

The Montana Power Company Test Year: Summary of Sales by Service Level

	Jan-94	Feb-94	Mar-94	Apr-94	May-94	Jun-94	Jul-94	Aug-94	Sep-94	Oct-94	Nov-94	Dec-94	Total
TABLE 3 - SHIFTED SALES													
Bus Bar	5,555.0	5,017.0	5,555.0	8,053.0	8,333.0	8,064.0	8,333.0	8,333.0	8,074.0	8,344.0	5,376.0	5,555.0	84,592.0
Transmission	55,269.8	54,129.4	45,628.8	39,648.9	38,299.3	38,290.3	42,156.5	42,793.2	35,493.5	42,278.3	49,983.1	56,296.3	540,267.4
Substation	236,202.3	205,787.0	224,092.6	220,521.9	226,184.2	204,091.7	224,385.5	230,088.5	208,634.3	216,465.3	216,514.6	225,255.7	2,638,223.6
Primary and Secondary	417,464.0	391,753.2	375,237.8	342,746.1	351,721.3	358,162.8	409,397.2	397,877.8	346,569.3	351,012.3	411,404.3	436,654.7	4,590,000.7
<b>TOTAL</b>	<b>714,491.1</b>	<b>656,686.6</b>	<b>650,514.2</b>	<b>610,969.9</b>	<b>624,537.8</b>	<b>608,608.8</b>	<b>684,272.2</b>	<b>679,092.5</b>	<b>598,771.1</b>	<b>618,099.9</b>	<b>683,278.0</b>	<b>723,761.7</b>	<b>7,853,083.7</b>

TABLE 4 - SHIFTED SALES WITH WEATHER NORMALIZED

Bus Bar	5,555.0	5,017.0	5,555.0	8,053.0	8,333.0	8,064.0	8,333.0	8,333.0	8,074.0	8,344.0	5,376.0	5,555.0	84,592.0
Transmission	60,536.3	51,817.0	48,815.0	39,876.6	38,717.1	37,773.8	41,620.0	41,676.5	36,636.6	42,341.2	49,500.9	58,694.7	548,005.7
Substation	236,202.3	205,787.0	224,092.6	220,521.9	226,184.2	204,091.7	224,385.5	230,088.5	208,634.3	216,465.3	216,514.6	225,255.7	2,638,223.6
Primary and Secondary	444,856.7	380,584.5	386,301.3	344,778.7	350,419.1	354,999.5	409,143.4	392,278.0	346,250.2	348,086.0	410,346.0	445,572.4	4,613,415.7
<b>TOTAL</b>	<b>746,950.3</b>	<b>643,205.5</b>	<b>684,763.9</b>	<b>613,230.2</b>	<b>623,653.4</b>	<b>604,929.0</b>	<b>683,481.9</b>	<b>672,376.0</b>	<b>599,595.1</b>	<b>615,236.5</b>	<b>681,737.5</b>	<b>735,077.8</b>	<b>7,884,237.0</b>

TABLE 5 - SHIFTED SALES WITH WEATHER NORMALIZATION AND KNOWN CHANGES

Bus Bar	5,555.0	5,017.0	5,555.0	8,053.0	8,333.0	8,064.0	8,333.0	8,333.0	8,074.0	8,344.0	5,376.0	5,555.0	84,592.0
Transmission	60,536.3	51,817.0	48,815.0	39,876.6	38,717.1	37,773.8	41,620.0	41,676.5	36,636.6	42,341.2	49,500.9	58,694.7	548,005.7
Substation	199,158.7	174,583.8	191,448.2	184,276.5	189,711.9	189,301.3	200,379.9	200,351.1	185,230.2	191,897.2	190,496.2	198,624.0	2,295,458.9
Primary and Secondary	453,949.3	387,829.4	393,020.2	350,215.7	355,189.2	358,985.5	412,990.8	395,355.5	348,414.1	349,624.8	411,358.0	445,841.6	4,662,774.0
<b>TOTAL</b>	<b>719,199.3</b>	<b>619,247.1</b>	<b>638,838.4</b>	<b>582,421.7</b>	<b>591,951.2</b>	<b>594,124.7</b>	<b>663,323.7</b>	<b>645,716.1</b>	<b>578,355.0</b>	<b>592,207.2</b>	<b>656,731.1</b>	<b>708,715.3</b>	<b>7,590,830.7</b>

