03/01/2019	01/05/2019	0.92	0.00	0.00	0.92
Regulation Cost Distribution Amount	02/23/2019	12/30/2018	(0.88)	0.00	0.00	(0.88)
Regulation Cost Distribution Amount	02/24/2019	12/31/2018	(1.65)	0.00	0.00	(1.65)
Revenue Neutrality Uplift Amount	02/25/2019	01/01/2019	(595.02)	0.00	0.00	(595.02)
Revenue Neutrality Uplift Amount	02/26/2019	01/02/2019	(29.67)	0.00	0.00	(29.67)
Revenue Neutrality Uplift Amount	02/27/2019	01/03/2019	(2.72)	0.00	0.00	(2.72)
Revenue Neutrality Uplift Amount	02/28/2019	01/04/2019	1.72	0.00	0.00	1.72
Revenue Neutrality Uplift Amount	03/01/2019	01/05/2019	21.40	0.00	0.00	21.40
Revenue Neutrality Uplift Amount	02/23/2019	12/30/2018	558.66	0.00	0.00	558.66
Revenue Neutrality Uplift Amount	02/24/2019	12/31/2018	572.99	0.00	0.00	572.99
Revenue Sufficiency Guarantee Distribution Amount	02/25/2019	01/01/2019	0.00	(25.45)	0.00	(25.45)
Revenue Sufficiency Guarantee Distribution Amount	02/26/2019	01/02/2019	0.00	0.11	0.00	0.11
Revenue Sufficiency Guarantee Distribution Amount	02/27/2019	01/03/2019	0.00	0.46	0.00	0.46
Revenue Sufficiency Guarantee Distribution Amount	02/28/2019	01/04/2019	0.00	0.08	0.00	0.08
Revenue Sufficiency Guarantee Distribution Amount	03/01/2019	01/05/2019	0.00	(0.06)	0.00	(0.06)
Revenue Sufficiency Guarantee Distribution Amount	02/23/2019	12/30/2018	0.00	5.72	0.00	5.72
Revenue Sufficiency Guarantee Distribution Amount	02/24/2019	12/31/2018	0.00	4.94	0.00	4.94
Revenue Sufficiency Guarantee First Pass Dist Amount	02/25/2019	01/01/2019	133.24	0.00	0.00	133.24
Revenue Sufficiency Guarantee First Pass Dist Amount	02/26/2019	01/02/2019	(45.05)	0.00	0.00	(45.05)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/27/2019	01/03/2019	(21.65)	0.00	0.00	(21.65)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/28/2019	01/04/2019	(2.16)	0.00	0.00	(2.16)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/24/2019	12/31/2018	7.78	0.00	0.00	7.78
Schedule 24 Allocation Amount	02/25/2019	01/01/2019	0.29	0.00	0.00	0.29

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Allocation Amount	02/26/2019	01/02/2019	\$0.51	\$0.00	\$0.00	\$0.51
Schedule 24 Allocation Amount	02/27/2019	01/03/2019	(1.99)	0.00	0.00	(1.99)
Schedule 24 Allocation Amount	02/28/2019	01/04/2019	0.47	0.00	0.00	0.47
Schedule 24 Allocation Amount	03/01/2019	01/05/2019	(0.12)	0.00	0.00	(0.12)
Schedule 24 Allocation Amount	02/23/2019	12/30/2018	(0.77)	0.00	0.00	(0.77)
Schedule 24 Allocation Amount	02/24/2019	12/31/2018	(1.15)	0.00	0.00	(1.15)
Schedule 24 Distribution Amount	02/25/2019	01/01/2019	3.42	0.00	0.00	3.42
Schedule 24 Distribution Amount	02/26/2019	01/02/2019	0.16	0.00	0.00	0.16
Schedule 24 Distribution Amount	02/27/2019	01/03/2019	1.75	0.00	0.00	1.75
Schedule 24 Distribution Amount	02/28/2019	01/04/2019	2.14	0.00	0.00	2.14
Schedule 24 Distribution Amount	03/01/2019	01/05/2019	1.77	0.00	0.00	1.77
Schedule 24 Distribution Amount	02/23/2019	12/30/2018	(0.08)	0.00	0.00	(0.08)
Schedule 24 Distribution Amount	02/24/2019	12/31/2018	1.88	0.00	0.00	1.88
Spinning Reserve Cost Distribution Amount	02/25/2019	01/01/2019	0.82	0.00	0.00	0.82
Spinning Reserve Cost Distribution Amount	02/26/2019	01/02/2019	1.80	0.00	0.00	1.80
Spinning Reserve Cost Distribution Amount	02/27/2019	01/03/2019	2.56	0.00	0.00	2.56
Spinning Reserve Cost Distribution Amount	02/28/2019	01/04/2019	0.80	0.00	0.00	0.80
Spinning Reserve Cost Distribution Amount	03/01/2019	01/05/2019	(0.01)	0.00	0.00	(0.01)
Spinning Reserve Cost Distribution Amount	02/23/2019	12/30/2018	(1.93)	0.00	0.00	(1.93)
Spinning Reserve Cost Distribution Amount	02/24/2019	12/31/2018	(2.66)	0.00	0.00	(2.66)
Supplemental Reserve Cost Distribution Amount	02/25/2019	01/01/2019	(0.12)	0.00	0.00	(0.12)
Supplemental Reserve Cost Distribution Amount	02/26/2019	01/02/2019	0.24	0.00	0.00	0.24
Supplemental Reserve Cost Distribution Amount	02/27/2019	01/03/2019	0.20	0.00	0.00	0.20
Supplemental Reserve Cost Distribution Amount	02/28/2019	01/04/2019	0.02	0.00	0.00	0.02
Supplemental Reserve Cost Distribution Amount	03/01/2019	01/05/2019	0.04	0.00	0.00	0.04
Supplemental Reserve Cost Distribution Amount	02/23/2019	12/30/2018	(0.21)	0.00	0.00	(0.21)
Supplemental Reserve Cost Distribution Amount	02/24/2019	12/31/2018	(0.54)	0.00	0.00	(0.54)
Transmission Guarantee Uplift Amount	02/28/2019	01/04/2019	0.00	0.00	(0.22)	(0.22)
Transmission Guarantee Uplift Amount	02/24/2019	12/31/2018	0.00	0.00	0.29	0.29
Transmission Rights Full Funding Guarantee Amount	02/28/2019	01/04/2019	0.00	0.00	0.22	0.22

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	02/23/2019	11/10/2018	(\$61.82)	\$0.00	\$0.00	(\$61.82)
Distribution of Losses Amount	02/24/2019	11/11/2018	(36.81)	0.00	0.00	(36.81)
Distribution of Losses Amount	02/25/2019	11/12/2018	(20.38)	0.00	0.00	(20.38)
Distribution of Losses Amount	02/26/2019	11/13/2018	4.35	0.00	0.00	4.35
Distribution of Losses Amount	02/27/2019	11/14/2018	(38.89)	0.00	0.00	(38.89)
Distribution of Losses Amount	02/28/2019	11/15/2018	0.12	0.00	0.00	0.12
Distribution of Losses Amount	03/01/2019	11/16/2018	(1.00)	0.00	0.00	(1.00)
Excessive Deficient Energy Deployment Charge Amount	02/23/2019	11/10/2018	(0.42)	0.00	0.00	(0.42)
Excessive Deficient Energy Deployment Charge Amount	02/24/2019	11/11/2018	(0.24)	0.00	0.00	(0.24)
Excessive Deficient Energy Deployment Charge Amount	02/25/2019	11/12/2018	(0.08)	0.00	0.00	(0.08)
Excessive Deficient Energy Deployment Charge Amount	02/27/2019	11/14/2018	(0.07)	0.00	0.00	(0.07)
Excessive Deficient Energy Deployment Charge Amount	02/28/2019	11/15/2018	(0.04)	0.00	0.00	(0.04)
Excessive Deficient Energy Deployment Charge Amount	03/01/2019	11/16/2018	0.01	0.00	0.00	0.01
Miscellaneous Amount	02/25/2019	11/12/2018	41.52	0.00	0.00	41.52
Net Inadvertent Distribution Amount	02/23/2019	11/10/2018	(4.51)	0.00	0.00	(4.51)
Net Inadvertent Distribution Amount	02/24/2019	11/11/2018	(1.28)	0.00	0.00	(1.28)
Net Inadvertent Distribution Amount	02/25/2019	11/12/2018	0.03	0.00	0.00	0.03
Net Inadvertent Distribution Amount	02/26/2019	11/13/2018	(0.01)	0.00	0.00	(0.01)
Net Inadvertent Distribution Amount	02/28/2019	11/15/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	03/01/2019	11/16/2018	(0.03)	0.00	0.00	(0.03)
Regulation Cost Distribution Amount	02/23/2019	11/10/2018	(0.17)	0.00	0.00	(0.17)
Regulation Cost Distribution Amount	02/24/2019	11/11/2018	(0.10)	0.00	0.00	(0.10)
Regulation Cost Distribution Amount	02/25/2019	11/12/2018	(0.56)	0.00	0.00	(0.56)
Regulation Cost Distribution Amount	02/26/2019	11/13/2018	1.04	0.00	0.00	1.04
Regulation Cost Distribution Amount	02/27/2019	11/14/2018	(0.24)	0.00	0.00	(0.24)
Regulation Cost Distribution Amount	02/28/2019	11/15/2018	0.71	0.00	0.00	0.71
Regulation Cost Distribution Amount	03/01/2019	11/16/2018	2.11	0.00	0.00	2.11
Revenue Neutrality Uplift Amount	02/23/2019	11/10/2018	(8.68)	0.00	0.00	(8.68)
Revenue Neutrality Uplift Amount	02/24/2019	11/11/2018	20.28	0.00	0.00	20.28
Revenue Neutrality Uplift Amount	02/25/2019	11/12/2018	0.45	0.00	0.00	0.45

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591717

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	02/26/2019	11/13/2018	\$70.33	\$0.00	\$0.00	\$70.33
Revenue Neutrality Uplift Amount	02/27/2019	11/14/2018	19.96	0.00	0.00	19.96
Revenue Neutrality Uplift Amount	02/28/2019	11/15/2018	(1,979.11)	0.00	0.00	(1,979.11)
Revenue Neutrality Uplift Amount	03/01/2019	11/16/2018	85.38	0.00	0.00	85.38
Revenue Sufficiency Guarantee First Pass Dist Amount	02/23/2019	11/10/2018	(21.13)	0.00	0.00	(21.13)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/24/2019	11/11/2018	(0.81)	0.00	0.00	(0.81)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/25/2019	11/12/2018	(72.82)	0.00	0.00	(72.82)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/26/2019	11/13/2018	(47.22)	0.00	0.00	(47.22)
Revenue Sufficiency Guarantee First Pass Dist Amount	02/27/2019	11/14/2018	2.65	0.00	0.00	2.65
Revenue Sufficiency Guarantee First Pass Dist Amount	02/28/2019	11/15/2018	(1.00)	0.00	0.00	(1.00)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/01/2019	11/16/2018	(5.38)	0.00	0.00	(5.38)
Schedule 24 Distribution Amount	02/23/2019	11/10/2018	(0.68)	0.00	0.00	(0.68)
Schedule 24 Distribution Amount	02/24/2019	11/11/2018	(0.14)	0.00	0.00	(0.14)
Schedule 24 Distribution Amount	02/25/2019	11/12/2018	0.87	0.00	0.00	0.87
Schedule 24 Distribution Amount	02/26/2019	11/13/2018	0.33	0.00	0.00	0.33
Schedule 24 Distribution Amount	02/27/2019	11/14/2018	0.11	0.00	0.00	0.11
Schedule 24 Distribution Amount	02/28/2019	11/15/2018	1.18	0.00	0.00	1.18
Schedule 24 Distribution Amount	03/01/2019	11/16/2018	0.47	0.00	0.00	0.47
Spinning Reserve Cost Distribution Amount	02/23/2019	11/10/2018	(0.67)	0.00	0.00	(0.67)
Spinning Reserve Cost Distribution Amount	02/24/2019	11/11/2018	(0.13)	0.00	0.00	(0.13)
Spinning Reserve Cost Distribution Amount	02/25/2019	11/12/2018	(0.78)	0.00	0.00	(0.78)
Spinning Reserve Cost Distribution Amount	02/26/2019	11/13/2018	0.25	0.00	0.00	0.25
Spinning Reserve Cost Distribution Amount	02/27/2019	11/14/2018	(0.78)	0.00	0.00	(0.78)
Spinning Reserve Cost Distribution Amount	03/01/2019	11/16/2018	0.12	0.00	0.00	0.12
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$2,053.70)	\$0.00	\$0.00	(\$2,053.70)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591718

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$27,491.06
S14 Prior Period Adjustments:	(0.15)
S55 Prior Period Adjustments:	(17.08)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$27,473.83

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1591718

For Statements Issued: 02/23/2019 - 03/01/2019

Invoice Date: 03/05/2019

Participant ID: MPM

Payment Due Date: 03/12/2019

Invoice Type: Administration Fee Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	02/23/2019	02/16/2019	\$468.41	\$3,672.53	\$0.00	\$4,140.94
Market Administration Amount	02/24/2019	02/17/2019	335.36	3,892.95	0.00	4,228.31
Market Administration Amount	02/25/2019	02/18/2019	147.68	3,522.70	0.00	3,670.38
Market Administration Amount	02/26/2019	02/19/2019	241.88	3,928.25	0.00	4,170.13
Market Administration Amount	02/27/2019	02/20/2019	154.22	3,692.06	0.00	3,846.28
Market Administration Amount	02/28/2019	02/21/2019	143.56	3,658.99	0.00	3,802.55
Market Administration Amount	03/01/2019	02/22/2019	116.64	3,311.19	0.00	3,427.83
Transmission Rights Market Administration Amount	02/23/2019	02/16/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/24/2019	02/17/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	02/25/2019	02/18/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/26/2019	02/19/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/27/2019	02/20/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	02/28/2019	02/21/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	03/01/2019	02/22/2019	0.00	0.00	29.60	29.60
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$1,607.75	\$25,678.67	\$204.64	\$27,491.06

MISO MARKET & ADMINISTRATION INVOICE

March 12, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$3,405,421.75
S14 Prior Period Adjustments:	3,723.73
S55 Prior Period Adjustments:	(424.05)
S105 Prior Period Adjustments:	(4,282.87)
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$3,404,438.56

