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**Folder Title:** Power - Terms of Reference - Comparative Review - Load Forecast Accuracy - 1962 - 1963

**Folder ID:** 30248181

**Subseries:** Early special evaluation studies working files

**Series:** Special Evaluation Studies

**Dates:** 01/01/1962 – 12/31/1963

**Fonds:** Records of the Office of Operations Evaluation

**ISAD Reference Code:** WB IBRD/IDA OPE-09-01

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THE WORLD BANK

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OED SPECIAL STUDIES

05035-003

Power, Terms of Reference, Comparative Review  
Load Forecast Accuracy

1962-1963



 **Archives**

 **30248181**

A1994-141 Other #: 11 205093B

Power - Terms of Reference - Comparative Review - Load Forecast Accuracy - 1962 - 1963

**DECLASSIFIED**  
WBG Archives

Gwh

Mean = 18.1

Proportion of Cases in  
 each 20% of (R-100)%  
 interval

Length of forecasts (yrs).

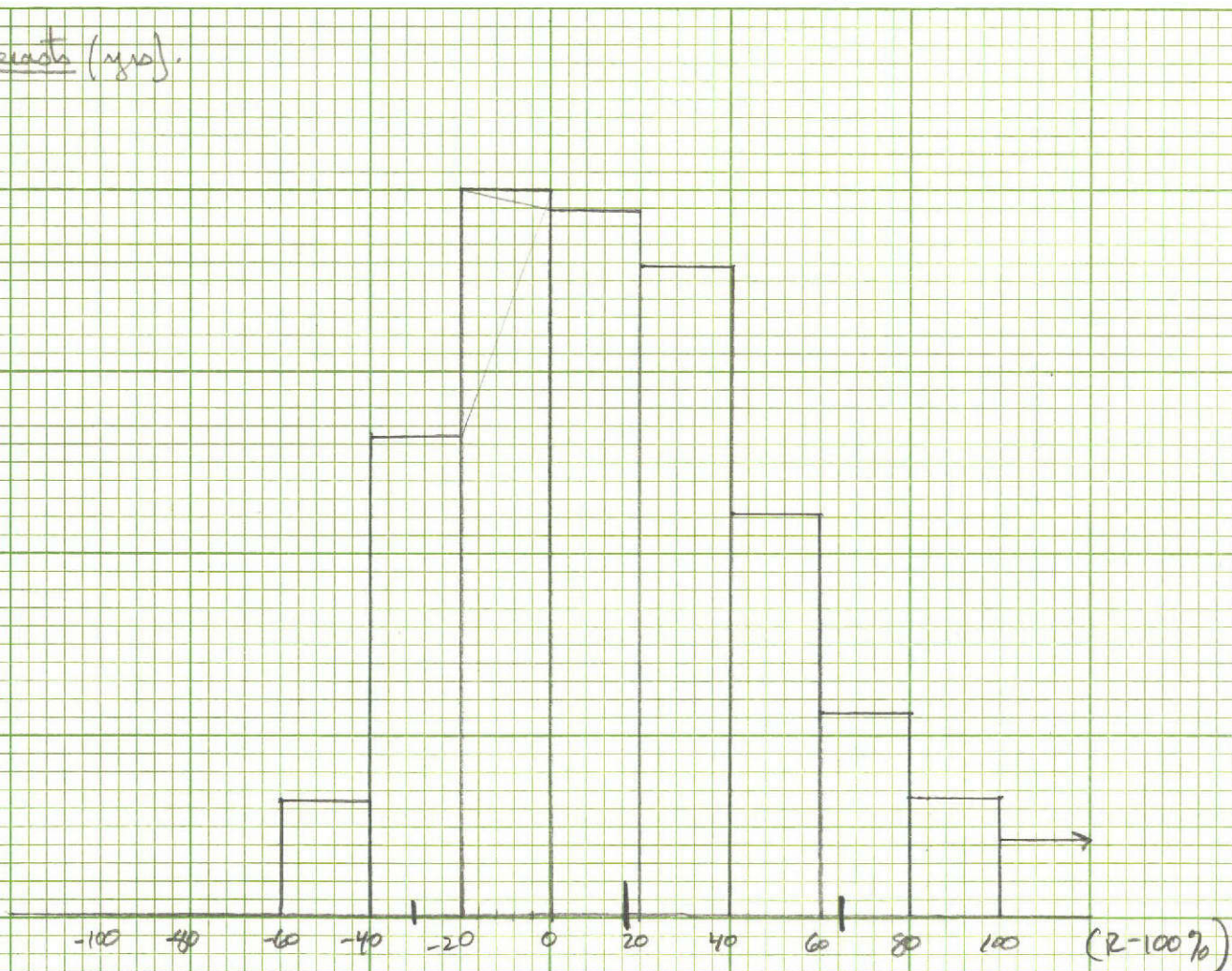
Mode = 3  
 Median = 3.1  
 Mean = 4.0

20%

15%

10%

5%



Mean = 18.1

Median = 13.3

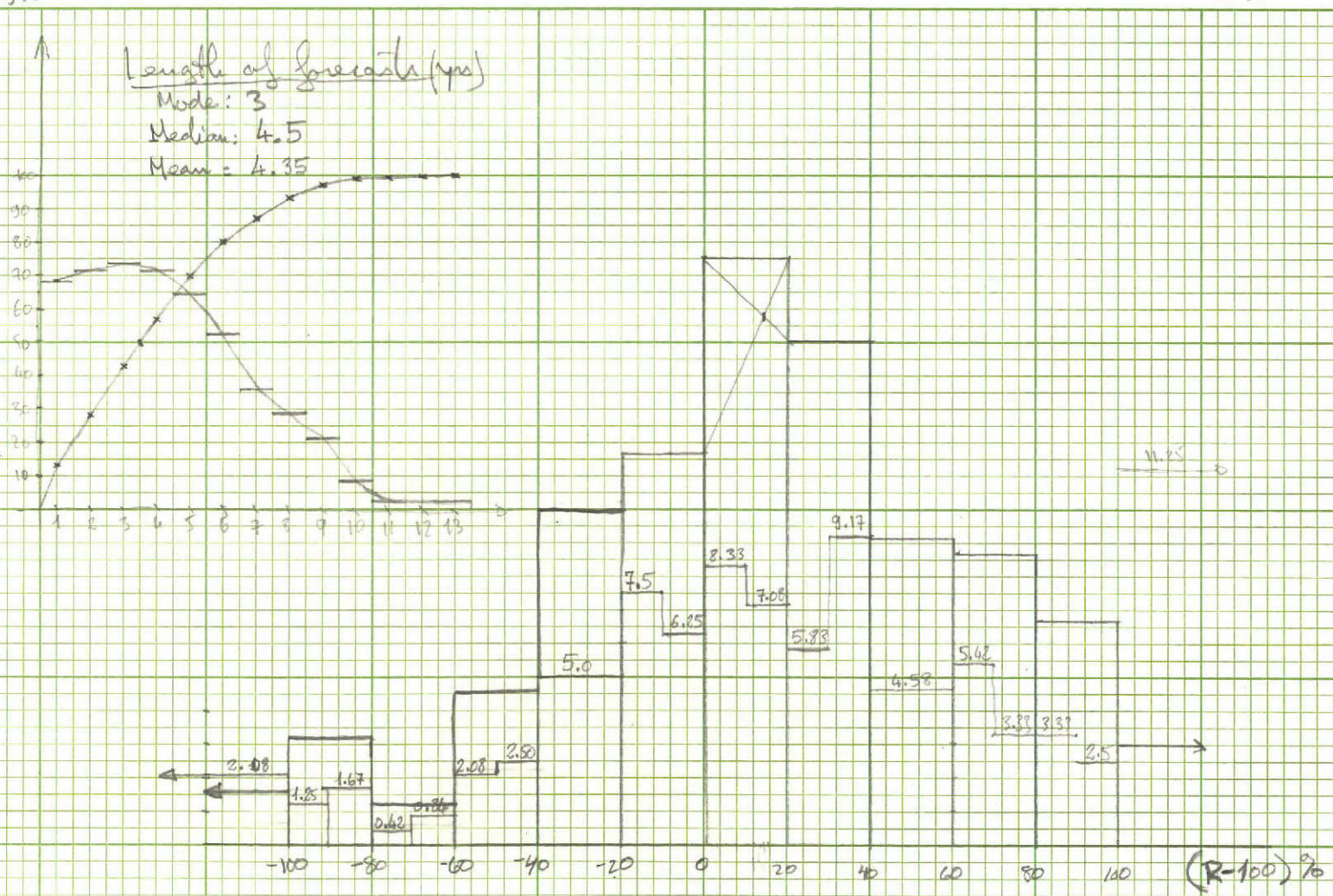
Mode = -1.0

Proportion of cases in each 20% of (R-100)% interval

MW Mean =  $\frac{(R-100)\%}{240} = \underline{\underline{30.7}}$

Length of forecast (yrs)  
 Mode: 3  
 Median: 4.5  
 Mean: 4.35

20%  
15%  
10%  
5%



Mean = 30.7  
 Mode = 15  
 Median = 20.0

Forecast Accuracy of  
 Reserve Capacity  
 (Installed Capacity - Annual Peak Demand) (Second)  
 Mean = 117.7

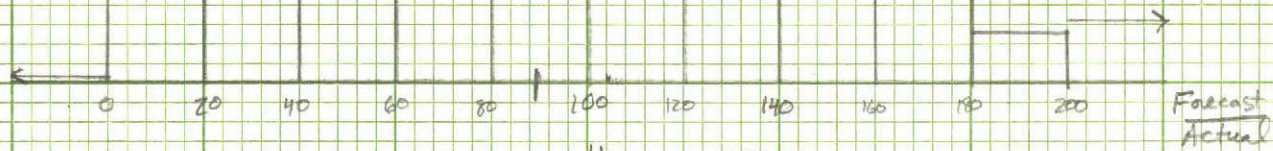
Proportion of cases  
 in each 20%  
 interval