Bus Bar	USIS (Flathead Irrigation Project)	GS_COMM_SUB	GS_INT_SUB
Transmission	GS_IND_COGEN	GS_IND_SUB	
	GS_IND_TRANS	All CONTRACT INDUSTRIAL	
		except LOUISIANA_PACIFIC & MONTANA_REFINING	
		Primary &	
		Secondary	

All customer groups not included in the previous 3 categories.

**Table B**  
 \TY94\LOAD\XLS\SER  
**System Energy Report (SER)**  
 (Mwh)

	MPC Highline	WAPA Coops	A	B	C	D	E	F	G	H	I	J	K
JAN	30,367	15,599	14,768.0	14,986.8	1,929.0	1,835.0	52,631	53,094.0	8,233.0	5,555.0	2,756.0	839,170.0	804,819.0
FEB	32,938	17,746	15,192.0	12,062.1	1,664.0	1,527.0	53,827	47,221.7	7,581.0	5,017.0	1,449.0	29,930.0	744,550.0
MAR	24,714	14,567	10,147.0	11,647.5	1,587.0	1,730.8	44,274	46,634.8	6,802.0	5,555.0	1,658.0	71,402.0	726,591.0
APR	25,088	13,053	12,035.0	12,066.4	1,683.0	1,343.8	42,862	41,030.8	5,859.0	8,054.0	1,284.0	707,767.0	674,081.0
MAY	24,092	11,606	12,486.0	16,925.3	774.0	782.8	40,256	44,224.8	6,451.0	8,331.0	1,346.0	28,740.0	693,399.0
JUN	33,455	12,758	20,697.0	14,110.7	752.0	775.8	48,384	49,166.5	6,435.0	8,063.0	1,728.0	23,943.0	702,958.0
JUL	27,450	19,258	8,192.0	8,338.6	872.0	891.8	53,214	54,704.5	7,179.0	8,335.0	4,426.0	30,492.0	777,301.0
AUG	25,200	16,980	8,220.0	15,053.5	875.0	820.7	54,256	50,680.0	6,970.0	8,333.0	1,373.0	29,584.0	775,780.0
SEP	35,075	13,615	21,460.0	16,163.4	722.0	718.5	45,018	41,929.4	6,233.0	8,065.0	1,896.0	30,088.0	676,903.0
OCT	24,282	12,723	11,559.0	12,416.4	758.0	1,050.0	39,103	43,048.2	6,837.0	8,332.0	1,117.0	34,711.0	704,679.0
NOV	26,838	13,979	12,859.0	12,858.6	1,535.0	1,513.7	47,231	48,612.4	8,411.0	5,376.0	0.0	33,945.0	754,493.0
DEC	29,699	16,426	13,273.0	11,491.9	1,570.0	1,731.2	53,630	55,139.1	9,402.0	5,555.0	560.0	33,200.0	815,728.0
TOTAL	339,198	178,310	160,888.0	158,121.2	14,721.0	14,721.0	574,686	575,486.1	86,393.0	84,571.0	19,593.0	377,481.0	9,228,763.0