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	03/02/2019	02/23/2019	(\$4,855.81)	\$461,658.89	\$0.00	\$456,803.08
Asset Energy Amount	03/03/2019	02/24/2019	52,320.89	139,161.94	0.00	191,482.83
Asset Energy Amount	03/04/2019	02/25/2019	(50,923.42)	795,513.42	0.00	744,590.00
Asset Energy Amount	03/05/2019	02/26/2019	(115,093.89)	833,568.18	0.00	718,474.29
Asset Energy Amount	03/06/2019	02/27/2019	(63,982.39)	550,537.70	0.00	486,555.31
Asset Energy Amount	03/07/2019	02/28/2019	(26,228.14)	828,154.98	0.00	801,926.84
Asset Energy Amount	03/08/2019	03/01/2019	32,174.26	519,362.66	0.00	551,536.92
Auction Revenue Rights Infeasible Uplift Amount	03/08/2019	03/01/2019	0.00	0.00	10,438.83	10,438.83
Auction Revenue Rights Stage 2 Distribution Amount	03/08/2019	03/01/2019	0.00	0.00	(30,057.22)	(30,057.22)
Auction Revenue Rights Transaction Amount	03/08/2019	03/01/2019	0.00	0.00	(205,488.82)	(205,488.82)
Distribution of Losses Amount	03/02/2019	02/23/2019	(20,903.28)	0.00	0.00	(20,903.28)
Distribution of Losses Amount	03/03/2019	02/24/2019	(18,005.82)	0.00	0.00	(18,005.82)
Distribution of Losses Amount	03/04/2019	02/25/2019	(40,138.39)	0.00	0.00	(40,138.39)
Distribution of Losses Amount	03/05/2019	02/26/2019	(43,379.63)	0.00	0.00	(43,379.63)
Distribution of Losses Amount	03/06/2019	02/27/2019	(18,453.32)	0.00	0.00	(18,453.32)
Distribution of Losses Amount	03/07/2019	02/28/2019	(25,400.88)	0.00	0.00	(25,400.88)
Distribution of Losses Amount	03/08/2019	03/01/2019	(25,328.29)	0.00	0.00	(25,328.29)
Excessive Deficient Energy Deployment Charge Amount	03/02/2019	02/23/2019	98.85	0.00	0.00	98.85
Excessive Deficient Energy Deployment Charge Amount	03/03/2019	02/24/2019	25.30	0.00	0.00	25.30
Excessive Deficient Energy Deployment Charge Amount	03/04/2019	02/25/2019	170.47	0.00	0.00	170.47
Excessive Deficient Energy Deployment Charge Amount	03/05/2019	02/26/2019	215.19	0.00	0.00	215.19
Excessive Deficient Energy Deployment Charge Amount	03/06/2019	02/27/2019	68.18	0.00	0.00	68.18
Excessive Deficient Energy Deployment Charge Amount	03/07/2019	02/28/2019	140.91	0.00	0.00	140.91
Excessive Deficient Energy Deployment Charge Amount	03/08/2019	03/01/2019	299.34	0.00	0.00	299.34
Excessive Energy Amount	03/02/2019	02/23/2019	233.85	0.00	0.00	233.85
Excessive Energy Amount	03/04/2019	02/25/2019	5.31	0.00	0.00	5.31
Excessive Energy Amount	03/05/2019	02/26/2019	32.32	0.00	0.00	32.32
Excessive Energy Amount	03/06/2019	02/27/2019	98.20	0.00	0.00	98.20
Excessive Energy Amount	03/07/2019	02/28/2019	18.86	0.00	0.00	18.86
Excessive Energy Amount	03/08/2019	03/01/2019	144.02	0.00	0.00	144.02
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:						(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Financial Bilateral Transaction Congestion Amount	03/02/2019	02/23/2019	\$0.00	(\$1,675.35)	\$0.00	(\$1,675.35)
Financial Bilateral Transaction Congestion Amount	03/03/2019	02/24/2019	0.00	6,979.80	0.00	6,979.80
Financial Bilateral Transaction Congestion Amount	03/04/2019	02/25/2019	0.00	(15,539.80)	0.00	(15,539.80)
Financial Bilateral Transaction Congestion Amount	03/05/2019	02/26/2019	0.00	(17,593.90)	0.00	(17,593.90)
Financial Bilateral Transaction Congestion Amount	03/06/2019	02/27/2019	0.00	2,031.35	0.00	2,031.35
Financial Bilateral Transaction Congestion Amount	03/07/2019	02/28/2019	0.00	(23,458.95)	0.00	(23,458.95)
Financial Bilateral Transaction Congestion Amount	03/08/2019	03/01/2019	0.00	6,666.40	0.00	6,666.40
Financial Bilateral Transaction Loss Amount	03/02/2019	02/23/2019	0.00	6,840.65	0.00	6,840.65
Financial Bilateral Transaction Loss Amount	03/03/2019	02/24/2019	0.00	3,555.75	0.00	3,555.75
Financial Bilateral Transaction Loss Amount	03/04/2019	02/25/2019	0.00	1,517.85	0.00	1,517.85
Financial Bilateral Transaction Loss Amount	03/05/2019	02/26/2019	0.00	4,913.95	0.00	4,913.95
Financial Bilateral Transaction Loss Amount	03/06/2019	02/27/2019	0.00	318.90	0.00	318.90
Financial Bilateral Transaction Loss Amount	03/07/2019	02/28/2019	0.00	1,216.15	0.00	1,216.15
Financial Bilateral Transaction Loss Amount	03/08/2019	03/01/2019	0.00	7,635.95	0.00	7,635.95
MVP Distribution Amount	03/07/2019	02/28/2019	(16,779.43)	0.00	0.00	(16,779.43)
Net Inadvertent Distribution Amount	03/02/2019	02/23/2019	(104.07)	0.00	0.00	(104.07)
Net Inadvertent Distribution Amount	03/03/2019	02/24/2019	(303.24)	0.00	0.00	(303.24)
Net Inadvertent Distribution Amount	03/04/2019	02/25/2019	1,030.15	0.00	0.00	1,030.15
Net Inadvertent Distribution Amount	03/05/2019	02/26/2019	4,411.20	0.00	0.00	4,411.20
Net Inadvertent Distribution Amount	03/06/2019	02/27/2019	(238.70)	0.00	0.00	(238.70)
Net Inadvertent Distribution Amount	03/07/2019	02/28/2019	(615.15)	0.00	0.00	(615.15)
Net Inadvertent Distribution Amount	03/08/2019	03/01/2019	1,098.65	0.00	0.00	1,098.65
Net Regulation Adjustment Amount	03/02/2019	02/23/2019	(47.28)	0.00	0.00	(47.28)
Net Regulation Adjustment Amount	03/03/2019	02/24/2019	(2.65)	0.00	0.00	(2.65)
Net Regulation Adjustment Amount	03/04/2019	02/25/2019	(5.78)	0.00	0.00	(5.78)
Net Regulation Adjustment Amount	03/05/2019	02/26/2019	(25.14)	0.00	0.00	(25.14)
Net Regulation Adjustment Amount	03/06/2019	02/27/2019	(14.82)	0.00	0.00	(14.82)
Net Regulation Adjustment Amount	03/07/2019	02/28/2019	(27.42)	0.00	0.00	(27.42)
Net Regulation Adjustment Amount	03/08/2019	03/01/2019	(34.97)	0.00	0.00	(34.97)
Non-Asset Energy Amount	03/02/2019	02/23/2019	(9,089.38)	(10,832.14)	0.00	(19,921.52)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Non-Asset Energy Amount	03/03/2019	02/24/2019	(\$11,197.45)	(\$41,281.50)	\$0.00	(\$52,478.95)
Non-Asset Energy Amount	03/04/2019	02/25/2019	(30,251.79)	(23,655.80)	0.00	(53,907.59)
Non-Asset Energy Amount	03/05/2019	02/26/2019	7,954.56	(4,648.35)	0.00	3,306.21
Non-Asset Energy Amount	03/06/2019	02/27/2019	(5,063.96)	(85,148.50)	0.00	(90,212.46)
Non-Asset Energy Amount	03/07/2019	02/28/2019	(31,365.76)	(54,695.50)	0.00	(86,061.26)
Non-Asset Energy Amount	03/08/2019	03/01/2019	(12,973.53)	(41,792.50)	0.00	(54,766.03)
Non-Excessive Energy Amount	03/02/2019	02/23/2019	(21,335.58)	0.00	0.00	(21,335.58)
Non-Excessive Energy Amount	03/03/2019	02/24/2019	(2,263.57)	0.00	0.00	(2,263.57)
Non-Excessive Energy Amount	03/04/2019	02/25/2019	3,652.36	0.00	0.00	3,652.36
Non-Excessive Energy Amount	03/05/2019	02/26/2019	28,716.53	0.00	0.00	28,716.53
Non-Excessive Energy Amount	03/06/2019	02/27/2019	(28,771.12)	0.00	0.00	(28,771.12)
Non-Excessive Energy Amount	03/07/2019	02/28/2019	(41,189.64)	0.00	0.00	(41,189.64)
Non-Excessive Energy Amount	03/08/2019	03/01/2019	31,984.73	0.00	0.00	31,984.73
Price Volatility Make Whole Payment Amt	03/05/2019	02/26/2019	(1.31)	0.00	0.00	(1.31)
Price Volatility Make Whole Payment Amt	03/06/2019	02/27/2019	(13.94)	0.00	0.00	(13.94)
Price Volatility Make Whole Payment Amt	03/07/2019	02/28/2019	(619.46)	0.00	0.00	(619.46)
Price Volatility Make Whole Payment Amt	03/08/2019	03/01/2019	(10.61)	0.00	0.00	(10.61)
Ramp Capability Amount	03/02/2019	02/23/2019	(0.17)	0.00	0.00	(0.17)
Ramp Capability Amount	03/04/2019	02/25/2019	(10.19)	0.00	0.00	(10.19)
Ramp Capability Amount	03/05/2019	02/26/2019	(9.31)	0.00	0.00	(9.31)
Ramp Capability Amount	03/06/2019	02/27/2019	(4.34)	0.00	0.00	(4.34)
Ramp Capability Amount	03/08/2019	03/01/2019	(12.96)	(48.70)	0.00	(61.66)
Regulation Amount	03/02/2019	02/23/2019	(24.65)	(50.75)	0.00	(75.40)
Regulation Amount	03/03/2019	02/24/2019	38.41	(78.89)	0.00	(40.48)
Regulation Amount	03/04/2019	02/25/2019	(631.69)	(88.29)	0.00	(719.98)
Regulation Amount	03/05/2019	02/26/2019	363.34	(794.12)	0.00	(430.78)
Regulation Amount	03/06/2019	02/27/2019	319.23	(485.21)	0.00	(165.98)
Regulation Amount	03/07/2019	02/28/2019	79.70	(588.93)	0.00	(509.23)
Regulation Amount	03/08/2019	03/01/2019	(80.25)	(366.66)	0.00	(446.91)
Regulation Cost Distribution Amount	03/02/2019	02/23/2019	728.76	0.00	0.00	728.76

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Regulation Cost Distribution Amount	03/03/2019	02/24/2019	\$1,169.87	\$0.00	\$0.00	\$1,169.87
Regulation Cost Distribution Amount	03/04/2019	02/25/2019	1,054.43	0.00	0.00	1,054.43
Regulation Cost Distribution Amount	03/05/2019	02/26/2019	1,055.11	0.00	0.00	1,055.11
Regulation Cost Distribution Amount	03/06/2019	02/27/2019	759.69	0.00	0.00	759.69
Regulation Cost Distribution Amount	03/07/2019	02/28/2019	1,198.94	0.00	0.00	1,198.94
Regulation Cost Distribution Amount	03/08/2019	03/01/2019	928.21	0.00	0.00	928.21
Resource Adequacy Auction Amount	03/02/2019	02/23/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/03/2019	02/24/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/04/2019	02/25/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/05/2019	02/26/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/06/2019	02/27/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/07/2019	02/28/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/08/2019	03/01/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	03/02/2019	02/23/2019	13,137.73	0.00	0.00	13,137.73
Revenue Neutrality Uplift Amount	03/03/2019	02/24/2019	5,091.61	0.00	0.00	5,091.61
Revenue Neutrality Uplift Amount	03/04/2019	02/25/2019	(715.71)	0.00	0.00	(715.71)
Revenue Neutrality Uplift Amount	03/05/2019	02/26/2019	461.88	0.00	0.00	461.88
Revenue Neutrality Uplift Amount	03/06/2019	02/27/2019	737.65	0.00	0.00	737.65
Revenue Neutrality Uplift Amount	03/07/2019	02/28/2019	3,922.78	0.00	0.00	3,922.78
Revenue Neutrality Uplift Amount	03/08/2019	03/01/2019	(1,411.65)	0.00	0.00	(1,411.65)
Revenue Sufficiency Guarantee Distribution Amount	03/02/2019	02/23/2019	0.00	411.20	0.00	411.20
Revenue Sufficiency Guarantee Distribution Amount	03/03/2019	02/24/2019	0.00	1,055.90	0.00	1,055.90
Revenue Sufficiency Guarantee Distribution Amount	03/04/2019	02/25/2019	0.00	1,631.58	0.00	1,631.58
Revenue Sufficiency Guarantee Distribution Amount	03/05/2019	02/26/2019	0.00	801.74	0.00	801.74
Revenue Sufficiency Guarantee Distribution Amount	03/06/2019	02/27/2019	0.00	670.18	0.00	670.18
Revenue Sufficiency Guarantee Distribution Amount	03/07/2019	02/28/2019	0.00	1,052.72	0.00	1,052.72
Revenue Sufficiency Guarantee Distribution Amount	03/08/2019	03/01/2019	0.00	713.63	0.00	713.63
Revenue Sufficiency Guarantee First Pass Dist Amount	03/02/2019	02/23/2019	323.41	0.00	0.00	323.41
Revenue Sufficiency Guarantee First Pass Dist Amount	03/03/2019	02/24/2019	2.73	0.00	0.00	2.73
Revenue Sufficiency Guarantee First Pass Dist Amount	03/04/2019	02/25/2019	2,464.54	0.00	0.00	2,464.54

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
 30 West Superior Street
 Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Revenue Sufficiency Guarantee First Pass Dist Amount	03/05/2019	02/26/2019	\$5,443.73	\$0.00	\$0.00	\$5,443.73
Revenue Sufficiency Guarantee First Pass Dist Amount	03/06/2019	02/27/2019	243.75	0.00	0.00	243.75
Revenue Sufficiency Guarantee First Pass Dist Amount	03/07/2019	02/28/2019	3,936.14	0.00	0.00	3,936.14
Revenue Sufficiency Guarantee First Pass Dist Amount	03/08/2019	03/01/2019	4,848.24	0.00	0.00	4,848.24
Revenue Sufficiency Guarantee Make Whole Payment Amt	03/07/2019	02/28/2019	(4,637.94)	0.00	0.00	(4,637.94)
Revenue Sufficiency Guarantee Make Whole Payment Amt	03/08/2019	03/01/2019	0.00	(12,913.55)	0.00	(12,913.55)
Schedule 24 Allocation Amount	03/02/2019	02/23/2019	27.08	536.22	0.00	563.30
Schedule 24 Allocation Amount	03/03/2019	02/24/2019	44.50	698.94	0.00	743.44
Schedule 24 Allocation Amount	03/04/2019	02/25/2019	32.55	617.66	0.00	650.21
Schedule 24 Allocation Amount	03/05/2019	02/26/2019	45.06	639.81	0.00	684.87
Schedule 24 Allocation Amount	03/06/2019	02/27/2019	54.37	713.09	0.00	767.46
Schedule 24 Allocation Amount	03/07/2019	02/28/2019	29.59	653.11	0.00	682.70
Schedule 24 Allocation Amount	03/08/2019	03/01/2019	48.53	675.95	0.00	724.48
Schedule 24 Distribution Amount	03/02/2019	02/23/2019	(4,351.59)	0.00	0.00	(4,351.59)
Schedule 24 Distribution Amount	03/03/2019	02/24/2019	(4,517.03)	0.00	0.00	(4,517.03)
Schedule 24 Distribution Amount	03/04/2019	02/25/2019	(4,965.13)	0.00	0.00	(4,965.13)
Schedule 24 Distribution Amount	03/05/2019	02/26/2019	(5,006.31)	0.00	0.00	(5,006.31)
Schedule 24 Distribution Amount	03/06/2019	02/27/2019	(4,866.74)	0.00	0.00	(4,866.74)
Schedule 24 Distribution Amount	03/07/2019	02/28/2019	(4,846.83)	0.00	0.00	(4,846.83)
Schedule 24 Distribution Amount	03/08/2019	03/01/2019	(5,292.46)	0.00	0.00	(5,292.46)
Spinning Reserve Amount	03/02/2019	02/23/2019	9.41	(666.54)	0.00	(657.13)
Spinning Reserve Amount	03/03/2019	02/24/2019	100.47	(532.70)	0.00	(432.23)
Spinning Reserve Amount	03/04/2019	02/25/2019	20.14	(1,290.80)	0.00	(1,270.66)
Spinning Reserve Amount	03/05/2019	02/26/2019	307.51	(2,774.07)	0.00	(2,466.56)
Spinning Reserve Amount	03/06/2019	02/27/2019	(1,116.35)	(1,563.19)	0.00	(2,679.54)
Spinning Reserve Amount	03/07/2019	02/28/2019	8.86	(1,767.05)	0.00	(1,758.19)
Spinning Reserve Amount	03/08/2019	03/01/2019	259.74	(2,476.90)	0.00	(2,217.16)
Spinning Reserve Cost Distribution Amount	03/02/2019	02/23/2019	647.02	0.00	0.00	647.02
Spinning Reserve Cost Distribution Amount	03/03/2019	02/24/2019	623.46	0.00	0.00	623.46
Spinning Reserve Cost Distribution Amount	03/04/2019	02/25/2019	1,342.67	0.00	0.00	1,342.67

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Spinning Reserve Cost Distribution Amount	03/05/2019	02/26/2019	\$1,660.48	\$0.00	\$0.00	\$1,660.48
Spinning Reserve Cost Distribution Amount	03/06/2019	02/27/2019	885.19	0.00	0.00	885.19
Spinning Reserve Cost Distribution Amount	03/07/2019	02/28/2019	1,258.76	0.00	0.00	1,258.76
Spinning Reserve Cost Distribution Amount	03/08/2019	03/01/2019	1,243.66	0.00	0.00	1,243.66
Supplemental Reserve Amount	03/02/2019	02/23/2019	(1.72)	0.00	0.00	(1.72)
Supplemental Reserve Amount	03/03/2019	02/24/2019	(0.27)	0.00	0.00	(0.27)
Supplemental Reserve Amount	03/04/2019	02/25/2019	(113.91)	0.00	0.00	(113.91)
Supplemental Reserve Amount	03/07/2019	02/28/2019	(5.72)	0.00	0.00	(5.72)
Supplemental Reserve Amount	03/08/2019	03/01/2019	(0.18)	0.00	0.00	(0.18)
Supplemental Reserve Cost Distribution Amount	03/02/2019	02/23/2019	146.38	0.00	0.00	146.38
Supplemental Reserve Cost Distribution Amount	03/03/2019	02/24/2019	121.50	0.00	0.00	121.50
Supplemental Reserve Cost Distribution Amount	03/04/2019	02/25/2019	225.84	0.00	0.00	225.84
Supplemental Reserve Cost Distribution Amount	03/05/2019	02/26/2019	193.12	0.00	0.00	193.12
Supplemental Reserve Cost Distribution Amount	03/06/2019	02/27/2019	197.45	0.00	0.00	197.45
Supplemental Reserve Cost Distribution Amount	03/07/2019	02/28/2019	249.78	0.00	0.00	249.78
Supplemental Reserve Cost Distribution Amount	03/08/2019	03/01/2019	211.98	0.00	0.00	211.98
Transmission Guarantee Uplift Amount	03/02/2019	02/23/2019	0.00	0.00	2.85	2.85
Transmission Guarantee Uplift Amount	03/03/2019	02/24/2019	0.00	0.00	36.98	36.98
Transmission Guarantee Uplift Amount	03/04/2019	02/25/2019	0.00	0.00	1.33	1.33
Transmission Guarantee Uplift Amount	03/05/2019	02/26/2019	0.00	0.00	22.67	22.67
Transmission Guarantee Uplift Amount	03/06/2019	02/27/2019	0.00	0.00	902.76	902.76
Transmission Guarantee Uplift Amount	03/07/2019	02/28/2019	0.00	0.00	(6,405.99)	(6,405.99)
Transmission Guarantee Uplift Amount	03/08/2019	03/01/2019	0.00	0.00	48.27	48.27
Transmission Rights Annual Transaction Amount	03/08/2019	03/01/2019	0.00	0.00	279,805.07	279,805.07
Transmission Rights Full Funding Guarantee Amount	03/02/2019	02/23/2019	0.00	0.00	(2.85)	(2.85)
Transmission Rights Full Funding Guarantee Amount	03/03/2019	02/24/2019	0.00	0.00	(36.98)	(36.98)
Transmission Rights Full Funding Guarantee Amount	03/04/2019	02/25/2019	0.00	0.00	(1.33)	(1.33)
Transmission Rights Full Funding Guarantee Amount	03/05/2019	02/26/2019	0.00	0.00	(22.67)	(22.67)
Transmission Rights Full Funding Guarantee Amount	03/06/2019	02/27/2019	0.00	0.00	(902.76)	(902.76)
Transmission Rights Full Funding Guarantee Amount	03/07/2019	02/28/2019	0.00	0.00	6,405.99	6,405.99