20%

15%

10%

5%

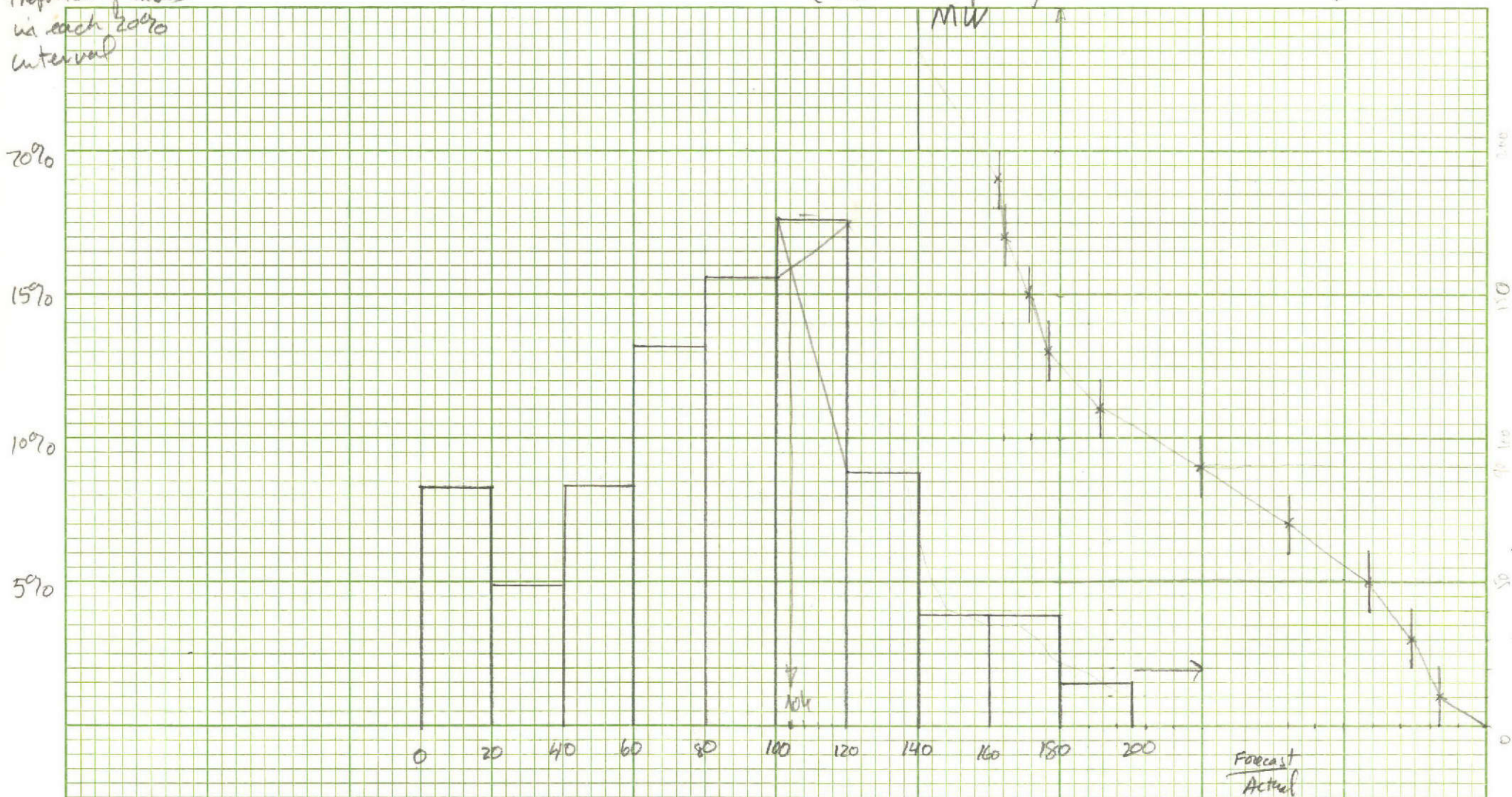


3 Mean = 117.7  
 2 Mode = 104.5  
 1 Median = 89.5

Forecast Accuracy of Reserve Capacity (First)  
 (Installed Capacity - Annual Peak Demand)

Mean = 159.1

Proportion of cases in each 20% interval



Mean = 159.1  
 Median = 99  
 Mode = 104

$$\sum (x_i - \bar{x})^2 = \sum [(x_i - \bar{x})^2 + (\bar{x} - \bar{x})^2]$$

$$\bar{x} > \bar{x}$$

$$= \sum$$

$$\sum_{i=1}^n (x_i - \bar{x} + \bar{x} - \bar{x})^2 = \sum_{i=1}^n [(x_i - \bar{x})^2 + (\bar{x} - \bar{x})^2 + 2(x_i - \bar{x})(\bar{x} - \bar{x})]$$

$$= \sum_{i=1}^n (x_i - \bar{x})^2 + n[(\bar{x} - \bar{x})^2 - 2\bar{x}(\bar{x} - \bar{x})] + 2(\bar{x} - \bar{x})\sum x_i$$

$$+ n(\bar{x} - \bar{x})(\bar{x} - \bar{x}) \quad -2(\bar{x} - \bar{x})\sum x_i$$

$$-n(\bar{x} - \bar{x})(\bar{x} + \bar{x}) \quad -2 \times 8 \times$$

$$-n(\bar{x}^2 - \bar{x}^2)$$

$$+n(\bar{x}^2 - \bar{x}^2)$$

$$13456 - 11664$$

$$1792$$

$$\bar{x} = 108$$

$$\bar{x} = 116$$

## SEGBA :

X - Unwillingness of Argentines to receive money or even  
advice from the Bank.

X - Political and social Background

X - Emphasize the availability of capacity more than energy  
from other CIEs. Analyze more in terms of interconnected system.

X - Differences and content of SEGBA's concession and statutes,  
which are the basis for SEGBA's operations.

X 1 - "Automaticity" of implementation of required tariff increases  
in SEGBA's concession.

X 1 - Importance of Contract completion as Bank objective.



Mean = 130.7

Forecast Interval - 2%

Multi

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
AR		95.0 ✓	133.0 ✓	113.6 ✓	111.4 ✓	109.6 ✓
	103.7 ✓	111.3 ✓	88.1 ✓	82.7 ✓	—	—
BR. ①	734.6 ✓	① 246.2 ✓	① 206.1 ✓	① 202.7 ✓	① 202.0 ✓	① 220.2 ✓
ET. ②	343.7 ✓	80.0 ✓	146.7 ✓	138.3 ✓	160.1 ✓	182.3 ✓
MA.	83.3 ✓	* ④	56.5 ✓	108.3 ✓	100.0 ✓	86.0 ✓
	78.6 ✓	96.1 ✓	77.6 ✓	80.9 ✓	69.7 ✓	78.4 ✓
	100.0 ✓	139.7 ✓	114.7 ✓	148.7 ✓	100.0 ✓	—
ST	141.7 ✓	86.7 ✓	83.0 ✓	65.5 ✓	89.9 ✓	76.4 ✓
	154.8 ✓	169.6 ✓	165.3 ✓	176.6 ✓	156.2 ✓	—
③	232.0 ✓	180.0 ✓	164.9 ✓	147.6 ✓	—	—
EERB	87.1 ✓	175.2 ✓	107.0 ✓	② 233.4 ✓	141.5 ✓	134.2 ✓
④	556.9 ✓	162.7 ✓	186.8 ✓	196.4 ✓	184.1 ✓	163.9 ✓
	73.9 ✓	83.2 ✓	84.5 ✓	—	—	—
CVC	53.8 ✓	122.2 ✓	115.8 ✓	109.6 ✓	107.3 ✓	106.3 ✓
	16.7 ✓	69.0 ✓	90.8 ✓	74.8 ✓	—	—
⑤	385.2 ✓	178.9 ✓	① 203.2 ✓	126.1 ✓	129.8 ✓	134.2 ✓
	135.1 ✓	162.8 ✓	197.1 ✓	151.5 ✓	180.7 ✓	184.4 ✓
EPM	0 ✓	0 ✓	③ 727.3 ✓	152.4 ✓	121.5 ✓	155.8 ✓
	-2000 ✓	124.0 ✓	151.5 ✓	141.5 ✓	155.2 ✓	138.8 ✓
	181.3 ✓	150.0 ✓	101.5 ✓	102.2 ✓	107.3 ✓	118.1 ✓
MEX	117.6 ✓	108.4 ✓	95.3 ✓	92.2 ✓	96.6 ✓	98.4 ✓
	97.3 ✓	97.3 ✓	97.2 ✓	97.6 ✓	98.4 ✓	98.0 ✓
⑥	247.4 ✓	150.0 ✓	151.8 ✓	130.6 ✓	96.2 ✓	83.8 ✓
⑦	264.3 ✓	165.8 ✓	102.4 ✓	89.6 ✓	88.7 ✓	73.7 ✓
	83.3 ✓	② 300.0 ✓	87.5 ✓	75.0 ✓	69.2 ✓	62.8 ✓
	131.6 ✓	166.7 ✓	118.8 ✓	114.5 ✓	116.0 ✓	111.8 ✓
	66.7 ✓	132.0 ✓	① 220.3 ✓	177.2 ✓	163.3 ✓	139.3 ✓
	124.3 ✓	123.2 ✓	142.0 ✓	136.3 ✓	138.0 ✓	—
⑧	284.5 ✓	134.9 ✓	133.7 ✓	147.3 ✓	145.5 ✓	—
	15.8 ✓	53.3 ✓	39.0 ✓	45.6 ✓	50.7 ✓	—
⑨	260.0 ✓	③ 328.6 ✓	170.0 ✓	130.6 ✓	100.0 ✓	—
	9.7 ✓	11.4 ✓	12.9 ✓	5.0 ✓	-27.6 ✓	add -46.8

43.8 ✓	-6.1 ✓	22.2 ✓	44.4 ✓	42.0 ✓	35.5 ✓
128.6 ✓	① 233.3 ✓	160.0 ✓	141.9 ✓	100.0 ✓	101.6 ✓
112.5 ✓	130.5 ✓	108.7 ✓	97.2 ✓	83.3 ✓	79.2 ✓
134.5 ✓	② 172.8 ✓	③ 167.7 ✓	④ 176.2 ✓	⑤ 191.6 ✓	⑥ 176.4 ✓

3

Total  
R<sup>070</sup>  
\*

③ 2092.8	3259.7	3578.1	3720.3	3366.1	2584.8
87.2	108.6	115.4	116.3	112.2	107.7
⑦ 5406.4	4367.4	4935.0	⑧ 4156.4	<del>3572.0</del>	<del>2850.7</del>
163.8	128.5	142.0	122.5	115.7	112.2
				⑨ 3568.1	⑩ 2805.0

# Forecast Interval - 12% MWh

	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
ARZ.	105.7 ✓	—	—	—	—	—	—
BZ. ①	241.0 ✓	① 227.8 ✓	① 218.3 ✓	196.7 ✓	198.0 ✓	200.2 ✓	180.5 ✓
ET.	199.2 ✓	—	—	—	—	—	—
MA.	77.4 ✓	67.1 ✓	62.5 ✓	47.5 ✓	—	—	—
	132.4 ✓	102.7 ✓	—	—	—	—	—
BBB	136.5 ✓	133.4 ✓	122.7	114.1 ✓	—	—	—
	148.6 ✓	—	—	—	—	—	—
CVC	119.9 ✓	127.0 ✓	129.8 ✓	153.4 ✓	—	—	—
②	210.3 ✓	196.4 ✓	—	—	—	—	—
BPM	133.1 ✓	163.8 ✓	—	—	—	—	—
	120.0 ✓	127.5 ✓	—	—	—	—	—
MEX	72.6 ✓	60.0 ✓	49.6 ✓	—	—	—	—
	98.0 ✓	95.6 ✓	91.0 ✓	—	—	—	—
	71.4 ✓	64.7 ✓	54.2 ✓	—	—	—	—
	66.3 ✓	60.8 ✓	54.9 ✓	—	—	—	—
	111.8 ✓	94.1 ✓	96.5 ✓	—	—	—	—
⑦	129.4 ✓	⑭ 113.6 ✓	⑩ 106.5 ✓	④	—	—	—
<b>Total</b>	1650.9	1406.7	767.7	—	198.0	—	180.5
<b>12%</b>	110.1	108.2	85.3	127.9	198.0	—	180.5
<b>*</b>	2102.2	1634.5	986.0	511.7	198.0	200.2	180.5
	123.7	128.7	98.6	127.9	—	—	—

1573.7

116.8

240  
25  
215

22933.1

2102.2

~~2483.1~~  
~~136.8~~  
~~210~~  
~~2~~

~~29414.9~~  
~~1801.8~~  
~~31218.7~~

~~31218.7~~  
~~240~~  
~~180.02~~

Total totalsum :  $\frac{31051.4}{240} = 129.4$

Frequency Distribution of R by Forecast Interval.