**MPC Highline.** MPC customer load in WAPA's control area. From SER.  
**WAPA Coops.** WAPA Coop load in MPC's control area. From SER.  
 A. MPC Highline load minus WAPA Coop load  
 B. Column A shifted to calendar month using a 15th read day.  
 C. Big Horn Coop(WAPA) load in MPC control area. From SER.  
 D. Column C shifted to calendar month using a 20th read day.  
 E. BPA Coops in MPC control area. From SER.  
 F. Column E shifted to calendar month using a 19th read day.  
 G. Salmon(Idaho Power) load in MPC control area. From SER.  
 H. FIP bus bar load. From SER.  
 I. Colstrip Startup Load (other owners). From SER.  
**Cogen & Small Power.** Cogen and Small Power generation. From SER.  
 Control Area Input. Total Control Area Input. From SER.  
 J. Control Area Input less Cogen and Small Power.  
 K. Shifted System load and loss less Cogen/SPP. B - D - F - G + H - I + J

\TY94\LOAD94.XLW]LOAD  
6/20/95 Test Year Run

1994 System Load and Loss Calculation  
Optional Rules; RPCChem Reduced

Printed 9/8/95

1994 Actual Loads & Losses(Mwh)

Table C	Dist. Small Power(15th) to Calendar	Trans Small Power (1st)	Trans Small Power (15th) to Calendar	Trans Small 15th Trans SPP Power (15th) to Calendar	K	L	M	N	O	P	Q
JAN	145.9	132.6	32,095.5	-0.3	759,442.9	268.8	32,095.2	791,806.8	729,159.0	1,491.0	730,918.7
FEB	127.1	108.6	27,913.0	-0.3	703,850.4	226.9	27,912.7	731,990.1	670,417.0	953.0	671,596.9
MAR	101.4	124.0	32,571.9	-0.2	686,967.9	228.5	32,571.7	719,768.1	663,318.8	1,656.0	665,203.3
APR	135.0	239.7	31,524.4	-0.2	644,683.8	491.3	32,101.2	677,276.4	619,912.3	1,961.0	622,364.7
MAY	348.8	418.5	26,559.7	1,153.9	665,850.7	839.1	27,828.2	694,518.0	633,690.4	1,947.0	636,476.5
JUN	473.1	377.4	21,786.1	1,339.9	667,026.3	1,236.1	23,072.4	691,334.9	618,141.0	1,989.0	621,366.1
JUL	296.9	357.0	28,281.3	1,275.9	726,773.2	875.9	29,572.7	757,221.9	695,866.0	1,593.0	698,334.9
AUG	404.0	362.5	27,389.8	1,266.0	739,322.8	622.9	28,655.7	768,601.5	690,313.9	872.0	691,808.9
SEP	323.6	284.9	27,949.0	1,265.9	650,354.5	413.6	29,197.4	679,965.5	607,944.6	744.0	609,102.2
OCT	256.6	248.7	32,490.4	1,271.8	673,375.2	387.8	33,418.3	707,181.2	627,205.8	1,219.0	628,812.6
NOV	233.3	162.4	31,793.6	565.8	714,190.6	374.6	32,067.2	746,632.3	697,784.0	1,313.0	699,471.6
DEC	198.5	183.4	30,967.9	-0.3	765,942.6	326.1	30,967.6	797,236.4	739,226.1	1,106.0	740,658.2
TOTAL	3,044.2	3,053.1	3,238.6	8,137.7	8,397,781.0	6,291.7	359,460.3	8,763,533.1	7,992,978.9	16,844.0	8,016,114.6