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	03/02/2019	02/16/2019	\$36.36	\$0.00	\$0.00	\$36.36
Asset Energy Amount	03/05/2019	02/19/2019	25.79	0.00	0.00	25.79
Asset Energy Amount	03/06/2019	02/20/2019	2,536.66	0.00	0.00	2,536.66
Asset Energy Amount	03/07/2019	02/21/2019	22.33	0.00	0.00	22.33
Asset Energy Amount	03/08/2019	02/22/2019	32.90	0.00	0.00	32.90
Distribution of Losses Amount	03/02/2019	02/16/2019	(2.19)	0.00	0.00	(2.19)
Distribution of Losses Amount	03/03/2019	02/17/2019	(68.40)	0.00	0.00	(68.40)
Distribution of Losses Amount	03/04/2019	02/18/2019	1.37	0.00	0.00	1.37
Distribution of Losses Amount	03/05/2019	02/19/2019	(4.15)	0.00	0.00	(4.15)
Distribution of Losses Amount	03/06/2019	02/20/2019	42.88	0.00	0.00	42.88
Distribution of Losses Amount	03/07/2019	02/21/2019	(24.51)	0.00	0.00	(24.51)
Distribution of Losses Amount	03/08/2019	02/22/2019	328.83	0.00	0.00	328.83
Excessive Deficient Energy Deployment Charge Amount	03/03/2019	02/17/2019	(0.02)	0.00	0.00	(0.02)
Excessive Deficient Energy Deployment Charge Amount	03/04/2019	02/18/2019	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	03/05/2019	02/19/2019	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	03/06/2019	02/20/2019	(2.24)	0.00	0.00	(2.24)
Excessive Deficient Energy Deployment Charge Amount	03/07/2019	02/21/2019	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	03/08/2019	02/22/2019	0.04	0.00	0.00	0.04
Net Inadvertent Distribution Amount	03/02/2019	02/16/2019	(0.02)	0.00	0.00	(0.02)
Net Inadvertent Distribution Amount	03/03/2019	02/17/2019	0.05	0.00	0.00	0.05
Net Inadvertent Distribution Amount	03/04/2019	02/18/2019	(0.06)	0.00	0.00	(0.06)
Net Inadvertent Distribution Amount	03/05/2019	02/19/2019	(0.01)	0.00	0.00	(0.01)
Net Inadvertent Distribution Amount	03/06/2019	02/20/2019	16.58	0.00	0.00	16.58
Net Inadvertent Distribution Amount	03/07/2019	02/21/2019	(5.52)	0.00	0.00	(5.52)
Net Inadvertent Distribution Amount	03/08/2019	02/22/2019	97.07	0.00	0.00	97.07
Non-Excessive Energy Amount	03/05/2019	02/19/2019	(25.33)	0.00	0.00	(25.33)
Regulation Cost Distribution Amount	03/02/2019	02/16/2019	0.09	0.00	0.00	0.09
Regulation Cost Distribution Amount	03/03/2019	02/17/2019	(0.33)	0.00	0.00	(0.33)
Regulation Cost Distribution Amount	03/04/2019	02/18/2019	0.36	0.00	0.00	0.36
Regulation Cost Distribution Amount	03/05/2019	02/19/2019	0.05	0.00	0.00	0.05

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Regulation Cost Distribution Amount	03/06/2019	02/20/2019	\$0.35	\$0.00	\$0.00	\$0.35
Regulation Cost Distribution Amount	03/07/2019	02/21/2019	(0.33)	0.00	0.00	(0.33)
Regulation Cost Distribution Amount	03/08/2019	02/22/2019	0.13	0.00	0.00	0.13
Revenue Neutrality Uplift Amount	03/02/2019	02/16/2019	33.23	0.00	0.00	33.23
Revenue Neutrality Uplift Amount	03/03/2019	02/17/2019	115.84	0.00	0.00	115.84
Revenue Neutrality Uplift Amount	03/04/2019	02/18/2019	23.25	0.00	0.00	23.25
Revenue Neutrality Uplift Amount	03/05/2019	02/19/2019	28.54	0.00	0.00	28.54
Revenue Neutrality Uplift Amount	03/06/2019	02/20/2019	82.03	0.00	0.00	82.03
Revenue Neutrality Uplift Amount	03/07/2019	02/21/2019	(89.78)	0.00	0.00	(89.78)
Revenue Neutrality Uplift Amount	03/08/2019	02/22/2019	(199.96)	0.00	0.00	(199.96)
Revenue Sufficiency Guarantee Distribution Amount	03/02/2019	02/16/2019	0.00	0.67	0.00	0.67
Revenue Sufficiency Guarantee Distribution Amount	03/06/2019	02/20/2019	0.00	0.02	0.00	0.02
Revenue Sufficiency Guarantee Distribution Amount	03/07/2019	02/21/2019	0.00	0.26	0.00	0.26
Revenue Sufficiency Guarantee Distribution Amount	03/08/2019	02/22/2019	0.00	0.49	0.00	0.49
Revenue Sufficiency Guarantee First Pass Dist Amount	03/02/2019	02/16/2019	5.72	0.00	0.00	5.72
Revenue Sufficiency Guarantee First Pass Dist Amount	03/04/2019	02/18/2019	170.01	0.00	0.00	170.01
Revenue Sufficiency Guarantee First Pass Dist Amount	03/05/2019	02/19/2019	345.21	0.00	0.00	345.21
Revenue Sufficiency Guarantee First Pass Dist Amount	03/06/2019	02/20/2019	(0.85)	0.00	0.00	(0.85)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/07/2019	02/21/2019	(2.33)	0.00	0.00	(2.33)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/08/2019	02/22/2019	197.63	0.00	0.00	197.63
Schedule 24 Allocation Amount	03/06/2019	02/20/2019	(0.30)	0.00	0.00	(0.30)
Schedule 24 Allocation Amount	03/08/2019	02/22/2019	(0.01)	0.00	0.00	(0.01)
Schedule 24 Distribution Amount	03/02/2019	02/16/2019	0.49	0.00	0.00	0.49
Schedule 24 Distribution Amount	03/03/2019	02/17/2019	(0.40)	0.00	0.00	(0.40)
Schedule 24 Distribution Amount	03/04/2019	02/18/2019	0.34	0.00	0.00	0.34
Schedule 24 Distribution Amount	03/05/2019	02/19/2019	(0.13)	0.00	0.00	(0.13)
Schedule 24 Distribution Amount	03/06/2019	02/20/2019	(0.29)	0.00	0.00	(0.29)
Schedule 24 Distribution Amount	03/07/2019	02/21/2019	3.33	0.00	0.00	3.33
Schedule 24 Distribution Amount	03/08/2019	02/22/2019	0.91	0.00	0.00	0.91
Spinning Reserve Cost Distribution Amount	03/02/2019	02/16/2019	(0.08)	0.00	0.00	(0.08)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/19/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Spinning Reserve Cost Distribution Amount	03/03/2019	02/17/2019	(\$0.38)	\$0.00	\$0.00	(\$0.38)
Spinning Reserve Cost Distribution Amount	03/05/2019	02/19/2019	0.02	0.00	0.00	0.02
Spinning Reserve Cost Distribution Amount	03/06/2019	02/20/2019	1.41	0.00	0.00	1.41
Spinning Reserve Cost Distribution Amount	03/07/2019	02/21/2019	0.02	0.00	0.00	0.02
Spinning Reserve Cost Distribution Amount	03/08/2019	02/22/2019	0.03	0.00	0.00	0.03
Supplemental Reserve Cost Distribution Amount	03/05/2019	02/19/2019	(0.13)	0.00	0.00	(0.13)
Supplemental Reserve Cost Distribution Amount	03/06/2019	02/20/2019	0.08	0.00	0.00	0.08
Supplemental Reserve Cost Distribution Amount	03/07/2019	02/21/2019	0.13	0.00	0.00	0.13
Transmission Guarantee Uplift Amount	03/05/2019	02/19/2019	0.00	0.00	(0.01)	(0.01)
Transmission Rights Full Funding Guarantee Amount	03/05/2019	02/19/2019	0.00	0.00	0.01	0.01
Transmission Rights Hourly Allocation Amount	03/05/2019	02/19/2019	0.00	0.00	(0.01)	(0.01)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$3,722.30	\$1.44	(\$0.01)	\$3,723.73



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	03/02/2019	01/06/2019	(\$540.89)	\$0.00	\$0.00	(\$540.89)
Asset Energy Amount	03/03/2019	01/07/2019	25.61	0.00	0.00	25.61
Asset Energy Amount	03/04/2019	01/08/2019	38.07	0.00	0.00	38.07
Asset Energy Amount	03/05/2019	01/09/2019	223.91	0.00	0.00	223.91
Asset Energy Amount	03/06/2019	01/10/2019	102.49	0.00	0.00	102.49
Asset Energy Amount	03/07/2019	01/11/2019	(554.01)	0.00	0.00	(554.01)
Asset Energy Amount	03/08/2019	01/12/2019	(122.99)	0.00	0.00	(122.99)
Distribution of Losses Amount	03/02/2019	01/06/2019	31.22	0.00	0.00	31.22
Distribution of Losses Amount	03/03/2019	01/07/2019	25.15	0.00	0.00	25.15
Distribution of Losses Amount	03/04/2019	01/08/2019	61.90	0.00	0.00	61.90
Distribution of Losses Amount	03/05/2019	01/09/2019	140.23	0.00	0.00	140.23
Distribution of Losses Amount	03/06/2019	01/10/2019	56.61	0.00	0.00	56.61
Distribution of Losses Amount	03/07/2019	01/11/2019	(109.21)	0.00	0.00	(109.21)
Distribution of Losses Amount	03/08/2019	01/12/2019	106.55	0.00	0.00	106.55
Excessive Deficient Energy Deployment Charge Amount	03/02/2019	01/06/2019	(0.20)	0.00	0.00	(0.20)
Excessive Deficient Energy Deployment Charge Amount	03/03/2019	01/07/2019	(0.18)	0.00	0.00	(0.18)
Excessive Deficient Energy Deployment Charge Amount	03/04/2019	01/08/2019	0.06	0.00	0.00	0.06
Excessive Deficient Energy Deployment Charge Amount	03/05/2019	01/09/2019	0.18	0.00	0.00	0.18
Excessive Deficient Energy Deployment Charge Amount	03/06/2019	01/10/2019	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	03/07/2019	01/11/2019	(1.11)	0.00	0.00	(1.11)
Excessive Deficient Energy Deployment Charge Amount	03/08/2019	01/12/2019	0.03	0.00	0.00	0.03
Net Inadvertent Distribution Amount	03/02/2019	01/06/2019	53.17	0.00	0.00	53.17
Net Inadvertent Distribution Amount	03/03/2019	01/07/2019	48.08	0.00	0.00	48.08
Net Inadvertent Distribution Amount	03/04/2019	01/08/2019	39.81	0.00	0.00	39.81
Net Inadvertent Distribution Amount	03/05/2019	01/09/2019	75.13	0.00	0.00	75.13
Net Inadvertent Distribution Amount	03/06/2019	01/10/2019	46.12	0.00	0.00	46.12
Net Inadvertent Distribution Amount	03/07/2019	01/11/2019	45.10	0.00	0.00	45.10
Net Inadvertent Distribution Amount	03/08/2019	01/12/2019	50.44	0.00	0.00	50.44
Regulation Cost Distribution Amount	03/02/2019	01/06/2019	(2.11)	0.00	0.00	(2.11)
Regulation Cost Distribution Amount	03/03/2019	01/07/2019	(0.60)	0.00	0.00	(0.60)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Regulation Cost Distribution Amount	03/04/2019	01/08/2019	\$0.65	\$0.00	\$0.00	\$0.65
Regulation Cost Distribution Amount	03/05/2019	01/09/2019	0.53	0.00	0.00	0.53
Regulation Cost Distribution Amount	03/06/2019	01/10/2019	1.38	0.00	0.00	1.38
Regulation Cost Distribution Amount	03/07/2019	01/11/2019	(0.81)	0.00	0.00	(0.81)
Regulation Cost Distribution Amount	03/08/2019	01/12/2019	1.17	0.00	0.00	1.17
Revenue Neutrality Uplift Amount	03/02/2019	01/06/2019	(67.69)	0.00	0.00	(67.69)
Revenue Neutrality Uplift Amount	03/03/2019	01/07/2019	(6.68)	0.00	0.00	(6.68)
Revenue Neutrality Uplift Amount	03/04/2019	01/08/2019	(100.50)	0.00	0.00	(100.50)
Revenue Neutrality Uplift Amount	03/05/2019	01/09/2019	(95.57)	0.00	0.00	(95.57)
Revenue Neutrality Uplift Amount	03/06/2019	01/10/2019	3.20	0.00	0.00	3.20
Revenue Neutrality Uplift Amount	03/07/2019	01/11/2019	9.60	0.00	0.00	9.60
Revenue Neutrality Uplift Amount	03/08/2019	01/12/2019	(23.23)	0.00	0.00	(23.23)
Revenue Sufficiency Guarantee Distribution Amount	03/03/2019	01/07/2019	0.00	0.13	0.00	0.13
Revenue Sufficiency Guarantee Distribution Amount	03/04/2019	01/08/2019	0.00	0.08	0.00	0.08
Revenue Sufficiency Guarantee Distribution Amount	03/06/2019	01/10/2019	0.00	0.04	0.00	0.04
Revenue Sufficiency Guarantee Distribution Amount	03/07/2019	01/11/2019	0.00	0.26	0.00	0.26
Revenue Sufficiency Guarantee Distribution Amount	03/08/2019	01/12/2019	0.00	0.08	0.00	0.08
Revenue Sufficiency Guarantee First Pass Dist Amount	03/05/2019	01/09/2019	(4.24)	0.00	0.00	(4.24)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/06/2019	01/10/2019	5.57	0.00	0.00	5.57
Revenue Sufficiency Guarantee First Pass Dist Amount	03/07/2019	01/11/2019	(20.46)	0.00	0.00	(20.46)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/08/2019	01/12/2019	(3.74)	0.00	0.00	(3.74)
Schedule 24 Allocation Amount	03/02/2019	01/06/2019	(0.32)	0.00	0.00	(0.32)
Schedule 24 Allocation Amount	03/03/2019	01/07/2019	0.01	0.00	0.00	0.01
Schedule 24 Allocation Amount	03/04/2019	01/08/2019	0.02	0.00	0.00	0.02
Schedule 24 Allocation Amount	03/05/2019	01/09/2019	0.05	0.00	0.00	0.05
Schedule 24 Allocation Amount	03/06/2019	01/10/2019	0.03	0.00	0.00	0.03
Schedule 24 Allocation Amount	03/07/2019	01/11/2019	(0.18)	0.00	0.00	(0.18)
Schedule 24 Allocation Amount	03/08/2019	01/12/2019	0.07	0.00	0.00	0.07
Schedule 24 Distribution Amount	03/02/2019	01/06/2019	6.83	0.00	0.00	6.83
Schedule 24 Distribution Amount	03/03/2019	01/07/2019	5.45	0.00	0.00	5.45