Range of R %	Forecast Interval (Years ahead)													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
< 0.0	1	2			1	1								5
0.0 - 9.9	2			1										3
10 - 19.9	2	1	1											4
20 - 29.9			1											1
30 - 39.9			1			1								2
40 - 49.9				2	1					1	1			5
50 - 59.9	1	1	1		1					2				6
60 - 69.9	1	1		1	2	1	1	4	1					12
70 - 79.9	2		1	2		4	3							12
80 - 89.9	3	3	4	3	3	2								18
90 - 99.9		3	2	2	2	1	1	2	2					15
100 - 109.9	2		4	3	5	3	1	1	1					20
110 - 119.9	2	1	3	2	3	2	2	1			1			17
120 - 129.9	2	3		1	2		2	2	2					14
130 - 139.9	3	4	2	4	1	4	3	1						22
140 - 149.9	1		2	5	2		1							11
150 - 159.9	1	2	2	2	2	1				1				11
160 - 169.9		5	4		2	1		1						13
170 - 179.9		3	1	3		1								8
180 - 189.9	1	1	1		2	2							1	8
190 - 199.9			1	1	1		1	1			1			6
200 - +	9	4	4	2	1	1	2	1	1	1		1		27
total	33	34	35	34	31	25	17	14	10	4	1	1	1	240

<del>13.7</del>	<del>14.2</del>	<del>14.6</del>	<del>14.7</del>	<del>12.8</del>	<del>10.4</del>	<del>7.1</del>	<del>5.8</del>	<del>4.2</del>	<del>1.7</del>	<del>0.4</del>	<del>20.4</del>	<del>0.4</del>		
<del>15.7</del>	<del>27.9</del>	<del>43.5</del>	<del>56.7</del>	<del>69.6</del>	<del>80.0</del>	<del>87.1</del>	<del>92.9</del>	<del>97.1</del>	<del>98.8</del>	<del>99.0</del>	<del>99.6</del>	<del>100.0</del>		
87.2	108.6	115.4	116.3	112.2	107.7	110.1	121.1	85.3	127.9	198.0	-	180.5		122.5
163.8	128.5	144.0	122.5	115.1	112.2	123.7	128.7	98.6	127.9	198.0	200.2	180.5		130.7

54.3	52.7	45.6	42.7	45.7	51.0	35.5	42.0	29.2	55.6	-	-	-	-	49.5
														87.9

\*  $\bar{R}$  %  
 \*  $S$  %

$\bar{R}$  = Mean of R ; S = Standard deviation of R.

\* These values include only data under 200% and above



Frequency Distribution of R by Forecast Interval

Range of R %	Forecast Interval (Years ahead)													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
< 0.0	1													1
0 - 9.9														0
10 - 19.9														0
20 - 29.9														0
30 - 39.9														0
40 - 49.9	1					1								2
50 - 59.9	1					1		1	1	1				5
60 - 69.9	1	3	1	1	1		1	1						9
70 - 79.9		3	2	4	1	2	2	1						15
80 - 89.9	3	3	2	1	3	2		1	1					16
90 - 99.9	5	2	5	4	1	1	1							19
100 - 109.9	3	3	3	4	3	1								17
110 - 119.9	6	3	3	1			2	1	1	1				18
120 - 129.9		1	5	4	2	3	2	2	1	1				21
130 - 139.9	2		1	3	4	1								11
140 - 149.9	1	2	1	1	2	2	2							11
150 - 159.9		2	3	2	1	1								9
160 - 169.9		2	1		1	2		1						7
170 - 179.9		1		1			1							3
180 - 189.9		1	1	2										4
190 - 199.9		1			1									2
200 - +	4	2	1			1	1	1						10
<b>Total</b>	<b>28</b>	<b>29</b>	<b>29</b>	<b>28</b>	<b>20</b>	<b>18</b>	<b>12</b>	<b>9</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>180</b>
<del>18.5</del> 85.9	<del>16.7</del> 115.8	<del>15.1</del> 116.1	<del>15.5</del> 116.6	<del>14.1</del> 119.8	<del>10.0</del> 111.7	<del>6.7</del> 114.7	<del>5.0</del> 102.8	<del>2.2</del> 97.2	<del>1.7</del> 99.3					108.0
<del>15.5</del> 108.9	<del>31.6</del> 123.8	<del>67.7</del> 119.6	<del>63.2</del> 116.6	<del>74.3</del> 119.8	<del>86.3</del> 116.8	<del>91.0</del> 124.7	<del>96.0</del> 116.1	<del>98.2</del> 97.2	<del>99.8</del> 99.3					118.1
<del>15.5</del> 53.0	<del>31.6</del> 39.4	<del>67.7</del> 28.5	<del>63.2</del> 33.6	<del>74.3</del> 32.8	<del>86.3</del> 36.2	<del>91.0</del> 31.8	<del>96.0</del> 34.2	<del>98.2</del> 25.0	<del>99.8</del> 30.3					37.9
														46.9

$\bar{R}$  = Mean of R, S = Standard Deviation of R

\* These values include <sup>only</sup> data ~~to 200%~~ <sup>under 200%</sup> ~~to 200% and above.~~

Summary of Number of Loans, Guk and  
 MW Measures 'used in  
Forecast Exercise

<u>Country</u>	<u>No. of Loans</u>	<u>MW Measures</u>	<u>Guk Measures</u>
Argentina	2	2	2
Brazil	2	2	1
Ethiopia	1	1	1
Malaysia	3	3	3
Singapore	3	3	3
Colombia:			
BBB B	3	3	3
CVC	4	3	4
EPM	3	3	3
Mexico	3	15	9
<u>Totals</u>	<u>24</u>	<u>35</u>	<u>29</u>

# Standard Deviation

MW Forecast Interval  $(E - \bar{E})^2$

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
ATZ	272	174	313	8	1	23		
Bz		Et. 795	986	480	151	807		
E+		MA 146	3457	66	1815	1296		
MA	15.2	992	1421	1260	151	1444		
	74	462	0	1043	502	392		
	169	3770	1043	2591	1927	2663		
SI	2970	5155	2500	3624	853	66		
	4570	4489	2460	973	5155	392		
		2970	69	6400	25	4900		
REB	0	625	5112	46	306	1714		
		196	949	1731	4679	595		
	177	1537	0	94	85	14		
	1116	4998	800	1232	1840	269		
	4970	2981	6691	1296	25	936		
		11,707	1310	630	193	1656		
	2294	250	190	202	259	2662		
EPm	7604	1,747	534	392	557	7		
		166	1332	202	1858	620		
	8855	1,747	169	718	14	6225		
MBX	924	3,318	773	1714	2601	164		
	15	3422	12	4	660	1239		
	1971	566	713	3697	1102	<u>3844</u>		
	420	225	339	396	3795	<u>36538</u>		
	1529	713	5822	955	151	1589		
	5098	3014	2992	5013	19572			
	6006	9370	10486	202	4942			
	17161	13092	8668	12410	151			
	1714	497	1998	5184	841			
	640			650	6288			
	<u>2237</u>	<u>4173</u>	<u>44</u>	<u>369</u>	<u>42784</u>			
	70801	83257	27461	3576				
Mean =	2950	2775	<u>64469</u>	<u>58294</u>	<u>2693</u>			
			2080	1822				



$\bar{x} = 122$   
 S.D.  $\bar{x} = 100$   
 MW  $n = 13$  Forecast Interval

<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
19	2916	520	4733			
7939	339	1399	6464			
1069	151	1980	190			
497	35	1274	<u>650</u>			
697	5670	34				
1482	1823	967	12037			
96	41	924	<u>3009</u>			
529	3733	125				
1406	656	<u>449</u>				
146	3181					
1498	3636	7672				
1918	729	852				
3	<u>56</u>					
<u>372</u>	22960					
17671	<del>1766</del>	1756				
<u>1262</u>						

3,009  
 (10) 3,48996  
 1,74498  
 (55.6)

$$\frac{22960 - 41860 + 41.724}{11231 - 4664} = 22826$$

- (1) 2950  
 $69 = \frac{3.46982}{2}$   
 $= 1.7349$   
 $= (54.3)$
- (2) 2775  
 $3.44326$   
 $1.72163$   
 $(52.7)$
- (3) 2080  
 $3.31806$   
 $1.65903$   
 $= (45.6)$
- (4) 1822  
 $3.26055$   
 $1.63027$   
 $(42.7)$
- (5) 2093  
 $3.32077$   
 $1.66038$   
 $(45.7)$
- (6) 1589  
 $3.20112$   
 $1.60056$   
 $(39.8)$
- (7) 1262  
 $3.10106$   
 $1.55053$   
 $(35.5)$
- (8) 1766  
 $3.24699$   
 $1.62349$   
 $(42.0)$
- (9) 852  
 $2.93044$   
 $1.46522$   
 $(29.2)$

S.D. correction

<u>MW</u>	<u>C</u>	<u>FI.</u>	<u><math>\Sigma R^2</math></u>
	36.1	1 =	70,801
	5565	2 =	83,257
	471	3 =	64,469
	858	4 =	58,294
	980	5 =	62,784
	702	6 =	60,276
	3158	7 =	17,671
	2	8 =	22,960
	702	9 =	852
	5883	10 =	3,009

$$\frac{444373}{240} = \sqrt{1851.6}$$

$$= \text{antilog } \frac{3.26755}{2} = 1.63378$$

$$= \underline{413.0}$$

$$\frac{60276}{23} = \sqrt{2620.7} = \frac{3.41509}{2} = 1.70754$$

= 51.0  
50.99

Mean = 120.7

S.D. = total MW

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
729	1274	5	292	372	445
344,995	376	1815	2304	5087	8010
45369	13340	5685	5184	864	2663
2247	7570	256	58	942	1998
2714	1197	5506	500	3721	2735
942	81	2820	2480	864	2948
121	1936	256	324	1665	12
581	1513	2275	4251	450	1102
10262	2430	1197	2107	117	595
1901	1980	1170	286	2852	12
181689	1024	562	10547	548	2884
3226	2256	3147	4316	1	630
5914	72	2134	445	7500	66
12996	3807	222	3125	85	159
64770	2323	1592	21	600	1043
19	1030	5256	433	548	2200
17082	17082	4409	471	1163	3249
2560	45	355,932	117	1190	4610
172	372	433	812	1764	357
13619	497	853	1482	3782	74
17849	372	1253	1689	216	31506
2247	1232	445	3102	1063	9063
1	28662	801	262	53	847
4096	1296	1866	2162	219	2652
19	2	142	31	6400	<u>2068</u>
25217	56	8028	276	942	81948
13202	5991	128	7242	25059	
16718	39164	9	15800	7868	
14641	14232	8409	7448	942	
30450	18714	1544	125	2247	
4	16527	13877	484	1122	
334	1777	11772	1369	2070	3709
14	177225	858	446510	80884	78030