Table D

R	S	T	U	V	W	X	Y	Z	AA	AA^2	BB	CC	
JAN.	297,027.1	1,924.5	710,860.6	77,315.7	20,058.1	81.2	17,614.9	57,338.8	417,464.0	1.743E+11	1.09141	19,912.9	
FEB.	264,933.4	1,707.3	653,376.9	75,303.5	18,220.0	2,057.9	16,092.0	57,153.6	391,753.2	1.535E+11	1.02419	17,555.6	
MAR.	275,276.4	1,644.5	646,603.7	69,253.9	18,599.6	2,240.9	16,287.3	50,725.7	375,237.8	1.408E+11	0.98101	16,088.3	
APR.	268,223.8	1,397.1	604,314.0	66,306.5	18,050.7	2,205.2	15,781.1	48,320.2	342,746.1	1.175E+11	0.89607	13,422.7	
MAY.	272,816.5	1,294.1	617,498.9	69,980.2	18,977.6	2,261.8	16,654.5	51,063.9	351,721.3	1.237E+11	0.91953	14,134.9	
JUN.	250,446.0	1,189.8	601,734.6	82,726.1	19,631.5	2,040.9	17,532.3	63,152.8	358,162.8	1.283E+11	0.93637	14,657.4	
JUL.	274,875.0	1,317.8	677,257.0	72,949.7	21,078.0	2,243.9	18,773.7	51,932.1	409,397.2	1.676E+11	1.07032	19,150.7	
AUG.	281,214.7	1,340.9	672,100.4	89,509.0	19,708.5	2,300.9	17,349.2	69,859.0	397,877.8	1.583E+11	1.04020	18,088.2	
SEP.	252,201.8	1,274.5	591,971.6	81,194.4	17,130.5	2,086.3	14,989.1	64,118.9	346,569.3	1.201E+11	0.90606	13,723.9	
OCT.	267,087.6	1,515.8	611,271.7	89,081.3	17,540.9	2,164.7	15,310.1	71,606.6	351,012.3	1.232E+11	0.91768	14,078.0	
NOV.	271,873.7	1,816.3	679,718.3	63,354.4	19,753.4	2,165.1	17,510.9	43,678.3	411,404.3	1.693E+11	1.07557	19,339.0	
DEC.	287,107.0	2,090.5	720,297.2	73,474.7	20,361.0	2,252.6	18,022.2	53,199.9	436,654.7	1.907E+11	1.14158	21,785.7	
TOTAL	3,263,083.0	18,513.1	7,787,004.8	910,449.4	229,109.8	26,382.2	810.3	201,917.3	682,149.9	4,590,000.7	1.767E+12	12,00000	201,917.3

- R. Dist. Small Power(15th).
- S. Small Power Generation on the distribution system with a 15th read date.
- T. 15th Dist. SPP to Calendar.
- U. Previous column shifted to calendar month.
- V. Small Power Generation on the distribution system with a 1st read date.
- W. Trans Small Power(1st).
- X. Small Power Generation on the transmission system with a 1st read date.
- Y. Trans Small Power(15th).
- Z. Small Power Generation on the transmission system with a 15th read date.
- AA. Previous column shifted to calendar month.
- BB. Shifted system load and loss less COG/SPP, MWH, B - D - F - G + H - I + J.
- CC. Transmission COG/SPP (15th Dist SPP to Calendar + Dist Small Power(1st))
- DD. Total Shifted System Load and Loss, K+L+M
- EE. Total Shifted System Load and Loss, K+L+M
- FF. Shifted Distribution Substation Report = High Side Substation Input
- GG. MPC Generation on distribution system. Included in K (Milltown)
- HH. Total Distribution Input, (L+O+P)
- II. Dist. Small Power(15th).
- JJ. Small Power Generation on the distribution system with a 15th read date.
- KK. Small Power Generation on the transmission system with a 1st read date.
- LL. Small Power Generation on the transmission system with a 15th read date.
- MM. Previous column shifted to calendar month.
- NN. Shifted system load and loss less COG/SPP, MWH, B - D - F - G + H - I + J.
- OO. Transmission COG/SPP (15th Dist SPP to Calendar + Dist Small Power(1st))
- PP. Total Shifted System Load and Loss, K+L+M
- QQ. Shifted Distribution Substation Report = High Side Substation Input
- RR. MPC Generation on distribution system. Included in K (Milltown)
- SS. Total Distribution Input, (L+O+P)
- TT. Bus Bar+ Transmission +Substation Sales from Table 3
- UU. Primary Dist Deliveries to BPA and WAPA customers from MPC subs.
- VV. Total Distribution Load, hi, Tbl3 Sales -H + S
- WW. Total Loss, N - Tbl 3 Sales
- XX. Tbl Distribution Loss @ Hi, Input - Load, Q - T
- YY. Sbstn Loss. (Table 3 Substation Cust )\*-01
- ZZ. Dist Loss, BPA & WAPA, [( S ) / (Tbl3 - R + S)] \* [ V - W ]
- AAA. Prim & Sec Loss, V - W - X
- BBB. Transmission Loss, U - Y - W
- CCC. Prim & Secondary Customer sales, Table 3 sales - R
- DDD. Monthly shape of AA, (monthly AA) / (annual average AA).
- EEE. "Standardized" primary and secondary loss (1/12 \* [Ann. Y] \* [(AA\*\*2)/(Sum(MthlyAA\*\*2))])