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Distribution Amount	03/04/2019	01/08/2019	\$1.21	\$0.00	\$0.00	\$1.21
Schedule 24 Distribution Amount	03/05/2019	01/09/2019	2.06	0.00	0.00	2.06
Schedule 24 Distribution Amount	03/06/2019	01/10/2019	5.28	0.00	0.00	5.28
Schedule 24 Distribution Amount	03/07/2019	01/11/2019	23.27	0.00	0.00	23.27
Schedule 24 Distribution Amount	03/08/2019	01/12/2019	1.46	0.00	0.00	1.46
Spinning Reserve Cost Distribution Amount	03/02/2019	01/06/2019	(0.33)	0.00	0.00	(0.33)
Spinning Reserve Cost Distribution Amount	03/03/2019	01/07/2019	(0.18)	0.00	0.00	(0.18)
Spinning Reserve Cost Distribution Amount	03/04/2019	01/08/2019	0.38	0.00	0.00	0.38
Spinning Reserve Cost Distribution Amount	03/05/2019	01/09/2019	0.73	0.00	0.00	0.73
Spinning Reserve Cost Distribution Amount	03/06/2019	01/10/2019	0.55	0.00	0.00	0.55
Spinning Reserve Cost Distribution Amount	03/07/2019	01/11/2019	(6.92)	0.00	0.00	(6.92)
Spinning Reserve Cost Distribution Amount	03/08/2019	01/12/2019	0.04	0.00	0.00	0.04
Supplemental Reserve Cost Distribution Amount	03/02/2019	01/06/2019	(0.26)	0.00	0.00	(0.26)
Supplemental Reserve Cost Distribution Amount	03/03/2019	01/07/2019	(0.22)	0.00	0.00	(0.22)
Supplemental Reserve Cost Distribution Amount	03/04/2019	01/08/2019	0.30	0.00	0.00	0.30
Supplemental Reserve Cost Distribution Amount	03/05/2019	01/09/2019	0.01	0.00	0.00	0.01
Supplemental Reserve Cost Distribution Amount	03/06/2019	01/10/2019	0.18	0.00	0.00	0.18
Supplemental Reserve Cost Distribution Amount	03/07/2019	01/11/2019	(1.29)	0.00	0.00	(1.29)
Supplemental Reserve Cost Distribution Amount	03/08/2019	01/12/2019	(0.04)	0.00	0.00	(0.04)
Transmission Guarantee Uplift Amount	03/03/2019	01/07/2019	0.00	0.00	(0.11)	(0.11)
Transmission Guarantee Uplift Amount	03/04/2019	01/08/2019	0.00	0.00	(0.39)	(0.39)
Transmission Guarantee Uplift Amount	03/05/2019	01/09/2019	0.00	0.00	(0.10)	(0.10)
Transmission Guarantee Uplift Amount	03/07/2019	01/11/2019	0.00	0.00	(0.01)	(0.01)
Transmission Rights Full Funding Guarantee Amount	03/03/2019	01/07/2019	0.00	0.00	0.11	0.11
Transmission Rights Full Funding Guarantee Amount	03/04/2019	01/08/2019	0.00	0.00	0.39	0.39
Transmission Rights Full Funding Guarantee Amount	03/05/2019	01/09/2019	0.00	0.00	0.10	0.10
Transmission Rights Full Funding Guarantee Amount	03/07/2019	01/11/2019	0.00	0.00	0.01	0.01
Transmission Rights Hourly Allocation Amount	03/03/2019	01/07/2019	0.00	0.00	(0.11)	(0.11)
Transmission Rights Hourly Allocation Amount	03/04/2019	01/08/2019	0.00	0.00	(0.39)	(0.39)
Transmission Rights Hourly Allocation Amount	03/05/2019	01/09/2019	0.00	0.00	(0.10)	(0.10)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	03/02/2019	11/17/2018	(\$4.90)	\$0.00	\$0.00	(\$4.90)
Distribution of Losses Amount	03/03/2019	11/18/2018	(2.14)	0.00	0.00	(2.14)
Distribution of Losses Amount	03/04/2019	11/19/2018	(0.98)	0.00	0.00	(0.98)
Distribution of Losses Amount	03/05/2019	11/20/2018	0.28	0.00	0.00	0.28
Distribution of Losses Amount	03/06/2019	11/21/2018	(10.66)	0.00	0.00	(10.66)
Distribution of Losses Amount	03/07/2019	11/22/2018	(1.31)	0.00	0.00	(1.31)
Distribution of Losses Amount	03/08/2019	11/23/2018	(2.90)	0.00	0.00	(2.90)
Excessive Deficient Energy Deployment Charge Amount	03/02/2019	11/17/2018	0.06	0.00	0.00	0.06
Excessive Deficient Energy Deployment Charge Amount	03/03/2019	11/18/2018	0.05	0.00	0.00	0.05
Excessive Deficient Energy Deployment Charge Amount	03/04/2019	11/19/2018	(0.08)	0.00	0.00	(0.08)
Excessive Deficient Energy Deployment Charge Amount	03/05/2019	11/20/2018	(0.07)	0.00	0.00	(0.07)
Excessive Deficient Energy Deployment Charge Amount	03/06/2019	11/21/2018	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	03/07/2019	11/22/2018	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	03/08/2019	11/23/2018	(0.10)	0.00	0.00	(0.10)
Net Inadvertent Distribution Amount	03/02/2019	11/17/2018	0.02	0.00	0.00	0.02
Net Inadvertent Distribution Amount	03/03/2019	11/18/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	03/04/2019	11/19/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	03/05/2019	11/20/2018	0.03	0.00	0.00	0.03
Net Inadvertent Distribution Amount	03/08/2019	11/23/2018	(0.06)	0.00	0.00	(0.06)
Regulation Cost Distribution Amount	03/02/2019	11/17/2018	0.38	0.00	0.00	0.38
Regulation Cost Distribution Amount	03/03/2019	11/18/2018	0.61	0.00	0.00	0.61
Regulation Cost Distribution Amount	03/04/2019	11/19/2018	0.63	0.00	0.00	0.63
Regulation Cost Distribution Amount	03/05/2019	11/20/2018	1.12	0.00	0.00	1.12
Regulation Cost Distribution Amount	03/06/2019	11/21/2018	0.10	0.00	0.00	0.10
Regulation Cost Distribution Amount	03/07/2019	11/22/2018	0.96	0.00	0.00	0.96
Regulation Cost Distribution Amount	03/08/2019	11/23/2018	1.05	0.00	0.00	1.05
Revenue Neutrality Uplift Amount	03/02/2019	11/17/2018	4.61	0.00	0.00	4.61
Revenue Neutrality Uplift Amount	03/03/2019	11/18/2018	61.50	0.00	0.00	61.50
Revenue Neutrality Uplift Amount	03/04/2019	11/19/2018	38.99	0.00	0.00	38.99
Revenue Neutrality Uplift Amount	03/05/2019	11/20/2018	109.04	0.00	0.00	109.04

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592741

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	03/06/2019	11/21/2018	\$10.23	\$0.00	\$0.00	\$10.23
Revenue Neutrality Uplift Amount	03/07/2019	11/22/2018	(4,341.25)	0.00	0.00	(4,341.25)
Revenue Neutrality Uplift Amount	03/08/2019	11/23/2018	(134.47)	0.00	0.00	(134.47)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/02/2019	11/17/2018	(0.16)	0.00	0.00	(0.16)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/03/2019	11/18/2018	(0.49)	0.00	0.00	(0.49)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/04/2019	11/19/2018	(2.13)	0.00	0.00	(2.13)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/05/2019	11/20/2018	11.22	0.00	0.00	11.22
Revenue Sufficiency Guarantee First Pass Dist Amount	03/06/2019	11/21/2018	(24.65)	0.00	0.00	(24.65)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/07/2019	11/22/2018	1.31	0.00	0.00	1.31
Revenue Sufficiency Guarantee First Pass Dist Amount	03/08/2019	11/23/2018	(0.81)	0.00	0.00	(0.81)
Schedule 24 Distribution Amount	03/02/2019	11/17/2018	0.32	0.00	0.00	0.32
Schedule 24 Distribution Amount	03/03/2019	11/18/2018	0.42	0.00	0.00	0.42
Schedule 24 Distribution Amount	03/04/2019	11/19/2018	0.88	0.00	0.00	0.88
Schedule 24 Distribution Amount	03/05/2019	11/20/2018	0.82	0.00	0.00	0.82
Schedule 24 Distribution Amount	03/06/2019	11/21/2018	0.04	0.00	0.00	0.04
Schedule 24 Distribution Amount	03/07/2019	11/22/2018	0.23	0.00	0.00	0.23
Schedule 24 Distribution Amount	03/08/2019	11/23/2018	(0.52)	0.00	0.00	(0.52)
Spinning Reserve Cost Distribution Amount	03/02/2019	11/17/2018	(0.12)	0.00	0.00	(0.12)
Spinning Reserve Cost Distribution Amount	03/03/2019	11/18/2018	0.26	0.00	0.00	0.26
Spinning Reserve Cost Distribution Amount	03/04/2019	11/19/2018	(0.01)	0.00	0.00	(0.01)
Spinning Reserve Cost Distribution Amount	03/08/2019	11/23/2018	(0.37)	0.00	0.00	(0.37)
Supplemental Reserve Cost Distribution Amount	03/02/2019	11/17/2018	0.13	0.00	0.00	0.13
Supplemental Reserve Cost Distribution Amount	03/03/2019	11/18/2018	0.13	0.00	0.00	0.13
Supplemental Reserve Cost Distribution Amount	03/05/2019	11/20/2018	(0.13)	0.00	0.00	(0.13)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$4,282.87)	\$0.00	\$0.00	(\$4,282.87)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592742

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$30,570.36
S14 Prior Period Adjustments:	(1.99)
S55 Prior Period Adjustments:	(1.22)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$30,567.15

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1592742

For Statements Issued: 03/02/2019 - 03/08/2019

Invoice Date: 03/12/2019

Participant ID: MPM

Payment Due Date: 03/19/2019

Invoice Type: Administration Fee Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	03/02/2019	02/23/2019	\$167.27	\$3,314.05	\$0.00	\$3,481.32
Market Administration Amount	03/03/2019	02/24/2019	275.10	4,319.73	0.00	4,594.83
Market Administration Amount	03/04/2019	02/25/2019	201.10	3,817.22	0.00	4,018.32
Market Administration Amount	03/05/2019	02/26/2019	278.51	3,954.30	0.00	4,232.81
Market Administration Amount	03/06/2019	02/27/2019	336.08	4,407.30	0.00	4,743.38
Market Administration Amount	03/07/2019	02/28/2019	182.88	4,036.34	0.00	4,219.22
Market Administration Amount	03/08/2019	03/01/2019	334.34	4,657.18	0.00	4,991.52
Transmission Rights Market Administration Amount	03/02/2019	02/23/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	03/03/2019	02/24/2019	0.00	0.00	28.32	28.32
Transmission Rights Market Administration Amount	03/04/2019	02/25/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	03/05/2019	02/26/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	03/06/2019	02/27/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	03/07/2019	02/28/2019	0.00	0.00	29.60	29.60
Transmission Rights Market Administration Amount	03/08/2019	03/01/2019	0.00	0.00	113.92	113.92
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$1,775.28	\$28,506.12	\$288.96	\$30,570.36

MISO MARKET & ADMINISTRATION INVOICE

March 19, 2019



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$2,179,630.53
S14 Prior Period Adjustments:	14,850.24
S55 Prior Period Adjustments:	(2,382.39)
S105 Prior Period Adjustments:	705.74
Other Adjustments:	1,124.28

Total Net Charge (Revenue):

\$2,193,928.40

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Asset Energy Amount	03/09/2019	03/02/2019	\$4,742.28	\$349,545.13	\$0.00	\$354,287.41
Asset Energy Amount	03/10/2019	03/03/2019	6,277.88	172,544.35	0.00	178,822.23
Asset Energy Amount	03/11/2019	03/04/2019	62,441.75	372,196.45	0.00	434,638.20
Asset Energy Amount	03/12/2019	03/05/2019	(2,511.94)	467,606.66	0.00	465,094.72
Asset Energy Amount	03/13/2019	03/06/2019	(57,671.10)	613,426.99	0.00	555,755.89
Asset Energy Amount	03/14/2019	03/07/2019	(50,693.54)	429,644.33	0.00	378,950.79
Asset Energy Amount	03/15/2019	03/08/2019	31,938.87	524,690.70	0.00	556,629.57
Distribution of Losses Amount	03/09/2019	03/02/2019	(15,593.00)	0.00	0.00	(15,593.00)
Distribution of Losses Amount	03/10/2019	03/03/2019	(16,518.74)	0.00	0.00	(16,518.74)
Distribution of Losses Amount	03/11/2019	03/04/2019	(21,949.53)	0.00	0.00	(21,949.53)
Distribution of Losses Amount	03/12/2019	03/05/2019	(21,339.68)	0.00	0.00	(21,339.68)
Distribution of Losses Amount	03/13/2019	03/06/2019	(15,257.78)	0.00	0.00	(15,257.78)
Distribution of Losses Amount	03/14/2019	03/07/2019	(17,860.39)	0.00	0.00	(17,860.39)
Distribution of Losses Amount	03/15/2019	03/08/2019	(11,579.16)	0.00	0.00	(11,579.16)
Excessive Deficient Energy Deployment Charge Amount	03/09/2019	03/02/2019	81.62	0.00	0.00	81.62
Excessive Deficient Energy Deployment Charge Amount	03/10/2019	03/03/2019	112.87	0.00	0.00	112.87
Excessive Deficient Energy Deployment Charge Amount	03/11/2019	03/04/2019	137.02	0.00	0.00	137.02
Excessive Deficient Energy Deployment Charge Amount	03/12/2019	03/05/2019	288.93	0.00	0.00	288.93
Excessive Deficient Energy Deployment Charge Amount	03/13/2019	03/06/2019	65.32	0.00	0.00	65.32
Excessive Deficient Energy Deployment Charge Amount	03/14/2019	03/07/2019	204.95	0.00	0.00	204.95
Excessive Deficient Energy Deployment Charge Amount	03/15/2019	03/08/2019	95.19	0.00	0.00	95.19
Excessive Energy Amount	03/13/2019	03/06/2019	65.55	0.00	0.00	65.55
Financial Bilateral Transaction Congestion Amount	03/09/2019	03/02/2019	0.00	11,158.00	0.00	11,158.00
Financial Bilateral Transaction Congestion Amount	03/10/2019	03/03/2019	0.00	5,452.00	0.00	5,452.00
Financial Bilateral Transaction Congestion Amount	03/11/2019	03/04/2019	0.00	30,958.50	0.00	30,958.50
Financial Bilateral Transaction Congestion Amount	03/12/2019	03/05/2019	0.00	35,304.40	0.00	35,304.40
Financial Bilateral Transaction Congestion Amount	03/13/2019	03/06/2019	0.00	14,743.25	0.00	14,743.25
Financial Bilateral Transaction Congestion Amount	03/14/2019	03/07/2019	0.00	11,534.70	0.00	11,534.70
Financial Bilateral Transaction Congestion Amount	03/15/2019	03/08/2019	0.00	12,567.95	0.00	12,567.95
Financial Bilateral Transaction Loss Amount	03/09/2019	03/02/2019	0.00	7,252.50	0.00	7,252.50

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Financial Bilateral Transaction Loss Amount	03/10/2019	03/03/2019	\$0.00	\$7,958.00	\$0.00	\$7,958.00
Financial Bilateral Transaction Loss Amount	03/11/2019	03/04/2019	0.00	24,752.55	0.00	24,752.55
Financial Bilateral Transaction Loss Amount	03/12/2019	03/05/2019	0.00	22,097.10	0.00	22,097.10
Financial Bilateral Transaction Loss Amount	03/13/2019	03/06/2019	0.00	10,738.55	0.00	10,738.55
Financial Bilateral Transaction Loss Amount	03/14/2019	03/07/2019	0.00	8,077.25	0.00	8,077.25
Financial Bilateral Transaction Loss Amount	03/15/2019	03/08/2019	0.00	6,898.75	0.00	6,898.75
Net Inadvertent Distribution Amount	03/09/2019	03/02/2019	379.98	0.00	0.00	379.98
Net Inadvertent Distribution Amount	03/10/2019	03/03/2019	1,498.72	0.00	0.00	1,498.72
Net Inadvertent Distribution Amount	03/11/2019	03/04/2019	2,755.97	0.00	0.00	2,755.97
Net Inadvertent Distribution Amount	03/12/2019	03/05/2019	2,514.61	0.00	0.00	2,514.61
Net Inadvertent Distribution Amount	03/13/2019	03/06/2019	2,316.34	0.00	0.00	2,316.34
Net Inadvertent Distribution Amount	03/14/2019	03/07/2019	1,856.08	0.00	0.00	1,856.08
Net Inadvertent Distribution Amount	03/15/2019	03/08/2019	2,279.97	0.00	0.00	2,279.97
Net Regulation Adjustment Amount	03/09/2019	03/02/2019	(42.83)	0.00	0.00	(42.83)
Net Regulation Adjustment Amount	03/10/2019	03/03/2019	(24.62)	0.00	0.00	(24.62)
Net Regulation Adjustment Amount	03/11/2019	03/04/2019	(69.97)	0.00	0.00	(69.97)
Net Regulation Adjustment Amount	03/12/2019	03/05/2019	(46.90)	0.00	0.00	(46.90)
Net Regulation Adjustment Amount	03/13/2019	03/06/2019	115.42	0.00	0.00	115.42
Net Regulation Adjustment Amount	03/14/2019	03/07/2019	89.30	0.00	0.00	89.30
Net Regulation Adjustment Amount	03/15/2019	03/08/2019	22.56	0.00	0.00	22.56
Non-Asset Energy Amount	03/09/2019	03/02/2019	(8,871.85)	(48,899.50)	0.00	(57,771.35)
Non-Asset Energy Amount	03/10/2019	03/03/2019	(2,646.78)	(58,207.00)	0.00	(60,853.78)
Non-Asset Energy Amount	03/11/2019	03/04/2019	(11,449.38)	(153,496.75)	0.00	(164,946.13)
Non-Asset Energy Amount	03/12/2019	03/05/2019	405.56	(179,646.32)	0.00	(179,240.76)
Non-Asset Energy Amount	03/13/2019	03/06/2019	(8,790.94)	(69,487.86)	0.00	(78,278.80)
Non-Asset Energy Amount	03/14/2019	03/07/2019	(6,080.25)	(60,021.00)	0.00	(66,101.25)
Non-Asset Energy Amount	03/15/2019	03/08/2019	(13,407.70)	(42,769.00)	0.00	(56,176.70)
Non-Excessive Energy Amount	03/09/2019	03/02/2019	(117,688.44)	0.00	0.00	(117,688.44)
Non-Excessive Energy Amount	03/10/2019	03/03/2019	1,310.96	0.00	0.00	1,310.96
Non-Excessive Energy Amount	03/11/2019	03/04/2019	432.02	0.00	0.00	432.02