856,397

<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
625	9428	7674	4356	41529	4830	2480
12166	4045	4651	6922	}		
4692	784	64	276			
2841	7	1	<u>515</u>	}		
3	14	6577	<u>12069</u>			
34	4316	1576		}		
320	1096	5852				
117	10	5746		}		
6336	4998	1170				
6	1232	<u>586</u>		}		
114	4356	33897				
3376	4886			}		
1069	1340					
3516	<u>292</u>			}		
4147	36805					
352				}		
2						
<u>39721</u>						

$$\text{totals} = \frac{1,855,325}{240} = \sqrt[2]{7730.5} = \frac{3.88821}{2}$$

1.944105  
87.9

2092.8

$\frac{1470.3}{12} = 122.5$

Standard Deviation  
MW

less than  
200

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
AR	—	756	110	79	123	166
	353	125	1183	1584	—	—
BR	—	—	—	—	—	—
EX	—	1806	586	250	1414	3576
MA	1537	—	4356	202	506	1332
	1927	697	2016	1731	2788	1945
	506	296	61	486	506	—
SI	369	1282	1560	3249	1063	2125
	1043	2218	1832	2927	1136	—
	—	3306	1798	630	—	—
EBEB	1253	2777	240	—	361	137
	—	1616	4134	5461	3795	1714
	2362	1544	1444	—	—	—
CUC	4720	0	45	166	231	262
	11194	2862	1005	2275	—	—
	—	3181	—	73	53	137
	159	1624	5565	841	3387	3832
EPM	15006	15006	—	894	1	1109
	—	2	841	361	1069	266
	3457	756	441	412	231	19
MEX	24	199	746	918	671	581
	—	756	858	66	692	1498
	—	1875	404	1082	1109	2381
	1537	—	1225	2256	2841	3564
	83	1953	14	484	42	114
	3114	90	—	2992	1665	282
	14	0	380	190	240	—
	—	154	125	615	529	—
	11385	4789	6972	5914	5155	—
	—	—	2256	66	506	—
	12724	12343	12012	13806	22530	28662
	27656	16538	10060	6100	6480	7569
	37	—	1406	376	506	437
	100	64	190	640	1537	1875
	144	2530	2042	2884	4775	2905

(24) 166,704    (30) 81,145    (31) 65,902    (32) 60,150    (30) 65,942    (24) 66,488

24  
6  
6486

S.D  
MAW less than 200

	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
AR	282	-	-	-	-	-	-
BR	-	-	-	5506	5700	-	3364
BT	5883	-	-	-	-	-	-
HA	2034	3064	3600	5625	-	-	-
	98	392	-	-	-	-	-
BBB	196	119	0	71	-	-	-
	681	-	-	-	-	-	-
CVC	7	20	53	955	-	-	-
	-	5461	-	-	-	-	-
REP	112	1705	-	-	-	-	-
	6	25	-	-	-	-	-
MAEX	2490	3906	5314	-	-	-	-
	606	724	992	-	-	-	-
	2611	3341	4665	-	-	-	-
	3158	3807	4570	-	-	-	-
	114	807	676	-	-	-	-
	48	79	256	-	-	-	-
	<u>18320</u>	<u>23455</u>	<u>20126</u>	<u>12,157</u>	<u>5700</u>	-	<u>3364</u>

$$\frac{589,453}{214} = 2754$$

$$\sqrt{2754} = 52.5$$

$\bar{x} = 109.0$   
 $\bar{y} = 122.5$   
 $\sum a_i = 23917$

$$\frac{523,453}{214} = 2446$$

$$\log = \frac{3.38846}{2}$$

$$1.69423$$

$$\underline{\underline{49.5}}$$

$15006.25 = \bar{x}^2$   
 $11881 = \bar{y}^2$   
 $3125.25$

$$589453 - 668803 + 629556 = 550206$$

$$\frac{550206}{214} = 2571$$

$$\sqrt{2571} = 50.7$$

$n=192$  3-7 Years :

$$\bar{x} = 122.5 \quad \bar{y} = 112.9$$

$$276802 - 298299 + 286084$$

$$\bar{x}^2 = 17806.25$$

$$= \frac{264587}{132} = 2004$$

$$\sqrt{2004} = 44.8$$

2007  
1998

Standard Deviation      Guth - Sales  
 $(T_{200} - \bar{T}_{200})^2$

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
74	5883	1584	467	53	81
2052	1512	2581	2798	900	876
45882	1089	16	35	640	2560
266	2756	67	2088	686	835
—	1303	90	228	2323	3204
19	967	328	488	369	870
534	795	1310	1901	310	123
10	401	484	204	784	1267
46	734	424	1552	172	4502
42	104	324	196	1376	154
912	1332	98	686	387	2916
12	1798	1	640	98	475
734	69	2621	1789	5242	1673
2247	250	824	50	1815	146
1011	14	52	1	177	48
986	3552	520	3047	243	790
807	1858	864	4928	32	1282
445	—	92	96	392	24872
876	2343	26	17	1190	1463.1
3552	320	1544	266	1347	3.16524
980	2470.	7	5055	20 21536	1.58262
2591	3114	2125	2034	1076.8	38.2
66	1682	773	112	3.03213	
548	2016	4277	1513	1.516005	
64686	69	19	289	32.8	
2812.4	3	328	870		
3.44908	4449	13	289		
1.72454	40277	1467	37		
53.0	1549.0	22859	31676		
	3.19005	816.4	1131.3		
	1.59502	2.91084	3.05352		
	39.4	1.45542	1.52676		
		28.5	33.6		

7      8      9      10      11      12      13

16	1452	1414	1764			
3576	1063	660	185			
1689	458	376	801			
1399	55	<u>56</u>	<u>2750</u>			
29	3758	<u>2506</u>	<u>916.7</u>			
204	986	<u>626.5</u>		2.96223		
4	180					

973	⑧ 1391	2.79692	1.481115
980	9343	1.39846	③ 30.3
586	1167.9	② 25.0	

⑩ <u>1673</u>	3.06740
11129	1.5337
1011.7	③ 34.2

3.00505  
1.502525  
③ 31.8



S.D.

Rank -      Mean 118.1

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
557	5535	1429	404	81	7
6006	1781	2788	2959	1005	538
60713	1246	4	19	729	1954
253	19572	104	2228	600	1246
1050	3003	56	185	2190	3969
773	1142	404	557	306	1289
83	1116	1459	2034	753	22
11816	671	576	750	692	853
404	502	518	1673	219	5402
645	864	400	240	1505	36
660	156	142	767	3192	7157
4	1505	10	566	47	2266
829	1608	2421	1665	5491	737
26	112	942	74	1962	1190
231	328	85	2884	225	342
7903	37	433	4720	299	177
46311	3283	9920	69	55	1190
1	2061	751	7	462	1781
14	7191	58	219	1076	29,586
11067	4	10	4844	<u>1225</u>	
2841	2125	1391	2172	2,218	
3619	408	22	146		
751	2704	2314	1399		
1	3370	888	342		
350	936	4020	961		
581	1815	6	342		
77	36	404	<u>21</u>		
157,766	<u>4147</u>	31	<u>3,747</u>		
	67,258	<u>1318</u>			
		32,897			

<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
3181	2852	3422	3697	
1980	2294	23	27	
1665	37	2	90	
4	62	<u>807</u>	<u>3814</u>	
119	10837	4254		
28	2116			
13433	259			
773	818			
778	<u>2767</u>			
761	22,042			
1962				
<u>24684</u>				

$$\text{Total} = \frac{395,236}{180} = 2195.76$$

$$\frac{3.34159}{2} = 1.670795$$

(46.9)

Mean =  $\frac{108.0}{\underline{\quad}}$

S.D. for less than 200

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
AR	182	$\frac{7140}{1030}$	$\frac{2294}{1823}$	$\frac{615}{1962}$	$\frac{365}{\underline{\quad}}$	$\frac{161}{\underline{\quad}}$	$\frac{114}{\underline{\quad}}$
BR	4543	635	146	1210	1747	1109	—
	55838	—	0	1376	—	—	—
ET	34	1998	310	562	1376	2948	4422
MA	497	1927	100	182	207	635	1183
	313	543	790	1225	1325	2798	942
	1	1296	193	32	55	—	—
SI	—	151	156	949	34	666	—
	361	372	98	29	262	—	—
	234	6	3	30	—	—	—
EBB	243	824	49	1149	620	219	146
	66	2520	3516	2591	2391	1544	441
	350	0	4242	—	—	—	—
CVC	25	64	975	92	2153	4020	—
	640	36	955	96	4	—	23
	—	4543	—	4070	7090	259	—
EAM	94	1246	1406	6209	2954	3329	—
	—	—	313	339	630	650	1436
	85	64	174	161	751	1989	1444
	40	3158	2247	620	306	71	306
	—	102	29	6352	999	10	1170
	1866	1756	1444	1332	—	—	—
	2673	7304	388	4	—	—	—
	1406	1656	5402	2256	—	—	—
	85	2777	156	71	—	—	—
	829	259	100	437	515	595	—
	196	90	20	71	620	1030	—
	2	5550	2153	216	—	—	—
	<sup>(24)</sup> 70603	<sup>(27)</sup> 42011	<sup>(28)</sup> 24690	<sup>(29)</sup> 33428	<sup>(20)</sup> 24409	<sup>(17)</sup> 22252	<sup>(11)</sup> 11627

Emh  
S.D for less than 2000

12188.16  
11664.  
524.16

8	7	10
1875	2343	2570
1429	222	24
262	74	384
5	335	-
-	-	-
3147	-	-
686	-	-
346	-	-
1806	-	-
⑧ 9556	④ 2974	③ 2978

$$\bar{x} = 108.0$$

$$\bar{y} = 110.4$$

$$n = 170$$

$$\sum m_i = 18769.5$$

$$244,528 + 89107 - 90094 = 243541$$

$$\frac{243541}{170} = 1432.6$$

$$\sqrt{1433} = 37.8$$

128122

$$\frac{244528}{170} = 1438 \quad \log \frac{3.15776}{2} = 1.57888$$

$$= \underline{\underline{37.9}}$$

Interval 3-7 years :