1994 Actual Loads & Losses(Mwh)

	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO
JAN..	55,040.8	4.77	1.00	7.55	-1.0000000	223,602.0	-16,878.7	38,162.2	60,437.1	5.23	10.82	8.46
FEB..	55,710.0	4.48	1.00	8.31	-1.0000000	116,800.0	-9,705.8	46,004.2	65,597.7	6.86	11.47	9.99
MAR..	50,924.7	4.29	1.00	7.68	1.0000000	132,222.0	10,151.0	61,075.8	79,405.0	9.21	10.65	12.21
APR..	50,678.6	3.92	1.00	8.18	1.0000000	89,242.0	7,295.6	57,974.2	73,602.2	9.35	10.85	12.05
MAY..	53,583.5	4.02	1.00	8.46	-1.0000000	18,330.0	-1,549.9	52,033.5	68,430.3	8.21	11.21	10.96
JUN..	66,027.7	4.09	1.00	10.68	-1.0000000	31,129.0	-3,325.1	62,702.6	79,401.0	10.14	13.59	13.05
JUL..	51,555.1	4.68	1.00	7.41	1.0000000	-31,519.0	2,335.2	53,890.2	75,284.8	7.74	10.66	11.00
AUG..	69,120.0	4.55	1.00	10.01	-1.0000000	10,770.0	-1,078.4	68,041.6	88,430.7	9.86	13.18	13.02
SEP..	65,384.2	3.96	1.00	10.75	-1.0000000	82,340.0	-8,855.6	56,528.5	72,338.7	9.30	13.56	12.08
OCT..	72,838.7	4.01	1.00	11.61	-1.0000000	130,965.0	-15,209.2	57,629.4	73,872.1	9.19	14.41	11.95
NOV..	41,850.2	4.70	1.00	6.00	1.0000000	154,490.0	9,265.7	51,115.9	72,620.0	7.33	9.27	10.63
DEC..	49,436.4	4.99	1.00	6.69	1.0000000	40,930.0	2,737.2	52,173.6	76,211.9	7.06	10.15	10.53
TOTAL..	682,149.9	4.40	1.0	8.53	-1.00000	999,301.0	-24,818.0	657,331.9	885,631.4	8.22	11.59	11.28

mean loss(1989-1994) 53041.3

- DD. "Standardized" transmission losses, U - CC- W
- EE. "Standardized" primary and secondary loss as a percent of table 3 primary and secondary sales, 100 \* (CC/AA).
- FF. Substation loss as a percent of table 3 substation sales. Substation customers only.  
 $100 * W / (\text{Table 3 Substation Sales})$
- GG. "Standardized" transmission loss(including net interchange loss) as a percent of substation input, 100 \* DD/O  
 $\text{mean} = \text{mean standardized transmission loss from Jan 1989 through Dec 1994.}$   
 $= 53041.3 \text{ MWH}$
- II. Net interchange after generation transfers. From SER report.
- JJ. Loss assigned to II, [ Absolute value(II) ] \* [ GG / 100 ] \* [ HH].
- KK. Transmission loss absent net interchange loss after generation transfers, DD + JJ
- LL. Total native loss absent net interchange loss after generation transfers, CC+ KK+W
- MM. Transmission loss percentage absent net interchange loss as a percent of substation input, 100 \* KK / O
- NN. Total loss(including net interchange loss) as a percent of table 3 sales, 100 \* U/(Table 3 total)
- OO. Total loss(absent net interchange loss) as a percent of table 3 sales, 100 \* LL/(Table 3 total)