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Non-Excessive Energy Amount	03/12/2019	03/05/2019	(\$20,365.44)	\$0.00	\$0.00	(\$20,365.44)
Non-Excessive Energy Amount	03/13/2019	03/06/2019	(45,767.91)	0.00	0.00	(45,767.91)
Non-Excessive Energy Amount	03/14/2019	03/07/2019	45,237.50	0.00	0.00	45,237.50
Non-Excessive Energy Amount	03/15/2019	03/08/2019	24,028.44	0.00	0.00	24,028.44
Price Volatility Make Whole Payment Amt	03/09/2019	03/02/2019	(8.48)	0.00	0.00	(8.48)
Price Volatility Make Whole Payment Amt	03/11/2019	03/04/2019	(5.09)	0.00	0.00	(5.09)
Price Volatility Make Whole Payment Amt	03/12/2019	03/05/2019	(17.03)	0.00	0.00	(17.03)
Price Volatility Make Whole Payment Amt	03/13/2019	03/06/2019	(2,177.32)	0.00	0.00	(2,177.32)
Price Volatility Make Whole Payment Amt	03/14/2019	03/07/2019	(3.60)	0.00	0.00	(3.60)
Price Volatility Make Whole Payment Amt	03/15/2019	03/08/2019	(5.69)	0.00	0.00	(5.69)
Ramp Capability Amount	03/09/2019	03/02/2019	(1.79)	(5.05)	0.00	(6.84)
Ramp Capability Amount	03/12/2019	03/05/2019	0.00	(0.80)	0.00	(0.80)
Ramp Capability Amount	03/14/2019	03/07/2019	(1.13)	0.00	0.00	(1.13)
Ramp Capability Amount	03/15/2019	03/08/2019	(2.91)	0.00	0.00	(2.91)
Regulation Amount	03/09/2019	03/02/2019	234.50	(447.74)	0.00	(213.24)
Regulation Amount	03/10/2019	03/03/2019	320.89	(704.80)	0.00	(383.91)
Regulation Amount	03/11/2019	03/04/2019	183.52	(1,256.48)	0.00	(1,072.96)
Regulation Amount	03/12/2019	03/05/2019	212.95	(781.27)	0.00	(568.32)
Regulation Amount	03/13/2019	03/06/2019	882.79	(1,113.90)	0.00	(231.11)
Regulation Amount	03/14/2019	03/07/2019	440.24	(1,208.91)	0.00	(768.67)
Regulation Amount	03/15/2019	03/08/2019	74.79	(618.25)	0.00	(543.46)
Regulation Cost Distribution Amount	03/09/2019	03/02/2019	976.86	0.00	0.00	976.86
Regulation Cost Distribution Amount	03/10/2019	03/03/2019	1,345.54	0.00	0.00	1,345.54
Regulation Cost Distribution Amount	03/11/2019	03/04/2019	1,876.56	0.00	0.00	1,876.56
Regulation Cost Distribution Amount	03/12/2019	03/05/2019	1,341.30	0.00	0.00	1,341.30
Regulation Cost Distribution Amount	03/13/2019	03/06/2019	1,676.14	0.00	0.00	1,676.14
Regulation Cost Distribution Amount	03/14/2019	03/07/2019	1,298.29	0.00	0.00	1,298.29
Regulation Cost Distribution Amount	03/15/2019	03/08/2019	1,166.91	0.00	0.00	1,166.91
Resource Adequacy Auction Amount	03/09/2019	03/02/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/10/2019	03/03/2019	(10.95)	0.00	0.00	(10.95)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Resource Adequacy Auction Amount	03/11/2019	03/04/2019	(\$10.95)	\$0.00	\$0.00	(\$10.95)
Resource Adequacy Auction Amount	03/12/2019	03/05/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/13/2019	03/06/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/14/2019	03/07/2019	(10.95)	0.00	0.00	(10.95)
Resource Adequacy Auction Amount	03/15/2019	03/08/2019	(10.95)	0.00	0.00	(10.95)
Revenue Neutrality Uplift Amount	03/09/2019	03/02/2019	10,603.13	0.00	0.00	10,603.13
Revenue Neutrality Uplift Amount	03/10/2019	03/03/2019	1,365.43	0.00	0.00	1,365.43
Revenue Neutrality Uplift Amount	03/11/2019	03/04/2019	7,415.56	0.00	0.00	7,415.56
Revenue Neutrality Uplift Amount	03/12/2019	03/05/2019	12,447.46	0.00	0.00	12,447.46
Revenue Neutrality Uplift Amount	03/13/2019	03/06/2019	177.38	0.00	0.00	177.38
Revenue Neutrality Uplift Amount	03/14/2019	03/07/2019	1,231.36	0.00	0.00	1,231.36
Revenue Neutrality Uplift Amount	03/15/2019	03/08/2019	(1,933.46)	0.00	0.00	(1,933.46)
Revenue Sufficiency Guarantee Distribution Amount	03/09/2019	03/02/2019	0.00	677.60	0.00	677.60
Revenue Sufficiency Guarantee Distribution Amount	03/10/2019	03/03/2019	0.00	903.98	0.00	903.98
Revenue Sufficiency Guarantee Distribution Amount	03/11/2019	03/04/2019	0.00	666.88	0.00	666.88
Revenue Sufficiency Guarantee Distribution Amount	03/12/2019	03/05/2019	0.00	640.38	0.00	640.38
Revenue Sufficiency Guarantee Distribution Amount	03/13/2019	03/06/2019	0.00	1,035.03	0.00	1,035.03
Revenue Sufficiency Guarantee Distribution Amount	03/14/2019	03/07/2019	0.00	289.41	0.00	289.41
Revenue Sufficiency Guarantee Distribution Amount	03/15/2019	03/08/2019	0.00	681.01	0.00	681.01
Revenue Sufficiency Guarantee First Pass Dist Amount	03/09/2019	03/02/2019	76.11	0.00	0.00	76.11
Revenue Sufficiency Guarantee First Pass Dist Amount	03/10/2019	03/03/2019	82.01	0.00	0.00	82.01
Revenue Sufficiency Guarantee First Pass Dist Amount	03/11/2019	03/04/2019	157.68	0.00	0.00	157.68
Revenue Sufficiency Guarantee First Pass Dist Amount	03/12/2019	03/05/2019	32.86	0.00	0.00	32.86
Revenue Sufficiency Guarantee First Pass Dist Amount	03/13/2019	03/06/2019	293.61	0.00	0.00	293.61
Revenue Sufficiency Guarantee First Pass Dist Amount	03/14/2019	03/07/2019	1,082.59	0.00	0.00	1,082.59
Revenue Sufficiency Guarantee First Pass Dist Amount	03/15/2019	03/08/2019	473.89	0.00	0.00	473.89
Revenue Sufficiency Guarantee Make Whole Payment Amt	03/10/2019	03/03/2019	0.00	(1,316.00)	0.00	(1,316.00)
Schedule 24 Allocation Amount	03/09/2019	03/02/2019	73.56	686.46	0.00	760.02
Schedule 24 Allocation Amount	03/10/2019	03/03/2019	18.51	792.44	0.00	810.95
Schedule 24 Allocation Amount	03/11/2019	03/04/2019	39.69	820.00	0.00	859.69

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Invoice Type: Market Invoice

Payment Due Date: 03/26/2019

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Schedule 24 Allocation Amount	03/12/2019	03/05/2019	\$27.34	\$824.08	\$0.00	\$851.42
Schedule 24 Allocation Amount	03/13/2019	03/06/2019	42.67	710.30	0.00	752.97
Schedule 24 Allocation Amount	03/14/2019	03/07/2019	72.70	743.57	0.00	816.27
Schedule 24 Allocation Amount	03/15/2019	03/08/2019	35.50	673.35	0.00	708.85
Schedule 24 Distribution Amount	03/09/2019	03/02/2019	(5,018.50)	0.00	0.00	(5,018.50)
Schedule 24 Distribution Amount	03/10/2019	03/03/2019	(5,336.16)	0.00	0.00	(5,336.16)
Schedule 24 Distribution Amount	03/11/2019	03/04/2019	(6,150.38)	0.00	0.00	(6,150.38)
Schedule 24 Distribution Amount	03/12/2019	03/05/2019	(6,221.59)	0.00	0.00	(6,221.59)
Schedule 24 Distribution Amount	03/13/2019	03/06/2019	(5,950.88)	0.00	0.00	(5,950.88)
Schedule 24 Distribution Amount	03/14/2019	03/07/2019	(5,655.88)	0.00	0.00	(5,655.88)
Schedule 24 Distribution Amount	03/15/2019	03/08/2019	(5,225.75)	0.00	0.00	(5,225.75)
Spinning Reserve Amount	03/09/2019	03/02/2019	1.26	(2,099.22)	0.00	(2,097.96)
Spinning Reserve Amount	03/10/2019	03/03/2019	(27.75)	(1,501.99)	0.00	(1,529.74)
Spinning Reserve Amount	03/11/2019	03/04/2019	(27.87)	(1,824.59)	0.00	(1,852.46)
Spinning Reserve Amount	03/12/2019	03/05/2019	(142.98)	(1,656.51)	0.00	(1,799.49)
Spinning Reserve Amount	03/13/2019	03/06/2019	(1,582.12)	(2,255.63)	0.00	(3,837.75)
Spinning Reserve Amount	03/14/2019	03/07/2019	10.03	(2,251.59)	0.00	(2,241.56)
Spinning Reserve Amount	03/15/2019	03/08/2019	(320.39)	(1,284.14)	0.00	(1,604.53)
Spinning Reserve Cost Distribution Amount	03/09/2019	03/02/2019	1,120.41	0.00	0.00	1,120.41
Spinning Reserve Cost Distribution Amount	03/10/2019	03/03/2019	918.31	0.00	0.00	918.31
Spinning Reserve Cost Distribution Amount	03/11/2019	03/04/2019	1,674.23	0.00	0.00	1,674.23
Spinning Reserve Cost Distribution Amount	03/12/2019	03/05/2019	1,211.28	0.00	0.00	1,211.28
Spinning Reserve Cost Distribution Amount	03/13/2019	03/06/2019	1,246.58	0.00	0.00	1,246.58
Spinning Reserve Cost Distribution Amount	03/14/2019	03/07/2019	1,331.19	0.00	0.00	1,331.19
Spinning Reserve Cost Distribution Amount	03/15/2019	03/08/2019	951.84	0.00	0.00	951.84
Supplemental Reserve Amount	03/09/2019	03/02/2019	(0.79)	0.00	0.00	(0.79)
Supplemental Reserve Amount	03/10/2019	03/03/2019	(1.57)	(9.40)	0.00	(10.97)
Supplemental Reserve Amount	03/11/2019	03/04/2019	(96.47)	(90.23)	0.00	(186.70)
Supplemental Reserve Amount	03/12/2019	03/05/2019	(104.61)	0.00	0.00	(104.61)
Supplemental Reserve Amount	03/14/2019	03/07/2019	(4.13)	0.00	0.00	(4.13)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Supplemental Reserve Cost Distribution Amount	03/09/2019	03/02/2019	\$357.56	\$0.00	\$0.00	\$357.56
Supplemental Reserve Cost Distribution Amount	03/10/2019	03/03/2019	511.20	0.00	0.00	511.20
Supplemental Reserve Cost Distribution Amount	03/11/2019	03/04/2019	1,826.46	0.00	0.00	1,826.46
Supplemental Reserve Cost Distribution Amount	03/12/2019	03/05/2019	1,244.75	0.00	0.00	1,244.75
Supplemental Reserve Cost Distribution Amount	03/13/2019	03/06/2019	882.55	0.00	0.00	882.55
Supplemental Reserve Cost Distribution Amount	03/14/2019	03/07/2019	758.30	0.00	0.00	758.30
Supplemental Reserve Cost Distribution Amount	03/15/2019	03/08/2019	192.03	0.00	0.00	192.03
Transmission Guarantee Uplift Amount	03/09/2019	03/02/2019	0.00	0.00	326.50	326.50
Transmission Guarantee Uplift Amount	03/10/2019	03/03/2019	0.00	0.00	310.71	310.71
Transmission Guarantee Uplift Amount	03/11/2019	03/04/2019	0.00	0.00	3,461.47	3,461.47
Transmission Guarantee Uplift Amount	03/12/2019	03/05/2019	0.00	0.00	2,842.28	2,842.28
Transmission Guarantee Uplift Amount	03/13/2019	03/06/2019	0.00	0.00	2,613.60	2,613.60
Transmission Guarantee Uplift Amount	03/14/2019	03/07/2019	0.00	0.00	1,305.38	1,305.38
Transmission Guarantee Uplift Amount	03/15/2019	03/08/2019	0.00	0.00	895.27	895.27
Transmission Rights Full Funding Guarantee Amount	03/09/2019	03/02/2019	0.00	0.00	(326.50)	(326.50)
Transmission Rights Full Funding Guarantee Amount	03/10/2019	03/03/2019	0.00	0.00	(310.71)	(310.71)
Transmission Rights Full Funding Guarantee Amount	03/11/2019	03/04/2019	0.00	0.00	(3,461.47)	(3,461.47)
Transmission Rights Full Funding Guarantee Amount	03/12/2019	03/05/2019	0.00	0.00	(2,842.28)	(2,842.28)
Transmission Rights Full Funding Guarantee Amount	03/13/2019	03/06/2019	0.00	0.00	(2,613.60)	(2,613.60)
Transmission Rights Full Funding Guarantee Amount	03/14/2019	03/07/2019	0.00	0.00	(1,305.38)	(1,305.38)
Transmission Rights Full Funding Guarantee Amount	03/15/2019	03/08/2019	0.00	0.00	(895.27)	(895.27)
Transmission Rights Hourly Allocation Amount	03/09/2019	03/02/2019	0.00	0.00	(4,910.47)	(4,910.47)
Transmission Rights Hourly Allocation Amount	03/10/2019	03/03/2019	0.00	0.00	(5,887.22)	(5,887.22)
Transmission Rights Hourly Allocation Amount	03/11/2019	03/04/2019	0.00	0.00	(20,602.09)	(20,602.09)
Transmission Rights Hourly Allocation Amount	03/12/2019	03/05/2019	0.00	0.00	(26,829.86)	(26,829.86)
Transmission Rights Hourly Allocation Amount	03/13/2019	03/06/2019	0.00	0.00	(14,429.74)	(14,429.74)
Transmission Rights Hourly Allocation Amount	03/14/2019	03/07/2019	0.00	0.00	(6,609.77)	(6,609.77)
Transmission Rights Hourly Allocation Amount	03/15/2019	03/08/2019	0.00	0.00	1,175.89	1,175.89
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			(\$258,614.88)	\$2,516,338.67	(\$78,093.26)	\$2,179,630.53