3      4      5      6      7      8

$\bar{x} = 116.1$   
 $\bar{y} = 108.0$

198782 - 195570 = 109612  
116406 + ~~186368~~ - 193152 = 109622

13479.21  
11664  
1815.21

$$\frac{109622}{104} = 1054 \quad \sqrt{1054} = 32.5$$

19656

1050  
1056

# Forecast Accuracy $\left(\frac{\text{Forecast}}{\text{Actual}}\right)$ of Reserve Capacity Forecast Intervals

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
AR.		107	26	69	58	76	203
	86	55	115	121	—	—	—
BR.	n.a	n.a	n.a	.5	-23	-9	-26
ET	90	106	184	82	133	123	108
MA	73	80	113	80	156	30	100
	102	113	133	124	73	87	16
	180	48	58	82	77	—	—
SI	56	107	99	58	45	86	—
	93	82	124	63	61	—	—
	85	140	66	66	—	—	—
EEB	-100	-417	-3875	-597	108	81	192
	-537	77	-24	100	295	17	-18
CVC	133	361	4	—	—	—	—
	387	<del>1500</del>	0	31	14	-9	—
	117	161	111	189	—	—	—
	63	0	12	1200	-311	112	203
	600	9	448	290	83	169	368
EPM	0	0	0	0	682	462	—
	655	15	18	206	115	19	44
	-116	-246	-39	33	52	86	75
MEX	90	95	82	137	77	79	95
	106	67	49	47	171	1,783	304
	77	60	91	85	300	3,525	111
	42	138	71	116	121	93	93
	173	241	92	116	115	106	101
	535	127	114	67	62	60	105
	70	52	42	1	27	—	—
	100	107	67	51	24	—	—
	74	60	77	84	107	—	—
	156	125	10	39	3	—	—
	132	46	45	89	100	83	—
	112	496	3,307	461	78	173	—
	145	116	117	126	152	239	—
	122	85	175	114	252	149	—
	93	86	88	94	124	171	—
	<u>3908</u>	<u>2649</u>	<u>2,000</u>	<u>3818.5</u>	<u>3336</u>	<u>7791</u>	<u>2674</u>
	<u>118.4</u>	<u>80.3</u>	<u>58.8</u>	<u>112.3</u>	<u>107.6</u>	<u>311.6</u>	<u>122.0</u>

	8	9	10	11	12	13	Total
BR.	-29	-69	-160	-261	-187	-341	
MA	130	137	100	—	—	—	
	6	—	—	—	—	—	
BBB	269	65	176	—	—	—	
CVC	10	27	-47	—	—	—	
	667	—	—	—	—	—	
	28	—	—	—	—	—	
BPM	227	—	—	—	—	—	
MEX	101	280	—	—	—	—	
	9	16	—	①	①	①	
	⑧	-282	④ 69				
	148	222	<u>173</u>	<u>-261</u>	<u>-187</u>	<u>-341</u>	27445
	208	116					
	⑭ 143	⑩ 240					②38
	1837	752					
	<u>131.2</u>	<u>75.2</u>					
							<u>Average: 115.3</u>

Forecast Interval Actual  
Actual Reserve Capacity as % of Annual Peak Demand

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
AR.		-19	45	30	24	11	9
	9	13	2	8	—	—	—
BR.	m.a.	m.a.	m.a.	14	17	27	32
ET.	171	73	87	136	116	105	89
MA	43	83	34	43	15	44	65
	44	65	41	31	28	59	72
	31	28	59	72	72	—	—
SI	48	33	79	108	87	64	—
	108	87	64	83	71	—	—
	87	64	83	71	—	—	—
BBB	-1	-1	-1	-4	22	26	17
	-4	-22	26	17	8	44	26
CVC	26	3	23	—	—	—	—
	10	0	53	58	41	43	—
	58	41	43	14	—	—	—
	43	17	35	-1	-8	10	8
EPM	-1	-8	10	8	34	24	23
	-7	-9	-7	13	5	6	—
	-7	13	5	6	15	53	43
	5	16	15	53	43	35	27
MEX	19	36	21	39	55	46	23
	62	49	37	36	11	1	48
	35	24	28	17	7	1	19
	35	41	58	44	49	53	47
	35	35	99	63	50	40	48
	17	110	92	114	91	62	42
	38	56	42	25	22	17	—
	27	9	2	12	38	21	—
	44	49	53	47	33	18	—
	63	50	40	48	22	28	—
	114	91	62	42	19	13	—
	32	21	26	16	19	—	—
	26	63	64	58	62	—	—
	36	40	23	14	35	—	—
	7	21	56	27	35	—	—
	(33) 1193	(34) 1197	(34) 1399	(34) 1362	(31) 1138	(25) 845	(17) 638
	<u>36.2</u>	<u>35.2</u>	<u>41.1</u>	<u>40.1</u>	<u>36.7</u>	<u>33.8</u>	<u>37.5</u>

	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
BZ.	34	27	18	15	27	17
MA:	40	31	28	—	—	—
	72	—	—	—	—	—
BBB	76	44	26	—	—	—
CVC	34	24	23	—	—	—
	9	—	—	—	—	—
EPM	35	—	—	—	—	—
	19	—	—	—	—	—
MEX	21	8	—	—	—	—
	83	48	—	—	—	—
	-15	-11	—	—	—	—
	33	18	—	—	—	—
	22	28	—	—	—	—
	19	13	—	—	—	—
	⑭ 482	⑩ 230	⑮ 95	⑰ 15	⑱ 27	⑲ 17
	<u>34.4</u>	<u>23.0</u>	<u>23.7</u>	<u>15</u>	<u>27</u>	<u>17</u>

$$\text{Sum} = \frac{8638}{239} = \underline{\underline{36.1}} \text{ Aug.}$$



Median 896.5

Forecast Accuracy <sup>Forecast</sup> <sup>Actual</sup> for Reserve Capacity  
Summary including Additions

	<u>less than 0</u>	<u>0 to 19.9</u>	<u>20 to 39.9</u>
Sum	-7,803	179.5	292
number	24	23	10
% of total	9.3	9.7	4.2

	<u>40 to 59.9</u>	<u>60 to 79.9</u>	<u>80 to 99.9</u>
Sum	848	1,873	2,885
number	17	27	32
% of total	7.2	11.4	13.6

	<u>100 to 119.9</u>	<u>120-139.9</u>	<u>140-159.9</u>
Sum	3802	2182	1,183
number	36	18	8
% of total	15.2	7.6	3.4

	<u>160-179.9</u>	<u>180-199.9</u>	<u>200 +</u>
Sum	1,369	565	19,910
number	8	3	32
% of total	3.4	1.3	13.6

	<u>Totals</u>	
Sum	27,285.5	114.6
number	238 <sup>La</sup>	<u>117.2</u>
% of total	100.0	

La 3 statistics for Brazil were not available and a figure of 15,000 for CUC was excluded making the potential total 242.

Additional - Not calculated in reports

✓	AR	107 ✓	EPM	0 ✓
✓	BR	m.a ✓	0 ✓	
	(S.C.)	m.a ✓	0 ✓	
		m.a ✓	0 ✓	
		.5 ✓	655 ✓ (1)	
		-23 ✓	-246 ✓	
		-9 ✓	-39 ✓	
		-26 ✓	-116 ✓	1963 for loan 36960
		-29 ✓		
		-69 ✓	Mex -8 } ✓	
		-160 ✓	-282 } ✓	
		-261 ✓		
		-187 ✓		
		-341 ✓		

BIBB	-100 ✓	
	-417 ✓	
	-3875 ✓	
	-597 ✓	
	-537 ✓	
	-24 ✓	include +18 ✓

CVC	15,000 ✓ (4)
	-9 ✓
	1200 ✓ (3)
	-311 ✓ ✓
	-47 ✓ ✓
	600 ✓ (2)
	9 ✓

119-  
119-

(27)

118 119  
III  
+ 3700

205 total

Reserve Capacity Forecast  
Accuracy - 90

	<u>0 to 19.9</u>	<u>20 to 39.9</u>	<u>40 to 59.9</u>	<u>60 to 79.9</u>
<del>SI</del>	19	AR. ✓ 26	AR. ✓ 58	AR ✓ 69 MEX 67
CVC ✓	0	MA <del>31</del>	✓ 55	✓ 76 62
✓	12	39	MA <del>50</del>	<del>63</del> 60
✓	10	38	SI <del>59</del>	<del>64</del> 78
✓	6	SI <del>55</del>	57	MA <del>69</del> 70
✓	14	33	53	62 67
BBB ✓	4	20	EPM ✓ 44	64 74
✓	17	CVC ✓ 27	✓ 52	75 60
EPM ✓	15	✓ 31	MA ✓ 48	74 77
✓	18	✓ BBP ✓ 27	✓ 58	78
✓	19	EPM ✓ 28	SI ✓ 56	71 1873
MA ✓	16	✓ 33	✓ 58	SI <del>62</del> (27)
✓	6	MA ✓ 30	✓ 45	75
MEX ✓	9	27	MEX ✓ 49	62 (1326)
✓	16	24	✓ 47	63
	1	39	✓ 42	CVC ✓ 63
	10	(10) 292	46	✓ BBP ✓ 65
	3	(496)	45	EPM ✓ 75
(17)	170		52	MA ✓ 73
BBP ✓	5		42	✓ 73
(8/39) CVC	9		51	✓ 77
EPM	0		(17) 848	SI ✓ 63
	0		(8/39)	✓ 61
	0			✓ 66
	0			✓ 66
	(179.5) (23)			MEX ✓ 77
				✓ 79
				✓ 67
				✓ 77
				✓ 60
				✓ 71

8.3  
 11.9  
 13.2  
 8.3  
 8.3  
 21.5  
 15.2  
 24.1  
 11.0  
 9.6  
 10.0  
 11.0  
 12.0  
 13.0  
 14.0  
 15.0  
 16.0  
 17.0  
 18.0  
 19.0  
 20.0  
 21.0  
 22.0  
 23.0  
 24.0  
 25.0  
 26.0  
 27.0  
 28.0  
 29.0  
 30.0

80 to 99.9

100 to 119.9

120-139.9

140-159.9

MEX 93 AR. ✓ 86 (13)  
 86 (7) MA ~~80~~  
 88 (9) ST ~~91~~  
 94 82  
 84 (10) 97  
 2885 CVC ✓ 83 (8)  
 (32) EEB ✓ 81 (3)  
 EPM ✓ 86 (14)  
 (15.6%) Et. ✓ 90 (21)\*  
 ✓ 82 (4)  
 MA ✓ 80 (1)  
 ✓ 80 (2)  
 ✓ 87 (16)  
 ✓ 82 (5)  
 ST ✓ 86 (15)  
 ✓ 82 (6)  
 ✓ 85 (11)  
 ✓ 94  
 ✓ 93  
 MEX ✓ 90  
 ✓ 95  
 ✓ 82 (7)  
 ✓ 95  
 ✓ 91  
 ✓ 85 (10)  
 ✓ 93  
 ✓ 93  
 ✓ 92  
 89 (20)\*  
 83 (9)  
 85 (12)

AR. ✓ 115  
~~ET. 111~~  
 MA. ~~117~~  
 100  
 CVC ✓ 112  
 ✓ 111  
 ✓ 117  
 EEB ✓ 100  
 ✓ 108  
 EPM ✓ 115  
 Et. ✓ 106  
 ✓ 108  
 MA ✓ 100  
 ✓ 113  
 ✓ 100  
 ✓ 102  
 ✓ 113 MEX 100  
 ✓ 100 112  
 ST ✓ 107 116  
 Exclude 100 117  
 MEX ✓ 101 114  
 ✓ 106 100  
 ✓ 111 107  
 ✓ 116 107  
 ✓ 116 (3795)  
 ✓ 115 (36)  
 ✓ 106 (176%)  
 ✓ 101  
 ✓ 116  
 114 + 107 AR  
 105 = 3902  
 (37)