\TY94\LOAD94.XLW\LOAD  
 6/20/95 Test Year Run

1994 System Load and Loss Calculation  
 Optional Rules: RPChem Reduced

Printed 9/8/95

1994 Normalized System Loads and Losses(Mwn)

	PP	QQ	RR	SS	TT	UU	VV	WW	XX	YY	ZZ(aMw)
JAN...	-31,777.1	-370.4	36,485.3	1,740.3	-458.8	37,703.4	23,644.8	61,348.2	780,547.4	744.0	1,049.1
FEB...	-33,515.6	-312.0	-3,923.8	-175.6	-3,151.6	42,852.6	19,105.8	61,958.4	681,205.5	672.0	1,013.7
MAR...	-29,458.2	-326.4	17,782.4	762.4	862.9	61,938.7	18,765.2	80,703.8	719,542.2	744.0	967.1
APR...	-36,017.7	-362.5	7,469.6	292.5	2,339.6	60,313.8	15,558.0	75,871.8	658,293.5	719.0	915.6
MAY...	-36,054.5	-364.7	3,467.9	139.4	-2,774.5	49,259.0	16,171.4	65,430.4	657,381.6	744.0	883.6
JUN...	-15,306.9	-147.9	822.7	33.7	-1,559.4	61,143.3	16,584.1	77,727.4	671,852.0	720.0	933.1
JUL...	-24,542.1	-240.1	3,593.6	168.1	1,557.4	55,447.6	21,322.6	76,770.2	740,094.0	744.0	994.7
AUG...	-30,854.1	-297.4	-2,522.3	-114.7	-3,383.2	64,658.4	19,977.0	84,635.4	730,351.5	744.0	981.7
SEP...	-22,261.0	-234.0	1,844.8	73.1	-2,213.1	54,315.5	15,649.2	69,964.7	648,319.6	720.0	900.4
OCT...	-24,505.2	-245.7	-1,387.5	-55.6	-3,042.0	54,587.5	15,941.3	70,528.8	662,736.0	745.0	889.6
NOV...	-26,500.6	-260.2	-46.3	-2.2	1,607.9	52,723.8	21,241.8	73,965.6	730,696.7	720.0	1,014.9
DEC...	-24,233.3	-266.3	9,186.9	458.4	993.4	53,167.0	24,230.3	77,397.3	786,112.6	744.0	1,056.6
TOTAL...	-335,026.4	-3,427.6	72,773.3	3,319.7	-9,221.4	648,110.5	228,191.5	876,302.0	8,467,132.7	8,760.0	966.7

UU. Total transmission loss after removing interchange, making weather, & known changes. (KK + TT)  
 VV. Total MPC distribution loss after making weather, & known changes. W+ CC+QQ+SS  
 WW. Total loss after removing interchange, making weather, & known changes UU+ VV  
 XX. Adjusted system load & loss absent net interchange after generation transfers, weather, & known changes in MWH. (Table 5 + WW)  
 YY. Monthly hours.  
 ZZ. Adjusted system load & loss in avg MW. (XX/YY)

PP. Weather & Known changes to Bus Bar, Transmission, and Substation Loads.  
 Table 5 Bus Bar + Table 5 Transmission + Table 5 Substation - R  
 QQ. Distribution loss assigned to PP changes. [01 \* (fb1 5 sub - fb3 sub)]  
 RR. Primary/Secondary Sales Weather & Known Changes. Table 5 Pri. & Sec. - Table 3 Pri. & Sec.  
 SS. Distribution Loss assigned to RR changes. (RR \* EE/100)  
 TT. Transmission losses assigned to PP and RR Changes (PP+RR+QQ+SS)\*GG/100\*HH