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Asset Energy Amount	03/09/2019	02/23/2019	(\$491.41)	\$0.00	\$0.00	(\$491.41)
Asset Energy Amount	03/10/2019	02/24/2019	(411.92)	0.00	0.00	(411.92)
Asset Energy Amount	03/11/2019	02/25/2019	(807.89)	0.00	0.00	(807.89)
Asset Energy Amount	03/12/2019	02/26/2019	(764.20)	0.00	0.00	(764.20)
Asset Energy Amount	03/13/2019	02/27/2019	(183.99)	0.00	0.00	(183.99)
Asset Energy Amount	03/14/2019	02/28/2019	1,322.64	0.00	0.00	1,322.64
Asset Energy Amount	03/15/2019	03/01/2019	(9.10)	0.00	0.00	(9.10)
Distribution of Losses Amount	03/09/2019	02/23/2019	38.61	0.00	0.00	38.61
Distribution of Losses Amount	03/10/2019	02/24/2019	40.76	0.00	0.00	40.76
Distribution of Losses Amount	03/11/2019	02/25/2019	2,041.88	0.00	0.00	2,041.88
Distribution of Losses Amount	03/12/2019	02/26/2019	3,925.00	0.00	0.00	3,925.00
Distribution of Losses Amount	03/13/2019	02/27/2019	(15.70)	0.00	0.00	(15.70)
Distribution of Losses Amount	03/14/2019	02/28/2019	363.28	0.00	0.00	363.28
Distribution of Losses Amount	03/15/2019	03/01/2019	680.96	0.00	0.00	680.96
Excessive Deficient Energy Deployment Charge Amount	03/09/2019	02/23/2019	0.02	0.00	0.00	0.02
Excessive Deficient Energy Deployment Charge Amount	03/10/2019	02/24/2019	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	03/12/2019	02/26/2019	(0.01)	0.00	0.00	(0.01)
Excessive Deficient Energy Deployment Charge Amount	03/13/2019	02/27/2019	0.01	0.00	0.00	0.01
Excessive Deficient Energy Deployment Charge Amount	03/15/2019	03/01/2019	0.17	0.00	0.00	0.17
MVP Distribution Amount	03/14/2019	02/28/2019	479.72	0.00	0.00	479.72
Net Inadvertent Distribution Amount	03/09/2019	02/23/2019	0.08	0.00	0.00	0.08
Net Inadvertent Distribution Amount	03/10/2019	02/24/2019	(3.35)	0.00	0.00	(3.35)
Net Inadvertent Distribution Amount	03/11/2019	02/25/2019	(1,298.43)	0.00	0.00	(1,298.43)
Net Inadvertent Distribution Amount	03/12/2019	02/26/2019	(4,974.68)	0.00	0.00	(4,974.68)
Net Inadvertent Distribution Amount	03/13/2019	02/27/2019	(316.69)	0.00	0.00	(316.69)
Net Inadvertent Distribution Amount	03/14/2019	02/28/2019	(259.29)	0.00	0.00	(259.29)
Net Inadvertent Distribution Amount	03/15/2019	03/01/2019	(140.56)	0.00	0.00	(140.56)
Regulation Cost Distribution Amount	03/09/2019	02/23/2019	(0.55)	0.00	0.00	(0.55)
Regulation Cost Distribution Amount	03/10/2019	02/24/2019	0.37	0.00	0.00	0.37
Regulation Cost Distribution Amount	03/11/2019	02/25/2019	(0.32)	0.00	0.00	(0.32)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Regulation Cost Distribution Amount	03/12/2019	02/26/2019	(\$0.55)	\$0.00	\$0.00	(\$0.55)
Regulation Cost Distribution Amount	03/13/2019	02/27/2019	0.18	0.00	0.00	0.18
Regulation Cost Distribution Amount	03/14/2019	02/28/2019	7.51	0.00	0.00	7.51
Regulation Cost Distribution Amount	03/15/2019	03/01/2019	5.91	0.00	0.00	5.91
Revenue Neutrality Uplift Amount	03/09/2019	02/23/2019	(9.21)	0.00	0.00	(9.21)
Revenue Neutrality Uplift Amount	03/10/2019	02/24/2019	191.49	0.00	0.00	191.49
Revenue Neutrality Uplift Amount	03/11/2019	02/25/2019	2,222.24	0.00	0.00	2,222.24
Revenue Neutrality Uplift Amount	03/12/2019	02/26/2019	8,069.75	0.00	0.00	8,069.75
Revenue Neutrality Uplift Amount	03/13/2019	02/27/2019	405.91	0.00	0.00	405.91
Revenue Neutrality Uplift Amount	03/14/2019	02/28/2019	521.35	0.00	0.00	521.35
Revenue Neutrality Uplift Amount	03/15/2019	03/01/2019	458.55	0.00	0.00	458.55
Revenue Sufficiency Guarantee Distribution Amount	03/09/2019	02/23/2019	0.00	0.01	0.00	0.01
Revenue Sufficiency Guarantee Distribution Amount	03/10/2019	02/24/2019	0.00	0.03	0.00	0.03
Revenue Sufficiency Guarantee Distribution Amount	03/13/2019	02/27/2019	0.00	0.08	0.00	0.08
Revenue Sufficiency Guarantee First Pass Dist Amount	03/09/2019	02/23/2019	757.36	0.00	0.00	757.36
Revenue Sufficiency Guarantee First Pass Dist Amount	03/10/2019	02/24/2019	0.87	0.00	0.00	0.87
Revenue Sufficiency Guarantee First Pass Dist Amount	03/11/2019	02/25/2019	187.90	0.00	0.00	187.90
Revenue Sufficiency Guarantee First Pass Dist Amount	03/12/2019	02/26/2019	2.89	0.00	0.00	2.89
Revenue Sufficiency Guarantee First Pass Dist Amount	03/13/2019	02/27/2019	(35.82)	0.00	0.00	(35.82)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/14/2019	02/28/2019	1,961.87	0.00	0.00	1,961.87
Revenue Sufficiency Guarantee First Pass Dist Amount	03/15/2019	03/01/2019	861.77	0.00	0.00	861.77
Schedule 24 Allocation Amount	03/09/2019	02/23/2019	(0.07)	0.00	0.00	(0.07)
Schedule 24 Allocation Amount	03/10/2019	02/24/2019	(0.21)	0.00	0.00	(0.21)
Schedule 24 Allocation Amount	03/11/2019	02/25/2019	0.10	0.00	0.00	0.10
Schedule 24 Allocation Amount	03/12/2019	02/26/2019	0.20	0.00	0.00	0.20
Schedule 24 Allocation Amount	03/13/2019	02/27/2019	0.12	0.00	0.00	0.12
Schedule 24 Allocation Amount	03/14/2019	02/28/2019	(0.17)	0.00	0.00	(0.17)
Schedule 24 Distribution Amount	03/09/2019	02/23/2019	0.82	0.00	0.00	0.82
Schedule 24 Distribution Amount	03/10/2019	02/24/2019	(0.25)	0.00	0.00	(0.25)
Schedule 24 Distribution Amount	03/11/2019	02/25/2019	1.06	0.00	0.00	1.06

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S14						
Schedule 24 Distribution Amount	03/12/2019	02/26/2019	(\$0.03)	\$0.00	\$0.00	(\$0.03)
Schedule 24 Distribution Amount	03/13/2019	02/27/2019	0.63	0.00	0.00	0.63
Schedule 24 Distribution Amount	03/14/2019	02/28/2019	3.83	0.00	0.00	3.83
Schedule 24 Distribution Amount	03/15/2019	03/01/2019	13.29	0.00	0.00	13.29
Spinning Reserve Cost Distribution Amount	03/09/2019	02/23/2019	(0.30)	0.00	0.00	(0.30)
Spinning Reserve Cost Distribution Amount	03/10/2019	02/24/2019	0.16	0.00	0.00	0.16
Spinning Reserve Cost Distribution Amount	03/11/2019	02/25/2019	0.06	0.00	0.00	0.06
Spinning Reserve Cost Distribution Amount	03/12/2019	02/26/2019	0.15	0.00	0.00	0.15
Spinning Reserve Cost Distribution Amount	03/13/2019	02/27/2019	(0.23)	0.00	0.00	(0.23)
Spinning Reserve Cost Distribution Amount	03/14/2019	02/28/2019	0.78	0.00	0.00	0.78
Spinning Reserve Cost Distribution Amount	03/15/2019	03/01/2019	3.44	0.00	0.00	3.44
Supplemental Reserve Cost Distribution Amount	03/09/2019	02/23/2019	(0.08)	0.00	0.00	(0.08)
Supplemental Reserve Cost Distribution Amount	03/10/2019	02/24/2019	0.34	0.00	0.00	0.34
Supplemental Reserve Cost Distribution Amount	03/11/2019	02/25/2019	(0.14)	0.00	0.00	(0.14)
Supplemental Reserve Cost Distribution Amount	03/12/2019	02/26/2019	0.28	0.00	0.00	0.28
Supplemental Reserve Cost Distribution Amount	03/13/2019	02/27/2019	(0.05)	0.00	0.00	(0.05)
Supplemental Reserve Cost Distribution Amount	03/14/2019	02/28/2019	0.12	0.00	0.00	0.12
Supplemental Reserve Cost Distribution Amount	03/15/2019	03/01/2019	0.88	0.00	0.00	0.88
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$14,850.12	\$0.12	\$0.00	\$14,850.24



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Asset Energy Amount	03/09/2019	01/13/2019	(\$166.23)	\$0.00	\$0.00	(\$166.23)
Asset Energy Amount	03/10/2019	01/14/2019	266.13	0.00	0.00	266.13
Asset Energy Amount	03/11/2019	01/15/2019	(596.17)	0.00	0.00	(596.17)
Asset Energy Amount	03/12/2019	01/16/2019	(613.15)	0.00	0.00	(613.15)
Asset Energy Amount	03/13/2019	01/17/2019	(565.99)	0.00	0.00	(565.99)
Asset Energy Amount	03/14/2019	01/18/2019	(573.00)	0.00	0.00	(573.00)
Asset Energy Amount	03/15/2019	01/19/2019	(363.11)	0.00	0.00	(363.11)
Distribution of Losses Amount	03/09/2019	01/13/2019	67.21	0.00	0.00	67.21
Distribution of Losses Amount	03/10/2019	01/14/2019	81.56	0.00	0.00	81.56
Distribution of Losses Amount	03/11/2019	01/15/2019	36.37	0.00	0.00	36.37
Distribution of Losses Amount	03/12/2019	01/16/2019	108.55	0.00	0.00	108.55
Distribution of Losses Amount	03/13/2019	01/17/2019	157.12	0.00	0.00	157.12
Distribution of Losses Amount	03/14/2019	01/18/2019	145.76	0.00	0.00	145.76
Distribution of Losses Amount	03/15/2019	01/19/2019	469.67	0.00	0.00	469.67
Excessive Deficient Energy Deployment Charge Amount	03/09/2019	01/13/2019	0.05	0.00	0.00	0.05
Excessive Deficient Energy Deployment Charge Amount	03/10/2019	01/14/2019	0.07	0.00	0.00	0.07
Excessive Deficient Energy Deployment Charge Amount	03/11/2019	01/15/2019	0.07	0.00	0.00	0.07
Excessive Deficient Energy Deployment Charge Amount	03/12/2019	01/16/2019	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	03/13/2019	01/17/2019	0.09	0.00	0.00	0.09
Excessive Deficient Energy Deployment Charge Amount	03/14/2019	01/18/2019	0.05	0.00	0.00	0.05
Excessive Deficient Energy Deployment Charge Amount	03/15/2019	01/19/2019	0.09	0.00	0.00	0.09
Net Inadvertent Distribution Amount	03/09/2019	01/13/2019	36.79	0.00	0.00	36.79
Net Inadvertent Distribution Amount	03/10/2019	01/14/2019	46.58	0.00	0.00	46.58
Net Inadvertent Distribution Amount	03/11/2019	01/15/2019	33.12	0.00	0.00	33.12
Net Inadvertent Distribution Amount	03/12/2019	01/16/2019	42.28	0.00	0.00	42.28
Net Inadvertent Distribution Amount	03/13/2019	01/17/2019	46.61	0.00	0.00	46.61
Net Inadvertent Distribution Amount	03/14/2019	01/18/2019	44.35	0.00	0.00	44.35
Net Inadvertent Distribution Amount	03/15/2019	01/19/2019	159.94	0.00	0.00	159.94
Non-Excessive Energy Amount	03/09/2019	01/13/2019	(915.19)	0.00	0.00	(915.19)
Non-Excessive Energy Amount	03/12/2019	01/16/2019	47.67	0.00	0.00	47.67

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Non-Excessive Energy Amount	03/13/2019	01/17/2019	\$54.11	\$0.00	\$0.00	\$54.11
Non-Excessive Energy Amount	03/14/2019	01/18/2019	64.62	0.00	0.00	64.62
Regulation Cost Distribution Amount	03/09/2019	01/13/2019	0.45	0.00	0.00	0.45
Regulation Cost Distribution Amount	03/10/2019	01/14/2019	47.72	0.00	0.00	47.72
Regulation Cost Distribution Amount	03/11/2019	01/15/2019	3.62	0.00	0.00	3.62
Regulation Cost Distribution Amount	03/12/2019	01/16/2019	(0.53)	0.00	0.00	(0.53)
Regulation Cost Distribution Amount	03/13/2019	01/17/2019	31.97	0.00	0.00	31.97
Regulation Cost Distribution Amount	03/14/2019	01/18/2019	(0.29)	0.00	0.00	(0.29)
Regulation Cost Distribution Amount	03/15/2019	01/19/2019	3.91	0.00	0.00	3.91
Revenue Neutrality Uplift Amount	03/09/2019	01/13/2019	(23.76)	0.00	0.00	(23.76)
Revenue Neutrality Uplift Amount	03/10/2019	01/14/2019	(47.70)	0.00	0.00	(47.70)
Revenue Neutrality Uplift Amount	03/11/2019	01/15/2019	(162.37)	0.00	0.00	(162.37)
Revenue Neutrality Uplift Amount	03/12/2019	01/16/2019	(68.96)	0.00	0.00	(68.96)
Revenue Neutrality Uplift Amount	03/13/2019	01/17/2019	(26.81)	0.00	0.00	(26.81)
Revenue Neutrality Uplift Amount	03/14/2019	01/18/2019	(173.83)	0.00	0.00	(173.83)
Revenue Neutrality Uplift Amount	03/15/2019	01/19/2019	(66.48)	0.00	0.00	(66.48)
Revenue Sufficiency Guarantee Distribution Amount	03/09/2019	01/13/2019	0.00	0.06	0.00	0.06
Revenue Sufficiency Guarantee Distribution Amount	03/11/2019	01/15/2019	0.00	0.10	0.00	0.10
Revenue Sufficiency Guarantee Distribution Amount	03/12/2019	01/16/2019	0.00	0.02	0.00	0.02
Revenue Sufficiency Guarantee Distribution Amount	03/13/2019	01/17/2019	0.00	(0.03)	0.00	(0.03)
Revenue Sufficiency Guarantee Distribution Amount	03/14/2019	01/18/2019	0.00	0.02	0.00	0.02
Revenue Sufficiency Guarantee Distribution Amount	03/15/2019	01/19/2019	0.00	(0.01)	0.00	(0.01)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/09/2019	01/13/2019	(17.07)	0.00	0.00	(17.07)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/10/2019	01/14/2019	(4.91)	0.00	0.00	(4.91)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/11/2019	01/15/2019	115.08	0.00	0.00	115.08
Revenue Sufficiency Guarantee First Pass Dist Amount	03/12/2019	01/16/2019	(31.50)	0.00	0.00	(31.50)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/13/2019	01/17/2019	(65.94)	0.00	0.00	(65.94)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/14/2019	01/18/2019	(18.25)	0.00	0.00	(18.25)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/15/2019	01/19/2019	3.23	0.00	0.00	3.23
Schedule 24 Allocation Amount	03/09/2019	01/13/2019	(0.56)	0.00	0.00	(0.56)

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S55						
Schedule 24 Allocation Amount	03/10/2019	01/14/2019	\$0.18	\$0.00	\$0.00	\$0.18
Schedule 24 Allocation Amount	03/11/2019	01/15/2019	(0.22)	0.00	0.00	(0.22)
Schedule 24 Allocation Amount	03/12/2019	01/16/2019	0.07	0.00	0.00	0.07
Schedule 24 Allocation Amount	03/13/2019	01/17/2019	(0.16)	0.00	0.00	(0.16)
Schedule 24 Allocation Amount	03/14/2019	01/18/2019	(0.12)	0.00	0.00	(0.12)
Schedule 24 Allocation Amount	03/15/2019	01/19/2019	0.04	0.00	0.00	0.04
Schedule 24 Distribution Amount	03/09/2019	01/13/2019	1.17	0.00	0.00	1.17
Schedule 24 Distribution Amount	03/10/2019	01/14/2019	(0.76)	0.00	0.00	(0.76)
Schedule 24 Distribution Amount	03/11/2019	01/15/2019	(0.57)	0.00	0.00	(0.57)
Schedule 24 Distribution Amount	03/12/2019	01/16/2019	(0.22)	0.00	0.00	(0.22)
Schedule 24 Distribution Amount	03/13/2019	01/17/2019	2.19	0.00	0.00	2.19
Schedule 24 Distribution Amount	03/14/2019	01/18/2019	1.70	0.00	0.00	1.70
Schedule 24 Distribution Amount	03/15/2019	01/19/2019	1.23	0.00	0.00	1.23
Spinning Reserve Cost Distribution Amount	03/09/2019	01/13/2019	0.17	0.00	0.00	0.17
Spinning Reserve Cost Distribution Amount	03/10/2019	01/14/2019	0.24	0.00	0.00	0.24
Spinning Reserve Cost Distribution Amount	03/11/2019	01/15/2019	(0.53)	0.00	0.00	(0.53)
Spinning Reserve Cost Distribution Amount	03/12/2019	01/16/2019	(0.09)	0.00	0.00	(0.09)
Spinning Reserve Cost Distribution Amount	03/13/2019	01/17/2019	(0.09)	0.00	0.00	(0.09)
Spinning Reserve Cost Distribution Amount	03/14/2019	01/18/2019	0.48	0.00	0.00	0.48
Spinning Reserve Cost Distribution Amount	03/15/2019	01/19/2019	(0.02)	0.00	0.00	(0.02)
Supplemental Reserve Cost Distribution Amount	03/09/2019	01/13/2019	(0.04)	0.00	0.00	(0.04)
Supplemental Reserve Cost Distribution Amount	03/10/2019	01/14/2019	0.02	0.00	0.00	0.02
Supplemental Reserve Cost Distribution Amount	03/11/2019	01/15/2019	(0.05)	0.00	0.00	(0.05)
Supplemental Reserve Cost Distribution Amount	03/12/2019	01/16/2019	0.07	0.00	0.00	0.07
Supplemental Reserve Cost Distribution Amount	03/13/2019	01/17/2019	(0.07)	0.00	0.00	(0.07)
Supplemental Reserve Cost Distribution Amount	03/14/2019	01/18/2019	(0.03)	0.00	0.00	(0.03)
Supplemental Reserve Cost Distribution Amount	03/15/2019	01/19/2019	(0.04)	0.00	0.00	(0.04)
Transmission Guarantee Uplift Amount	03/10/2019	01/14/2019	0.00	0.00	(0.05)	(0.05)
Transmission Guarantee Uplift Amount	03/11/2019	01/15/2019	0.00	0.00	(0.13)	(0.13)
Transmission Rights Full Funding Guarantee Amount	03/10/2019	01/14/2019	0.00	0.00	0.05	0.05