AR. ✓ 121  
 MA ~~133~~  
~~133~~  
~~131~~  
~~128~~  
 EEB ✓ 133  
 Et. ✓ 123  
 ✓ 133  
 MA ✓ 133  
 ✓ 124  
 ✓ 137  
 ✓ 130  
 ST ✓ 124  
 MEX ✓ 137  
 ✓ 138  
 ✓ 121  
 127  
 132  
 126  
 122  
 129  
 125  
 2182  
 (18)  
 (8.8%)

~~Et. 142~~  
 MA ~~158~~  
~~154~~  
 MA ✓ 156  
 ST ✓ 140  
 MEX ✓ 148  
 143  
 145  
 152  
 149  
 150  
 1183 (8)  
 (39%)

160 - 179.9

180 - 199.9

+200

+200

~~160~~

~~MA 183~~

AR. ✓ 203

~~200~~  
MEX 461

175

CVC ✓ 189

~~ET 469~~

739

CVC ✓ 169

BBB ✓ 192

~~MA 850~~

252

CV ✓ 161

Et. ✓ 184

~~262~~

~~17,455~~

BBB ✓ 176

565

~~425~~

~~280~~

~~24~~

MEX ✓ 171

(3)

CVC ✓ 203

~~14,196~~

✓ 173

~~1,570~~

CVC ✓ 448

~~1,770~~

173

✓ 290

~~34,910~~

175

✓ 368

~~33~~

171

✓ 667

19,910

(8)

1369

✓ 287

32

~~3,990~~

BBB ✓ 361

✓ 295

✓ 269

BPM ✓ 682 ✓

✓ 462 ✓

✓ 200 ✓

✓ 227 ✓

MEX ✓ 280

✓ 1,783

✓ 304

✓ 300

Total = 32,617  
205

25785  
203

24002  
202

✓ 3,525

✓ 222

Avg = 159.1

127

118.8

✓ 241

✓ 208

535

240

496

3,307

15162 | 176  
86

# Installed Capacity - Annual Peak Demand

MW

ET ✓  
1964  
↓  
1970

<u>Forecast</u>	<u>Actual</u>	<u>Forecast Actual</u>	<u>Actual MW-Demand</u>
27.2	30.1	90 ✓	27.1
25.7	24.2	106 ✓	33
52.7	28.7	184 ✓	33
44.2	54.1	82 ✓	39.6
67.2	50.4	133 ✓	43.3
58.7	47.9	123 ✓	45.8
47.7	44.1	108 ✓	49.6

MA ✓  
1958  
↓  
1967

24	33	73 ✓	77
47	59	80 ✓	71
36	32	113 ✓	94
33	41	80 ✓	95
25	16	156 ✓	107
16	53	30 ✓	121
86	86	100 ✓	133
82	63	130 ✓	156
74	54	137 ✓	175
64	64	100 ✓	229

MA 1963 ✓  
↓  
1970

54	53	102 ✓	121
97	86	113 ✓	133
84	63	133 ✓	156
67	54	124 ✓	175
47	64	73 ✓	229
144	165	87 ✓	278
33	211	16 ✓	292
15	260	6 ✓	363

# Installed Capacity - Annual Peak Demand MW

	<u>Forecast</u>	<u>Actual</u>	<u>Forecast</u> <u>Actual</u>	<u>Actual</u> <u>Demand</u>
✓ MI 1966	54	54	1.00 ✓	175
↓	31	64	48 ✓	229
↓	96	165	58 ✓	278
↓	173	211	82 ✓	292
1970	200	260	77 ✓	363

✓ SI 1963	41	73	56 ✓	151
	59	55	107 ✓	169
	151	152	99 ✓	192
	140	241	58 ✓	223
	97	216	45 ✓	248
	156	181	86 ✓	283

✓ SI 1966	224	241	93 ✓	223
↓	177	216	82 ✓	248
↓	225	181	124 ✓	283
↓	166	264	63 ✓	320
1970	163	267	61 ✓	377

✓ SI 1966	241	241	<del>100</del> ✓ <u>Exclude</u>	
↓	183	216	85 ✓	248
↓	253	181	140 ✓	283
↓	174	264	66 ✓	320
1970	177	267	66 ✓	377

1.005

Reserve Capacity Forecast Accuracy (Forecast / Actual Peak Demand)  
Installed Capacity - Annual

Forecast                      Actual                      Forecast/Actual                      Actual Demand

MEX 1962  
 Cont.  
 ↓  
 1970

163	181	90 -	952
300	315	95 -	1038
205	249	82 -	1159
675	493	137 -	1270
575	743	77 -	1356
465	585	79 -	1459
345	362	95 -	1584
365	361	101 -	1738
460	164	280 -	1935

MEX  
 credited 1962  
 ↓  
 1970

139	131	106 -	211
93	138	67 -	280
55	113	49 -	308
60	127	47 -	349
84	49	171 -	427
107	6	1,783 -	488
82	27	304 -	568
53	575	9 -	695
64	410	16 -	860

MEX  
 oec 1962  
 ↓  
 1970

65	84	77 -	237
39	65	60 -	267
78	86	91 -	305
50	59	85 -	348
75	25	300 -	382
141	4	3,525 -	455
107	96	111 -	510
70	-88	-	597
231	-82	-	741

-80  
 -282



# Installed Capacity - Annual Peak Demand

	<u>Forecast</u>	<u>Actual</u>	<u>Forecast</u> <u>Actual</u>	<u>Actual</u> <u>Demand</u>
MEX IV 1962 ✓	22	52	42 -	149
	80	58	138 -	143
	70	98	71 -	169
	95	82	116 -	195
	119	98	121 -	202
	110	118	93 -	223
	101	109	93 ✓	232
	124	84	148 ✓	257
1970 ✓	113	51	222 ✓	290

MEX NW 1962 ✓	64	37	173 ✓	105
	94	39	241 -	110
	122	132	92 -	134
	108	93	116 -	148
	92	80	115 ✓	161
	75	71	106 ✓	179
	76	95	101 ✓	196
	108	52	208 ✓	239
1970 ✓	85	73	116 ✓	259

MEX NE 1962 ✓	123	23	535 ✓	132
	203	166	127 ✓	145
	197	173	114 ✓	189
	170	253	67 ✓	221
	140	226	62 ✓	248
	108	181	60 ✓	293
	147	140	105 ✓	334
	107	75	143 ✓	399
	139	58	240 ✓	458

# Installed Capacity - Annual Peak Demand MW

	<u>Forecast</u>	<u>Actual</u>	<u>Forecast</u> <u>Actual</u>	<u>Actual</u> <u>Demand</u>
MEX 1965 Cont.	641	487	132 ✓	1270
	351	761	46 ✓	1356
	271	606	45 ✓	1459
	347	391	89 ✓	1584
	378	379	100 ✓	1738
1970	277	332	83 ✓	1935
MEX 1965 Inter Committed	210	187	112 ✓	700
	367	74	496 ✓	813
	496	15	3,307 ✓	938
	590	128	461 ✓	1073
	385	493	78 ✓	1286
	582	336	173 ✓	1593
MEX N. 1965	119	82	145 ✓	185
	114	98	116 ✓	202
	138	118	117 ✓	223
	137	109	126 ✓	232
	128	84	152 ✓	257
	122	51	239 ✓	290
MEX N.W. 1965	113	93	122 ✓	148
	68	80	85 ✓	161
	124	71	175 ✓	179
	109	95	114 ✓	196
	131	52	252 ✓	239
	109	73	149 ✓	259

	<u>Forecast</u>	<u>Actual</u>	<u>Forecast</u> <u>Actual</u>	<u>Actual</u> <u>Demand</u>
✓ MEX NE 1965	236	253	93 -	221
	195	226	86 -	248
	159	181	88 -	293
	131	140	94 -	334
	97	75	129 -	399
1970	99	58	171 -	458
✓ MEX 1958	160	228	70 -	712
Cont	86	166	52 -	774
	89	211	42 -	812
	1	139	1 -	884
	48	181	27 -	952
✓ MEX 1958	31	31	100 -	118
Oriental	109	102	107 -	162
	79	118	67 -	185
	57	111	51 -	192
	31	137	24 -	211
✓ MEX 1958	49	66	74 -	185
Occ	44	73	60 -	161
	36	47	77 -	207
	26	31	84 -	223
	90	84	107 -	237
✓ MEX 1958	6	4	150 -	55
H.W.	15	12	125 -	57
	4	39	10 -	70
	9	23	39 -	86
	1	37	3 -	105

Loan 308-AR Jan. 1962

$$R = \frac{\Delta \text{forecast}}{\Delta \text{actual}}$$

Gwh - Sales

<u>Forecast Interval</u>	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>R%</u>	<u>R% 1</u>
Base 1960	2385		2385 <del>2545</del>			
② 1962	3750	1365	3094	709	192.5 ✓	92.5 ✓
③ 1963	4100	1715	3485	1100	155.9 ✓	55.9 ✓
④ 1964	4500	2115	3916	1531	138.2 ✓	38.2 ✓
⑤ 1965	4780	2395	4270	1885	127.1 ✓	27.1 ✓
⑥ 1966	5060	2675	4602	2217	120.7 ✓	20.7 ✓
⑦ 1967	5340	2955	4875	2490	118.7 ✓	18.7 ✓

Mean =

Mean = 42.18

Annual Peak Demand - MW

① Base 1960	528		528 <del>661</del>			
② 1962	870	342	888	360	95.0 ✓	-5.0 ✓
③ 1963	1076	548	940	412	133.0 ✓	33.0 ✓
④ 1964	1178	650	1100	572	113.6 ✓	13.6 ✓
⑤ 1965	1242	714	1169	641	111.4 ✓	11.4 ✓
⑥ 1966	1303	775	1235	707	109.6 ✓	9.6 ✓
⑦ 1967	1361	833	1316	788	105.7 ✓	5.7 ✓

Loan 525- AR Jan 68

Gwh - Sales

<u>Forecast Interval</u>	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>%</u>	<u>%-1</u>
① Base 1966	4602		4602			
① 1967	4860	258	4875	273	94.5✓	-5.5✓
② 1968	5230	628	5429	827	75.9✓	-24.1✓
③ 1969	5620	1,018	6160	1,558	65.3✓	-34.7✓
④ 1970	6040	1,438	6861	2,259	63.7✓	-36.3✓

Mean = -25.15

MW - Annual Peak Demand

① Base 1966	1235		1235		✓	✓
① 1967	1319	84	1316	81	103.7	3.7
② 1968	1412	177	1394	159	111.3	11.3
③ 1969	1510	275	1547	312	88.1	11.9
④ 1970	1617	382	1697	462	82.7	17.3

Loan 211-132 Oct. 58

South-Central Region

MW - Annual Peak Demand

Forecast Interval	Forecast	$\Delta$	Actual	$\Delta$	$\checkmark$ <u>R</u>	$\checkmark$ <u>R-1</u>
① Base 1957 <sup>6a</sup>	2188		2188			
① 1958	2570	382	2240	52	734.6	634.6
② 1959	2892	704	2474	286	246.2	146.2
③ 1960	3239	1051	2698	510	206.1	106.1
④ 1961	3627	1439	2898	710	202.7	102.7
⑤ 1962	4022	1834	3096	908	202.0	102.0
⑥ 1963	4524	2336	3249	1061	220.2	120.2
⑦ 1964	5056	2868	3378	1190	241.0	141.0
⑧ 1965	5571	3,383	3673	1485	227.8	127.8
⑨ 1966	6080	3,892	3971	1,783	218.3	118.3
⑩ 1967	6671	4,483	4467	2279	196.7	96.7
⑪ 1968	7306	5,118	4773	2585	198.0	98.0
⑫ 1969	7995	5,807	5088	2900	200.2	100.2
⑬ 1970	8763	6,575	5831	3643	180.5	80.5

La Anderson Report.