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Distribution of Losses Amount	03/09/2019	11/24/2018	\$0.18	\$0.00	\$0.00	\$0.18
Distribution of Losses Amount	03/10/2019	11/25/2018	4.22	0.00	0.00	4.22
Distribution of Losses Amount	03/11/2019	11/26/2018	10.22	0.00	0.00	10.22
Distribution of Losses Amount	03/12/2019	11/27/2018	12.72	0.00	0.00	12.72
Distribution of Losses Amount	03/13/2019	11/28/2018	1.33	0.00	0.00	1.33
Distribution of Losses Amount	03/14/2019	11/29/2018	(0.39)	0.00	0.00	(0.39)
Distribution of Losses Amount	03/15/2019	11/30/2018	1.84	0.00	0.00	1.84
Excessive Deficient Energy Deployment Charge Amount	03/09/2019	11/24/2018	(0.04)	0.00	0.00	(0.04)
Excessive Deficient Energy Deployment Charge Amount	03/10/2019	11/25/2018	0.07	0.00	0.00	0.07
Excessive Deficient Energy Deployment Charge Amount	03/11/2019	11/26/2018	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	03/13/2019	11/28/2018	0.04	0.00	0.00	0.04
Excessive Deficient Energy Deployment Charge Amount	03/14/2019	11/29/2018	0.01	0.00	0.00	0.01
MVP Distribution Amount	03/15/2019	11/30/2018	3.78	0.00	0.00	3.78
Net Inadvertent Distribution Amount	03/09/2019	11/24/2018	0.03	0.00	0.00	0.03
Net Inadvertent Distribution Amount	03/10/2019	11/25/2018	0.01	0.00	0.00	0.01
Net Inadvertent Distribution Amount	03/13/2019	11/28/2018	(2.91)	0.00	0.00	(2.91)
Net Inadvertent Distribution Amount	03/14/2019	11/29/2018	(0.03)	0.00	0.00	(0.03)
Net Inadvertent Distribution Amount	03/15/2019	11/30/2018	(0.03)	0.00	0.00	(0.03)
Regulation Cost Distribution Amount	03/09/2019	11/24/2018	1.26	0.00	0.00	1.26
Regulation Cost Distribution Amount	03/10/2019	11/25/2018	0.98	0.00	0.00	0.98
Regulation Cost Distribution Amount	03/11/2019	11/26/2018	0.32	0.00	0.00	0.32
Regulation Cost Distribution Amount	03/12/2019	11/27/2018	0.85	0.00	0.00	0.85
Regulation Cost Distribution Amount	03/13/2019	11/28/2018	0.06	0.00	0.00	0.06
Regulation Cost Distribution Amount	03/14/2019	11/29/2018	0.30	0.00	0.00	0.30
Regulation Cost Distribution Amount	03/15/2019	11/30/2018	(0.25)	0.00	0.00	(0.25)
Revenue Neutrality Uplift Amount	03/09/2019	11/24/2018	414.54	0.00	0.00	414.54
Revenue Neutrality Uplift Amount	03/10/2019	11/25/2018	237.39	0.00	0.00	237.39
Revenue Neutrality Uplift Amount	03/11/2019	11/26/2018	(82.02)	0.00	0.00	(82.02)
Revenue Neutrality Uplift Amount	03/12/2019	11/27/2018	34.77	0.00	0.00	34.77
Revenue Neutrality Uplift Amount	03/13/2019	11/28/2018	37.09	0.00	0.00	37.09

Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:

(Continued on Next Page)



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S105						
Revenue Neutrality Uplift Amount	03/14/2019	11/29/2018	\$52.31	\$0.00	\$0.00	\$52.31
Revenue Neutrality Uplift Amount	03/15/2019	11/30/2018	(3.48)	0.00	0.00	(3.48)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/09/2019	11/24/2018	(1.49)	0.00	0.00	(1.49)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/10/2019	11/25/2018	(0.16)	0.00	0.00	(0.16)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/11/2019	11/26/2018	(4.40)	0.00	0.00	(4.40)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/12/2019	11/27/2018	(9.77)	0.00	0.00	(9.77)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/13/2019	11/28/2018	(3.14)	0.00	0.00	(3.14)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/14/2019	11/29/2018	(0.17)	0.00	0.00	(0.17)
Revenue Sufficiency Guarantee First Pass Dist Amount	03/15/2019	11/30/2018	(3.19)	0.00	0.00	(3.19)
Schedule 24 Distribution Amount	03/09/2019	11/24/2018	0.48	0.00	0.00	0.48
Schedule 24 Distribution Amount	03/10/2019	11/25/2018	0.34	0.00	0.00	0.34
Schedule 24 Distribution Amount	03/11/2019	11/26/2018	0.17	0.00	0.00	0.17
Schedule 24 Distribution Amount	03/12/2019	11/27/2018	(0.01)	0.00	0.00	(0.01)
Schedule 24 Distribution Amount	03/13/2019	11/28/2018	(0.41)	0.00	0.00	(0.41)
Schedule 24 Distribution Amount	03/14/2019	11/29/2018	0.80	0.00	0.00	0.80
Schedule 24 Distribution Amount	03/15/2019	11/30/2018	0.32	0.00	0.00	0.32
Spinning Reserve Cost Distribution Amount	03/09/2019	11/24/2018	0.50	0.00	0.00	0.50
Spinning Reserve Cost Distribution Amount	03/10/2019	11/25/2018	0.26	0.00	0.00	0.26
Spinning Reserve Cost Distribution Amount	03/12/2019	11/27/2018	0.38	0.00	0.00	0.38
Spinning Reserve Cost Distribution Amount	03/13/2019	11/28/2018	0.14	0.00	0.00	0.14
Supplemental Reserve Cost Distribution Amount	03/10/2019	11/25/2018	(0.12)	0.00	0.00	(0.12)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$705.74	\$0.00	\$0.00	\$705.74



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593753

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Market Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: Other						
R186 Distribution of Losses Amount	03/12/2019	09/07/2018	\$0.56	\$0.00	\$0.00	\$0.56
R186 Distribution of Losses Amount	03/13/2019	09/08/2018	93.30	0.00	0.00	93.30
R186 Net Inadvertent Distribution Amount	03/12/2019	09/07/2018	0.03	0.00	0.00	0.03
R186 Net Inadvertent Distribution Amount	03/13/2019	09/08/2018	(0.05)	0.00	0.00	(0.05)
R186 Regulation Cost Distribution Amount	03/12/2019	09/07/2018	0.21	0.00	0.00	0.21
R186 Regulation Cost Distribution Amount	03/13/2019	09/08/2018	(0.93)	0.00	0.00	(0.93)
R186 Revenue Neutrality Uplift Amount	03/12/2019	09/07/2018	(2.65)	0.00	0.00	(2.65)
R186 Revenue Neutrality Uplift Amount	03/13/2019	09/08/2018	1,179.64	0.00	0.00	1,179.64
R186 Revenue Sufficiency Guarantee Distribution Amount	03/12/2019	09/07/2018	0.00	(0.02)	0.00	(0.02)
R186 Revenue Sufficiency Guarantee Distribution Amount	03/13/2019	09/08/2018	0.00	(131.10)	0.00	(131.10)
R186 Revenue Sufficiency Guarantee First Pass Dist Amount	03/12/2019	09/07/2018	(0.35)	0.00	0.00	(0.35)
R186 Revenue Sufficiency Guarantee First Pass Dist Amount	03/13/2019	09/08/2018	(11.79)	0.00	0.00	(11.79)
R186 Schedule 24 Distribution Amount	03/12/2019	09/07/2018	(0.13)	0.00	0.00	(0.13)
R186 Schedule 24 Distribution Amount	03/13/2019	09/08/2018	(0.47)	0.00	0.00	(0.47)
R186 Spinning Reserve Cost Distribution Amount	03/12/2019	09/07/2018	(0.13)	0.00	0.00	(0.13)
R186 Spinning Reserve Cost Distribution Amount	03/13/2019	09/08/2018	(0.12)	0.00	0.00	(0.12)
R186 Supplemental Reserve Cost Distribution Amount	03/13/2019	09/08/2018	0.12	0.00	0.00	0.12
R186 Transmission Guarantee Uplift Amount	03/13/2019	09/08/2018	0.00	0.00	(1.84)	(1.84)
R186 Transmission Rights Full Funding Guarantee Amount	03/13/2019	09/08/2018	0.00	0.00	1.84	1.84
R186 Transmission Rights Hourly Allocation Amount	03/13/2019	09/08/2018	0.00	0.00	(1.84)	(1.84)
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$1,257.24	(\$131.12)	(\$1.84)	\$1,124.28



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593754

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Administration Fee Invoice

Invoice Summary:

Total:

Current S7 Net (Revenue)/Charge of Real Time and Day Ahead Markets:	\$39,086.08
S14 Prior Period Adjustments:	(0.26)
S55 Prior Period Adjustments:	(3.21)
S105 Prior Period Adjustments:	0.00
Other Adjustments:	0.00

Total Net Charge (Revenue):

\$39,082.61

The Net Charge for this invoice is greater than the Net Revenue. Please make payment in immediately available funds on the payment due date.

Electronic Banking Instructions:

ACH Payments

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 074000010
ACCT: 693193260

Wire Instructions

JP Morgan Chase Bank, NA
Indianapolis, IN
ABA: 021000021
ACCT: 693193260

International Wire Instructions

JP Morgan, Chase Bank, NA
Indianapolis, IN
Swift Code: CHASUS33
ABA: 021000021
ACCT: 693193260

For all inquiries, please contact:

MISO Client Relations
ClientRelations@misoenergy.org



Midcontinent Independent System Operator, Inc.
P.O. Box 4202
Carmel, IN 46082-4202

Invoice

Market Participant: Minnesota Power
30 West Superior Street
Duluth, MN 55802

Invoice Number: 1593754

For Statements Issued: 03/09/2019 - 03/15/2019

Invoice Date: 03/19/2019

Participant ID: MPM

Payment Due Date: 03/26/2019

Invoice Type: Administration Fee Invoice

Description	Settlement Date	Operating Date	Real-Time	Day-Ahead	Other	Total
Billing Period: S7						
Market Administration Amount	03/09/2019	03/02/2019	\$506.74	\$4,729.37	\$0.00	\$5,236.11
Market Administration Amount	03/10/2019	03/03/2019	127.45	5,459.71	0.00	5,587.16
Market Administration Amount	03/11/2019	03/04/2019	273.25	5,649.47	0.00	5,922.72
Market Administration Amount	03/12/2019	03/05/2019	188.34	5,677.56	0.00	5,865.90
Market Administration Amount	03/13/2019	03/06/2019	294.01	4,893.87	0.00	5,187.88
Market Administration Amount	03/14/2019	03/07/2019	500.81	5,122.99	0.00	5,623.80
Market Administration Amount	03/15/2019	03/08/2019	244.54	4,639.09	0.00	4,883.63
Transmission Rights Market Administration Amount	03/09/2019	03/02/2019	0.00	0.00	104.64	104.64
Transmission Rights Market Administration Amount	03/10/2019	03/03/2019	0.00	0.00	104.64	104.64
Transmission Rights Market Administration Amount	03/11/2019	03/04/2019	0.00	0.00	113.92	113.92
Transmission Rights Market Administration Amount	03/12/2019	03/05/2019	0.00	0.00	113.92	113.92
Transmission Rights Market Administration Amount	03/13/2019	03/06/2019	0.00	0.00	113.92	113.92
Transmission Rights Market Administration Amount	03/14/2019	03/07/2019	0.00	0.00	113.92	113.92
Transmission Rights Market Administration Amount	03/15/2019	03/08/2019	0.00	0.00	113.92	113.92
Total Net (Revenue)/Charge of Real Time and Day Ahead Markets:			\$2,135.14	\$36,172.06	\$778.88	\$39,086.08

Minnesota Power Bridging Schedule

	Feb-19
Total MP MISO Costs	
R.E. - Generation to Load LMP Difference	704,160.48
MISO to MISO	
Admin	121,462.95
Market Charges	(312,846.66)
Total	512,776.77

MISO COSTS IN FAC	
R.E. - Generation to Load LMP Difference	573,452.04
MISO to MISO	-
Admin	98,916.62
Market Charges	(254,775.10)
Total	417,593.56

MISO COSTS RECOVERED THRU IS-S	
R.E. - Generation to Load LMP Difference	\$130,708.44
MISO to MISO	
Admin	\$22,546.33
Market Charges	(58,071.56)
Total	95,183

FAC Portion	81%
IS-S Portion	19%

	Feb-19
Asset Energy in FAC (Spectrum Model)	
MISO Balance	\$12,587,921.25
FinSched/Physicals	-
Total	12,587,921

Total Asset Energy in FAC	13,161,373.29
Total Market and Admin in FAC	(155,858.47)
	13,005,514.81

To Allocate the FAC Portion between Retail & Resale FAC:	
KWH Subject to Retail FAC	Feb-19
FAC # 16	705,799,281
FAC # 17	0
Less Solar Generation and Purchases	326,322
Subtotal Retail	705,472,959
Resale FAC #19/ MEA True Up	131,555,974
Retail FAC Denominator	837,028,933
Total KWH subject to Retail/Resale FAC	837,028,933
Percentage of Retail	84%
Percentage of Resale	16%
	100%
	11,055,553.56

Total MISO in FAC 13,005,514.81

RE Breakdown (inputs)	
DA Loss	1,004,868.23
DA Congestion	103,090.27
RT Loss	(380,128.41)
RT Congestion	(23,669.61)

Total RE 704,160.48

RE for Retail FAC (calculated)

DA Loss	687,406.85
DA Congestion	70,521.64

RT Loss	(260,036.96)
RT Congestion	(16,191.83)
Total RE for Retail FAC	481,699.71
RE for Resale FAC (calculated)	
DA Loss	130,934.64
DA Congestion	13,432.69
RT Loss	(49,530.85)
RT Congestion	(3,084.16)
Total RE for Resale FAC	91,752.33
RE for ISS (calculated)	
DA Loss	186,526.74
DA Congestion	19,135.93
RT Loss	(70,560.61)
RT Congestion	(4,393.63)
Total RE for ISS	130,708.44
Contract Sales Mwh's (inputs)	
BASIN	67,200
TRANSALTA	27,200
NEXTERA	29,920
MPC	52,255
OCONTO	11,106
Total Contract Sales Mwh's	187,681
GRE Mwh's not subject to RE (input)	
	-
Contract Sales Mwh's subject to RE (does not include Alliant or Tach 2 portion of GRE)	135,426
Contract Sales Mwh's subject to MISO charges	135,426
RE cost per Mwh (input) (from hourly adder)	0.69
Other MISO cost per Mwh (input) (from hourly adder)	-0.19
Total sales MWh (input) (from hourly adder)	1,019,695
Other Sales Mwh's (inputs)	
Total Liquidation Mwh's	43,069
MISO Balance sales and MISO_Sale	33,314
MISO Balance in Liquidation	33,314
Interruptible Sales	-
IPS / EXCESS ENERGY Sales	1,629
Total ISS for Fuel Adjust	286,392
Total Sales from FAC calc	1,125,376
WPPI, FPL Station Service (not applied MISO Charges)	2,465
adjustment to MISO balance liquidation (input)	
For allocation purposes (calculated)	
MISO Non-Liquidation	-
MISO Liquidation	33,314
Others - Liquidation	9,755
Others - Non-Liquidation	57,597

KWH Subject to Retail FAC
FAC # 16 (original number submitted in September 08)

**Annual Identification of Forced Outages, Lessons Learned and
Mechanism for Information Sharing**

Docket E-999/AA-10-884, dated April 6, 2012

Annual Identification of Forced Outages and Lessons Learned

Our maintenance practices and reliability programs are constantly being evaluated to ensure continuous improvement of our employees' skills and work processes to improve reliability. All of our craftspeople are required to be trained on precision maintenance as part of their apprenticeship. We also require classroom training for all of the operating staff for asset care and preservation. Those individuals are taught operational best practices for operating pumps, motors, valves etc. Since January 2011, over 60 employees at the leadership level – maintenance leads, operations and maintenance superintendents, maintenance planners, and engineers – have participated in Reliability University. Reliability University is a program that teaches students the best practices of equipment maintenance along with the tools needed to be proactive rather than reactive to ensure equipment reliability. Elements of Reliability University include condition monitoring, vibration analysis, system and components, troubleshooting, precision equipment installation and assembly, instrument and process variability and root cause failure analysis. Additionally, we have increased our expectations and requirements around specifications of new and rebuilt equipment and parts with enhanced use of overhaul specifications and visits to repair shops by engineers and technicians.

Our Outage Planning process continues to be a focal area. A systematic approach to outage planning with improved tools has resulted in projects safely and efficiently executed while ensuring equipment reliability. Outage duration is set based on project scope with project milestones identified, resources allocated, materials ordered, and safety plans in place. Automated reports allow for better coordination, communication, budget management, and analysis of work required. For example, inspection activities that can only be performed with the unit offline are identified so they can be scheduled as early as possible in an outage to allow time to complete work within the outage window.

We continue to implement a program called Operational Excellence. The focus of Operational Excellence is to teach Human Performance tools to employees (3 way communication, Peer Checking, Labeling, Procedure Use and Adherence etc.) resulting in increased elimination of potential errors occurring in the field. In addition to the Human Performance tool usage, a “lessons learned” process is completed when an event does occur and those learnings are shared throughout the facilities.

Tube Leaks

Tube leaks are statistically the most common cause of outages in coal fired power plants. The most common causes of tube leaks:

- thermal fatigue
- soot blower erosion
- fly ash erosion
- chemical attack

Thermal fatigue manifests itself as cracking of the boiler tubes - sometimes as very small "micro" cracks and sometimes as large cracks. This occurs as a result of changing boiler temperatures, usually when the boiler swings up or down to follow load and when the boilers start up and shut down. This is a similar effect to bending a paper clip back and forth - after so many cycles it eventually breaks. Minimizing boiler “swings” (base loading) helps minimize the impact of thermal fatigue. However, with the energy markets being what they are with the ever increasing impacts of intermittent wind generation, we are seeing more and more swings in output.

Soot blower erosion occurs in areas where soot blowers are used to 'blow off' ash or slag which accumulates on boiler tubes. Soot blowers use high pressure steam or high pressure air to do the cleaning. The ash removal is necessary to improve heat transfer which improves boiler thermal efficiency. Common practices to mitigate soot blower erosion are to add a weld overlay (commonly called “pad welding”) to existing tubes, add tube shields which are essential sacrificial attachments to the tubes, changing soot blower media pressure (usually not an option) and tube replacement in the affected

areas. The use of the soot blowers is essential in keeping the units on line. Coal composition can differ from mine to mine or even within the same mine. As we look to find the best low cost fuel blend for our customers, certain coals may cause more fouling than others. The increased potential of this fouling requires both the frequency and duration of soot blowing to increase which minimizes the buildup on the boiler tubes. We are increasing using higher alloy weld overlay to provide increased tube longevity.

Fly ash erosion occurs when fly ash and combustion gases pass rapidly across superheated boiler tube surfaces. Because of the abrasiveness of fly ash, the surface of boiler tubes in the high flow areas slowly erode. Many things contribute to the amount of erosion, such as gas path restrictions (plugging- see reasons for soot blowing above), variations in coal quality (higher ash content), other additives which are added to the fuel mix typically for emission control, etc.

Chemical attack is becoming a common source of tube failures due to the corrosiveness of many of the additives being used to control emissions. When these chemicals come in contact with very hot boiler tubes, their normal corrosiveness is significantly increased. Since there tend to be few options for using alternate less corrosive additives, a common solution is to look at tube materials which perform better in the corrosive environment. This is usually a very expensive fix and can have environmental compliance implications.

Minnesota Power has a boiler reliability program which is very effective in proactively identifying areas of the boilers where tube leaks are likely to occur and minimizing that risk with proactive maintenance practices. The program uses a combination of visual inspections, non-destructive testing methods (NDT), tube sample analysis, tube failure history, and industry experiences to avoid forced outages due to unexpected tube leaks.

To give some perspective on the challenges with any boiler reliability program, consider the following:

- Boswell-3 boiler has 473,891 ft (89.7 miles) of varying diameter boiler tubes
- Boswell-4 boiler has 779,905 ft (147.6 miles) of varying diameter boiler tubes

The boiler tube surface area where a leak can occur is several hundred thousand square feet in either boiler.

A tube leak usually begins as a very small hole (0.10 inch or less) in the tube wall which can expand rapidly due to the high temperature and pressure. Considering the huge surface area in a boiler and the very small size of the hole or microscopic crack which results in a tube leak, it is very difficult to effectively screen the entire boiler to prevent all tube leaks. As part of our boiler reliability program, whenever there is an opportunity to get into the boiler to do an inspection – a forced or schedule outage – critical areas are inspected to evaluate erosion rates and to determine if repairs are needed. This information is used to plan for future capital expenditures to help minimize future tube leaks. During these inspection opportunities, small leaks are sometimes found and repaired. Similar proactive maintenance practices are routinely followed at the other Minnesota Power thermal facilities.

Non Boiler related outages

Minnesota Power has a Generation Reliability Group that is dedicated to monitoring and improving the reliability of not only the boiler but also the rotating equipment. The group is comprised of boiler, turbine and pulverizer engineers/specialists as well as specialists in predictive maintenance technologies. They work on a daily basis with the operating and maintenance groups at all facilities to improve the daily operating practices, planning for work and repairs to occur in future outages and establishing 5 and 10 year maintenance plans.

Rotating equipment that is monitored through various predictive technologies is summarized in a monthly reliability meeting with the specific plant. The manager is provided with a monthly scorecard as to their performance as well as identifying concerns and upcoming needs.

Mechanism for Some Level of Information Sharing

Minnesota Power is open to sharing lessons learned on a generic basis with the other utilities on an annual basis.

However, the concept of sharing lessons learned is more attractive in theory than in practice. Each utility's generating units are unique (manufacturer, date of installation, fuel type and mixture, base loaded vs. cyclic loading etc.), as is each company's operation and maintenance practices. Furthermore, sharing best practices regarding planned outages over and above what companies have already described in public filings borders on releasing confidential information about outage planning and energy marketing. This could work to harm that utility's customers if it were made available to other parties, since those practices provide the utility its best protection in acquiring replacement energy at the lowest cost possible.

Minnesota Power will continue to provide information on forced outages and what steps, if any, could have helped in avoiding or alleviating outages.

Unit	Event Type	DOC Primary Reason for the Outage	GADS Equivalent MWh lost	GADS Start Date/Time of Actual Outage	GADS End Date/Time of Actual Outage	DOC Equipment or Condition that Resulted in the Outage	DOC Description of Equipment Failure (including identified root cause)	DOC Steps Taken to Alleviate Reoccurrence	DOC Change in Energy
BEC 2	Unplanned Outage	Boiler Waterwall Leak	2,542	7/16/18 14:34	7/18/18 4:30	Superheat Tube Leak.	Tube failed due to fatigue.	Repair and inspect surrounding areas. The superheat is at the end of its useful life, however the unit will retire at the end of the year and no further action will be taken.	\$ 20,840
BEC 2	Unplanned Outage	Boiler SH Tube Leak	1,639	7/30/18 23:32	8/1/18 6:27	Boiler Reheat Tube Leak	Fireside erosion.	Repair and inspect surrounding areas. The superheat is at the end of its useful life, however the unit will retire at the end of the year and no further action will be taken.	
BEC 4	Unplanned Outage	Boiler SH Tube Leak	34,636	7/17/18 0:02	7/19/18 11:45	Superheat Tube Leak.	Fatigue stress cracking - overheating.	The refractories were removed to inspect every tube connection on the header. During that inspection an additional crack was repaired.	\$ 122,673
BEC 3	Unplanned Outage	Boiler Waterwall Leak	12,860	7/25/18 22:07	7/27/18 10:39	Waterwall tube.	Corrosion Fatigue.	Inspect and repair surrounding area. A capital project was completed in 2019 to address areas where failures occurred over the past 3 years.	\$ (60)
BEC 2	Unplanned Outage	Boiler Super Heat Tube Leak	2,071	7/30/18 23:32	8/1/18 6:27	Reheater and Superheat Tube Leak.	Fatigue stress cracking - overheating.	Reheat tube was sectioned out and replaced and the superheat tube was repaired in place. These elements are near the end of life and will not be replaced due to unit retirement at year-end.	\$ (2,063)
BEC 1	Unplanned Outage	Boiler Waterwall Leak	2,102	8/9/18 22:10	8/11/18 5:32	Waterwall Tube Leak.	Urea injection nozzle.	Repaired nozzle.	\$ 10,095
BEC 3	Unplanned Outage	Boiler Waterwall Leak	12,596	8/14/18 23:59	8/16/18 11:46	Waterwall Tube Leak.	Corrosion Fatigue.	Inspect and repair surrounding area. Additional inspection and repairs were completed in the spring 2019 outage.	\$ 80,454
BEC 3	Unplanned Outage	Boiler Waterwall Leak	16,239	9/19/18 20:21	9/21/18 18:29	Waterwall Tube Leak.	Corrosion Fatigue.	Inspect and repair surrounding area. Additional inspection and repairs were completed in the spring 2019 outage.	\$ 17,190
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	19,002	10/3/18 17:25	10/5/18 23:24	Waterwall Tube Leak.	Corrosion Fatigue.	Repaired tube leak. 2019 outage project completed to remove seal skirt, grind weld, perform 100% inspection and reattach seal skirt. 22 tubes were replaced at this time.	\$ 110,721
BEC 4	Unplanned Outage	Flash Tank Piping Leak	8,700	10/14/18 21:57	10/15/18 12:57	Boiler Flash Tank Pipe Connection.	Failure from fatigue.	Pipe connection was repaired.	\$ 46,402
BEC 1	Unplanned Outage	Boiler Waterwall Leak	2,478	11/9/18 0:05	11/10/18 13:04	Waterwall Tube Leak.	Sootblower erosion caused tube failure.	Inspected surrounding areas and repaired. Unit will be retired at year-end.	\$ 4,914

Unit	Event Type	DOC Primary Reason for the Outage	GADS Equivalent MWh lost	GADS Start Date/Time of Actual Outage	GADS End Date/Time of Actual Outage	DOC Equipment or Condition that Resulted in the Outage	DOC Description of Equipment Failure (including identified root cause)	DOC Steps Taken to Alleviate Reoccurrence	DOC Change in Energy
BEC 3	Unplanned Outage	Boiler Waterwall Leak	20,340	11/12/18 18:02	11/15/18 3:49	Waterwall Tube Leak.	Sootblower erosion caused tube failure.	Inspected and repaired pad weld and other tubes in the area. Also found pinhole leak on steam cooled spacer tube.	\$ 383,147
BEC 3	Unplanned Outage	Boiler Waterwall Leak	10,026	11/29/18 0:24	11/30/18 4:53	Waterwall Tube Leak.	Tube failed at a boiler connection / support. Appears to be corrosion fatigue.	2019 outage project completed to remove seal skirt, grind weld, perform 100% inspection and reattach seal skirt. 22 tubes were replaced at this time.	
BEC 3	Unplanned Outage	Condenser Tube Leak	22,540	12/22/18 0:10	12/24/18 16:12	Condenser.	Condenser tube corrosion fatigue at transition zone.	Eddy current testing of transition zone was completed in the 2019 spring outage. 7 tubes at risk of failing were identified and plugged. Condenser isolation valves were repaired in 2019 spring outage to allow isolation without taking the unit offline.	\$ 26,582
BEC 4	Unplanned Outage	Condenser Tube Leak Repair	29,435	12/29/18 21:15	1/1/19 0:00	Condenser.	Use Condenser tube fatigue crack.	Plugged cracked tube.	\$ 32,151
BEC 4	Unplanned Outage	Condenser Tube Leak Repair	1,692	1/1/19 0:00	1/1/19 2:55	Gas Ignitor Solenoid.	Solenoid failure.	Replaced solenoid.	\$ 7,716
BEC 3	Unplanned Outage	Repair Hydrogen Leak	11,252	2/2/19 22:50	2/4/19 6:48	Generator Lead Box.	Hydrogen leak on generator lead box.	Leak was temporarily patched externally. Internal repairs were executed during the 2019 outage to eliminate the lead box leak.	\$ 89,610
BEC 3	Unplanned Outage	Boiler Waterwall Leak	11,622	2/22/19 12:36	2/23/19 21:37	Waterwall Tube Leak.	Corrosion Fatigue.	Inspect and repair surrounding area. A capital project was completed in 2019 to inspect for corrosion fatigue.	
BEC 4	Unplanned Outage	Hot Reheat Line Steam Leak	313,403	2/6/19 11:39	3/27/19 11:43	Hot Reheat Steam Line.	Hot reheat line failed on longitudinal seam weld.	The failure occurred on a longitudinal seam, which had been inspected as part of a normal maintenance schedule. The entire steam line required inspection to identify potential for future failure and minimize risk to employees and equipment due to catastrophic failure of the line. The entire hot reheat line was scaffolded, insulation removed, and inspected by two different consultants. Three sections of pipe were replaced and 140' of patch plate installed on advice of consultants. The entire line will be replaced with seamless pipe in 2020.	\$ 4,482,456
BEC 3	Unplanned Outage	Hydrogen Leak Repair	70,676	6/14/19 15:01	6/22/19 23:47	Generator Seal Oil System.	The generator failed the air test, losing hydrogen at an unacceptable rate. The cause was failure of the float trap valve.	Float Valve was replaced and added to inspection list for future overhauls on this Turbine.	\$ 71,711

Unit	Event Type	DOC Primary Reason for the Outage	GADS Equivalent MWh lost	GADS Start Date/Time of Actual Outage	GADS End Date/Time of Actual Outage	DOC Equipment or Condition that Resulted in the Outage	DOC Description of Equipment Failure (including identified root cause)	DOC Steps Taken to Alleviate Reoccurrence	DOC Change in Energy
BEC 3	Unplanned Outage	Boiler Circulation Pump 3C Replacement	18,351	7/5/19 20:00	7/8/19 0:08	3C Boiler Circulation Pump.	Failed mechanical seal on the 3C Boiler Circulation Pump.	3C BCP was replaced with spare on hand.	\$ 1,736,961
BEC 3	Unplanned Outage	Turbine Trip Caused by "A" Phase Bushing Failure	150,773	7/8/19 19:13	7/26/19 15:33	Generator Bushing Failure.	Unit tripped on stator ground fault.	"A" phase line side bushing failed. The OEM was brought in to diagnose and repair. The OEM had no conclusive answer as to why this particular bushing failed. Since the other bushings were of a similar age and labor and parts were already mobilized, it was decided to replace all six bushings and gaskets in the lead box area.	
BEC 3	Unplanned Outage	Boiler SH Tube Leak	15,828	8/1/19 19:17	8/3/19 16:15	Boiler Superheat Tube Leak.	Thermal fatigue.	Sectioned out and replaced. Superheat platen pendant inspection scheduled for next outage of sufficient length.	\$ 217,669
BEC 4	Unplanned Outage	Condenser Cleaning	35,535	8/16/19 19:17	8/19/19 8:33	Condenser.	Mechanical failures of the online condenser cleaning system allowed for biological buildup in condenser that created excessive backpressure.	Online cleaning system was repaired. Engineering assessment initiated to evaluate options to improve the online cleaning system. Repairs planned for 2020.	\$ 244,491
BEC 3	Unplanned Outage	Boiler Waterwall Leak	10,202	10/10/19 21:54	10/12/19 2:53	Boiler Waterwall Leak.	Corrosion Fatigue.	Leak was ground out and repaired following MN Power Weld Program guidelines.	\$ (4,044)
BEC 3	Unplanned Outage	Boiler Waterwall Leak	22,956	12/19/19 22:19	12/22/2019 15:29	Waterwall and superheat tube leak	Dissimilar metal weld failure.	Crack repaired, dissimilar metal weld inspection to be completed at next outage of sufficient duration.	\$ 28,383

STATE OF MINNESOTA)
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COUNTY OF ST. LOUIS)

AFFIDAVIT OF SERVICE VIA
ELECTRONIC FILING

Tiana Heger of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 30th day of April, 2020, she served Minnesota Power's Reply Comment in **Docket No. E015/AA-20-171** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on E-Docket's Official Service List for this Docket were served as requested.



Tiana Heger