Loan 403- BR

Feb. 1965

?

South Central Region - Energy Sent Out - Gwh

✓

	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>R%</u>	<u>R%-1</u>
① Base 1964	22,564		22,564			
① 1965	23,053	489	23,767	1203	40.6✓	-59.4 ✓
② 1966	25,358	2794	25,939	3375	82.8✓	-17.2 ✓
③ 1967	28,147	5583	27,213	4649	120.1✓	20.1 ✓
④ 1968	31,243	8679	29,648	7084	122.5✓	22.5 ✓
⑤ 1969	34,679	12115	30,652	8088	149.8✓	49.8 ✓
⑥ 1970	38,493	15929	33,837	11273	141.3✓	41.3 ✓

Means = 9.52

FURNAS

Sales - Gwh

① Base 1964	3215		3215			
① 1965	3900	685	2681	-521	-128.3✓	-228.3 ✓
② 1966	4500	1285	3713	498	258.0✓	158.0 ✓
③ 1967	4500	1285	4406	1191	107.9✓	7.9 ✓
④ 1968	5000	1785	5733	2518	70.9 ✓	-29.1 ✓
⑤ 1969	<del>7600</del>	<del>4385</del>	<del>9957</del>	<del>6722</del>	<del>65.1</del>	<del>-31.8</del>
⑥ 1970	<del>7700</del>	<del>4485</del>	<del>9255</del>	<del>6040</del>	<del>74.3</del>	<del>-25.7</del>

Mean =

111  
6  
1

(years ending  
Sept. 10)

Loan 375-ET

May 1964

Sales - Ewh

Forecast Interval	Forecast	$\Delta$	Actual.	$\Delta$	R%	R%-1
Base 1963	90		90			
① 1964	108.2	18.2	107.8	17.8	102.2 ✓	2.2 ✓
② 1965	112.8	22.8	126.0	36.0	63.3 ✓	-36.7 ✓
③ 1966	146.5	56.5	135.0	45.0	125.6 ✓	25.6 ✓
④ 1967	185.1	95.1	162.2	72.2	131.7 ✓	31.7 ✓
⑤ 1968	223.2	133.2	181.8	91.8	145.1 ✓	45.1 ✓
⑥ 1969	260.9	170.9	195.3	105.3	162.3 ✓	62.3 ✓
⑦ 1970	303.3	213.3	212.2	122.2	174.5 ✓	74.5 ✓

MW - Annual Peak Demand

Base 1963	25.5		25.5			
① 1964	30.0	5.5	27.1	1.6	343.7 ✓	243.7 ✓
② 1965	31.5	6.0	33.0	7.5	80.0 ✓	-20.0 ✓
③ 1966	36.5	11.0	33.0	7.5	146.7 ✓	46.7 ✓
④ 1967	45.0	19.5	39.6	14.1	138.3 ✓	38.3 ✓
⑤ 1968	54.0	28.5	43.3	17.8	160.1 ✓	60.1 ✓
⑥ 1969	62.5	37.0	45.8	20.3	182.3 ✓	82.3 ✓
⑦ 1970	73.5	48.0	49.6	24.1	199.2 ✓	99.2 ✓



Sept. 1958

Malaysia  
Loan 210 - MA

Forecast Interval	Guh - Sales		Total of WEB		%	P% - 1
	Forecast	Δ	Actual	Δ		
Base 1957 <sup>La</sup>	396		396			
① 1958	450	54	459	63	85.7	-14.3 ✓
② 1959	475	79	448	52	151.9	51.9 ✓
③ 1960	542	146	545	149	98.0	-2.0 ✓
④ 1961	620	224	633	237	94.5	-5.5 ✓
⑤ 1962	690	294	710	314	93.6	-6.4 ✓
⑥ 1963	733	337	803	407	82.8	-17.2 ✓
⑦ 1964	781	385	919	523	73.6	-26.4 ✓
⑧ 1965	834	438	1,073	677	64.7	-35.3 ✓
⑨ 1966	892	496	1,228	832	59.6	-40.4 ✓
⑩ 1967	956	560	1,373	977	57.3	-42.7 ✓

La Anderson Report

MW - Annual Peak Demand

Base 1957	Forecast	Δ	Actual	Δ	%	P% - 1
Base 1957	71		71			
① 1958	76	5	77	6	83.3	-14.7 ✓
② 1959	73	2	71	0	-	-
③ 1960	84	13	94	23	56.5	-43.5 ✓
④ 1961	97	26	95	24	108.3	8.3 ✓
⑤ 1962	107	36	107	36	100.0	0 ✓
⑥ 1963	114	43	121	50	86.0	-14.0 ✓
⑦ 1964	119	48	133	62	77.4	-22.6 ✓
⑧ 1965	128	57	156	85	67.1	-32.9 ✓
⑨ 1966	136	65	175	104	62.5	-37.5 ✓
⑩ 1967	146	75	229	158	47.5	-52.5 ✓

Loan 350 M A Aug. 1963

Forecast Interval	Sub Sales				✓	✓
	Forecast	$\Delta$	Actual	$\Delta$	270	270-1
① Base = 1962	710		710			
① 1963	794	84	803	93	90.3	-9.7 ✓
② 1964	887	177	919	209	84.7	-15.3 ✓
③ 1965	1,000	290	1,073	363	79.9	-20.1 ✓
④ 1966	1,088	378	1,228	518	73.0	-27.0 ✓
⑤ 1967	1,185	475	1,373	663	71.6	-28.4 ✓
⑥ 1968	1,293	583	1,768	1058	55.1	-44.9 ✓
⑦ 1969	1,660	950	1,939	1229	77.3	-22.7 ✓
⑧ 1970	1,740	1030	2,178	1468	70.2	-29.8 ✓

MW - Annual Peak Demand

① Base 1962	107		107			
① 1963	118	11	121	14	78.6	-21.4 ✓
② 1964	132	25	133	26	96.1	-3.9 ✓
③ 1965	145	38	156	49	77.6	-22.4 ✓
④ 1966	162	55	175	68	80.9	-19.1 ✓
⑤ 1967	182	85	229	122	69.7	-30.3 ✓
⑥ 1968	241	134	278	171	78.4	-21.6 ✓
⑦ 1969	352	245	292	185	132.4	32.4 ✓
⑧ 1970	370	263	363	256	102.7	2.7 ✓

458-MIA July 1966

Gwh - Sales

Forecast Interval	Forecast	$\Delta$	Actual	$\Delta$	R% ✓	R%-1 ✓
① Base 1965	1073		1073			
① 1966	1242	169	1228	155	109.0	9.0 ✓
② 1967	1505	432	1373	300	144.0	44.0 ✓
③ 1968	1727	654	1768	695	94.1	-5.9 ✓
④ 1969	1959	886	1939	866	102.3	2.3 ✓
⑤ 1970	2185	1112	2178	1105	100.6	0.6 ✓

Mw - Annual Peak Demand

① Base 1965	156		156				✓
① 1966	175	19	175	19	100.0	0	✓
② 1967	258	102	229	73	139.7	39.7	✓
③ 1968	296	140	278	122	114.7	14.7	✓
④ 1969	330	174	292	117	148.7	48.7	✓
⑤ 1970	363	207	363	207	100.0	0	✓

Loan 337-SI May 1963

Forecast Interval	Sales - Gwh				✓	
	Forecast	Δ	Actual	Δ	R <sub>90</sub>	R <sub>90-1</sub>
① Base - 1962	689		689			
① 1963	782	93	730	41	226.8	126.8 ✓
② 1964	822	133	828	139	95.7	-4.3 ✓
③ 1965	902	213	912	223	95.5	-4.5 ✓
④ 1966	987	298	1075	386	77.2	-22.8 ✓
⑤ 1967	1251	562	1239	550	102.2	2.2 ✓
⑥ 1968	1312	623	1447	758	82.2	-17.8 ✓

MW Annual Peak Demand

① Base 1962	139		139		✓	✓
① 1963	156	17	151	12	141.7	41.7 ✓
② 1964	165	26	169	30	86.7	-13.3 ✓
③ 1965	183	44	192	53	83.0	-17.0 ✓
④ 1966	194	55	223	84	65.5	-34.5 ✓
⑤ 1967	237	98	248	109	89.9	-10.9 ✓
⑥ 1968	249	110	283	144	76.4	-23.6 ✓

Loan 473-SI Nov. 1966

Forecast Interval	<u>Gah - Sales</u>				P%	P% - 1
	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>		
Base - 1965	912		912			
① 1966	1057	145	1075	163	89.0	-11.0 ✓
② 1967	1202	290	1239	327	89.7	-11.3 ✓
③ 1968	1437	525	1447	535	98.1	-1.9 ✓
④ 1969	1672	760	1653	741	102.6	2.6 ✓
⑤ 1970	1858	946	1942	1030	91.8	-8.2 ✓

MW - Annual Peak Demand

Base 1965	192		192			
① 1966	240	48	223	31	154.8	54.8 ✓
② 1967	287	95	248	56	169.6	69.6 ✓
③ 1968	359	167	283	101	165.3	65.3 ✓
④ 1969	488	226	320	128	176.6	76.6 ✓
⑤ 1970	481	289	377	185	156.2	56.2 ✓

503 ST July 1967

Sales - Gwh

<u>Forecast Interval</u>	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>R<sub>2%</sub></u>	<u>R<sub>90%</sub></u>	
Base = 1966	1075		1075				
① 1967	1227	152	1239	164	92.7	-7.3	✓
② 1968	1468	393	1447	372	105.6	5.6	✓
③ 1969	1684	614	1653	578	106.2	6.2	✓
④ 1970	1895	784	1942	867	90.4	-9.6	✓

MW - Annual Peak Demand

	<u>Base 1966</u>						
	223		223				
① 1967	281	58	248	25	232.0	132.0	✓
② 1968	331	108	283	60	180.0	80.0	✓
③ 1969	383	160	320	97	164.9	64.9	✓
④ 1970	440	217	370	147	147.6	47.6	✓

Loan 246- CO EEBB Jan. 1960

Gwh - Sales

Forecast Interval	Forecast	$\Delta$	Actual	$\Delta$	$R\%$ ✓	$R\% - 1$ ✓
Base = 1958	467.0		467.0			
① 1959	513.0	46.0	516.8	49.8	92.4	- 7.6 ✓
② 1960	577.0	110.0	605.7	138.7	79.3	- 20.7 ✓
③ 1961	649.0	182.0	625.3	158.3	115.0	15.0 ✓
④ 1962	765.0	298.0	677.0	210.0	141.9	41.9 ✓
⑤ 1963	887.0	420.0	783.1	316.1	132.9	32.9 ✓
⑥ 1964	1010.0	543.0	909.1	442.1	122.8	22.8 ✓
⑦ 1965	1140.0	673.0	1027.3	560.3	120.1	20.1 ✓
⑧ 1966	1275.0	808.0	1117.8	650.8	124.2	24.2 ✓
⑨ 1967	1425.0	958.0	1246.8	779.8	122.9	22.9 ✓
⑩ 1968	1580.0	1113.0	1452.7	985.7	112.9	12.9 ✓

Annual Peak Demand

Base = 1958	113.5		113.5			
① 1959	127.0	13.5	129.0	15.5	87.1	- 12.9 ✓
② 1960	141.0	27.5	129.2	15.7	175.2	75.2 ✓
③ 1961	150.0	36.5	147.6	34.1	107.0	7.0 ✓
④ 1962	205.0	91.5	152.7	39.2	233.4	133.4 ✓
⑤ 1963	236.0	122.5	200.1	86.6	141.5	41.5 ✓
⑥ 1964	263.0	149.5	224.9	111.4	134.2	34.2 ✓
⑦ 1965	291.0	177.5	243.5	130.0	136.5	36.5 ✓
⑧ 1966	318.0	204.5	266.8	153.3	133.4	33.4 ✓
⑨ 1967	348.0	234.5	304.6	191.1	122.7	22.7 ✓
⑩ 1968	380.0	266.5	347.1	233.6	114.1	14.1 ✓

Loan 3.3-00 EBBB May 1962

Forecast Interval	<u>Each - Sales</u>				✓ <u>12%</u>	✓ <u>12% - 1</u>
	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>		
Base Yr. = 1961	625.3		625.3			
① 1962	683.0	57.7	677.0	51.7	116.1	16.1 ✓
② 1963	875.0	249.7	783.1	157.8	158.2	58.2 ✓
③ 1964	1100.0	474.7	909.1	283.8	167.3	67.3 ✓
④ 1965	1264.0	638.7	1027.3	402.0	158.9	58.9 ✓
⑤ 1966	1398.0	772.7	1117.8	492.5	156.9	56.9 ✓
⑥ 1967	1541.0	915.7	1246.8	621.5	147.3	47.3 ✓
⑦ 1968	1693.0	1067.7	1452.7	827.4	129.0	29.0 ✓

Month - Annual Peak Demand

Base = 1961	147.6		147.6		✓	
① 1962	176.6	28.4	152.7	5.1	556.9	456.9 ✓
② 1963	233.0	85.4	200.1	52.5	162.7	62.7 ✓
③ 1964	292.0	144.4	224.9	77.3	186.8	86.8 ✓
④ 1965	336.0	188.4	243.5	95.9	196.4	96.4 ✓
⑤ 1966	367.0	219.4	266.8	119.2	184.1	84.1 ✓
⑥ 1967	405.0	257.4	304.6	157.0	163.9	63.9 ✓
⑦ 1968	444.0	296.4	347.1	199.5	148.6	48.6 ✓



Loan 537-00 June 1968  
EBRB

Forecast  
~~Annual~~

Sub-Sales

	<u>Forecast</u>	$\Delta$	<u>Actual</u>	$\Delta$	<u>R<sup>90</sup></u>	<u>R<sup>90</sup>-1</u>
Base Yr = 1967	1246.8		1246.8			
① 1968	1430.0	183.2	1452.0	205.2	89.3	-10.7 ✓
② 1969	1723.0	476.2	1689.8	443.0	107.5	7.5 ✓
③ 1970	1934.0	687.2	2033.0	786.2	87.4	-12.6 ✓

Sub - Annual Peak Demand

Base = 1967	304.6		304.6			
① 1968	336.0	31.4	347.1	42.5	73.9	-26.1 ✓
② 1969	403.0	98.4	422.8	118.2	83.2	-16.8 ✓
③ 1970	452.0	147.4	479.0	174.4	84.5	-15.5 ✓

Loan 113 - CO March 1955  
ANCHICAYA

Gwh - Sales

<u>Forecast Interval</u>	<u>Forecast</u>	$\Delta$	<u>Actual</u>	$\Delta$	<u>R%</u>	<u>R%-1</u>
Base Year = 1957	n.a.		n.a.			
① 1955	63		60			
② 1956	202		157			
③ 1957	304		200			
④ 1958	329		223			
⑤ 1959	354		265			
⑥ 1960	383		301			

Peak - Annual Peak Demand

<u>Base - 1954</u>	12.5		12.5			
① 1955	23.0	10.5	32.0	19.5	53.8 ✓	-46.2 ✓
② 1956	40.0	27.5	35.0	22.5	122.2 ✓	22.2 ✓
③ 1957	55.0	42.5	49.2	36.7	115.8 ✓	15.8 ✓
④ 1958	58.0	45.5	54.0	41.5	109.6 ✓	9.6 ✓
⑤ 1959	64.0	51.5	60.5	48.0	107.3 ✓	7.3 ✓
⑥ 1960	70.0	57.5	66.6	54.1	106.3 ✓	6.3 ✓

loan 215.00 Dec 1958

ANCHI CAYA

Forecast Actual	Base 1957	Gwh-Sales		Actual	Δ	P%	P%-1
		Forecast	Δ				
		200		200			
①	1958	226	26	223	23	113.0	13.0 ✓
②	1959	265	65	265	65	100.0	0.0 ✓
③	1960	310	110	301	101	108.9	8.9 ✓
④	1961	362	162	348	148	109.5	9.5 ✓
⑤	1962	362	162	463	263	61.6	-38.4 ✓
⑥	1963	362	162	563	363	44.6	-55.4 ✓

Base 1957	Mwh - Annual Peak Demand		Actual	Δ	P%	P%-1	
	Forecast	Δ					
	49.2		44.2				
①	1958	50.0	0.8	54.0	4.8	16.7	-83.3 ✓
②	1959	57.0	7.8	60.5	11.3	69.0	-31.0 ✓
③	1960	65.0	15.8	66.6	17.4	90.8	-9.2 ✓
④	1961	75.0	25.8	83.7	34.5	74.8	-25.2 ✓
⑤	1962	m.a.		95.2	46.0		
⑥	1963	m.a.		129.1	79.9		

Loan 255-C0 May 1960

Am

Gwh - Sales

Forecast  
Annual

	Forecast	$\Delta$	Actual	$\Delta$	$\checkmark$ P%	$\checkmark$ P%-1
Base year: 1959	265		265			
① 1960	313	48	301	36	133.3	33.3 ✓
② 1961	358	93	348	83	112.0	12.0 ✓
③ 1962	540	275	463	198	138.9	38.9 ✓
④ 1963	616	351	563	298	117.8	17.8 ✓
⑤ 1964	688	423	650	385	109.9	9.9 ✓
⑥ 1965	770	505	672	407	124.1	24.1 ✓
⑦ 1966	856	591	789	524	112.8	12.8 ✓
⑧ 1967	905	640	846	581	110.2	10.2 ✓
⑨ 1968	1015	750	908	643	116.6	16.6 ✓
⑩ 1969	1130	865	943	678	127.6	27.6 ✓

Max - Annual Peak Demand

	Base 1959				$\checkmark$	
① 1960	60.5		60.5			
② 1961	84.0	23.5	66.6	6.1	385.2	285.2 ✓
③ 1962	102.0	41.5	83.7	23.2	178.9	78.9 ✓
④ 1963	131.0	70.5	95.2	34.7	203.2	103.2 ✓
⑤ 1964	147.0	86.5	129.1	68.6	126.1	26.1 ✓
⑥ 1965	162.0	101.5	138.7	78.2	129.8	29.8 ✓
⑦ 1966	179.0	118.5	148.8	88.3	134.2	34.2 ✓
⑧ 1967	197.0	136.5	174.3	113.8	119.9	19.9 ✓
⑨ 1968	219.0	158.5	185.3	124.8	127.0	27.0 ✓
⑩ 1969	242.0	181.5	209.3	139.8	129.8	29.8 ✓
⑪ 1969	277.0	216.5	201.6	141.1	153.4	53.4 ✓

Loan - 339-C0 June 1963  
Am

Forecast Interval	Base year = 1962	Gwh - Sales				✓	✓
		Forecast	$\Delta$	Actual	$\Delta$	R <sub>20</sub>	R <sub>20-1</sub>
		463		463			
①	1963	670	207	563	100	207.0	107.0 ✓
②	1964	791	328	650	187	175.4	75.4 ✓
③	1965	918	455	672	209	217.7	117.7 ✓
④	1966	1023	560	789	326	171.8	71.8 ✓
⑤	1967	1199	736	846	383	192.2	92.2 ✓
⑥	1968	1365	902	908	445	202.7	102.7 ✓
⑦	1969	1586	1123	943	480	234.0	134.0 ✓
⑧	1970	1805	1342	1067	604	222.2	122.2 ✓

Forecast Interval	Base year = 1962	Mwh - Annual Peak Demand				✓	✓
		Forecast	$\Delta$	Actual	$\Delta$	R <sub>20</sub>	R <sub>20-1</sub>
		95.2		95.2			
①	1963	141.0	45.8	129.1	33.9	135.1	35.1 ✓
②	1964	166.0	70.8	138.7	43.5	162.8	62.8 ✓
③	1965	191.0	95.8	143.8	48.6	197.1	97.1 ✓
④	1966	215.0	119.8	174.3	79.1	151.5	51.5 ✓
⑤	1967	258.0	162.8	185.3	90.1	180.7	80.7 ✓
⑥	1968	289.0	193.8	200.3	105.1	184.4	84.4 ✓
⑦	1969	319.0	223.8	201.6	106.4	210.3	110.3 ✓
⑧	1970	356.0	260.8	228.0	132.8	196.4	96.4 ✓

Loan 225-CO May 1959  
BPM

Forecast Interval	Base Year - 1958	Buh-Sales				✓	✓
		Forecast	Δ	Actual	Δ	2%	2% - 1
	1958	582		582			
①	1959	655	73	644	62	117.7	11.7 ✓
②	1960	675	93	710	128	72.7	-27.3 ✓
③	1961	790	208	725	143	145.5	45.5 ✓
④	1962	950	368	779	197	186.8	86.8 ✓
⑤	1963	1100	518	901	319	162.4	62.4 ✓
⑥	1964	1240	658	979	397	165.7	65.7 ✓

Base Year - 1958	Muh - Annual Peak Demand						
	1958	137		137			
①	1959	137	0	148	11	0	-100.0 ✓
②	1960	137	0	150	13	0	-100.0 ✓
③	1961	217	80	148	11	727.3	627.3 ✓
④	1962	233	96	200	63	152.4	52.4 ✓
⑤	1963	233	96	216	79	121.5	21.5 ✓
⑥	1964	285	148	232	95	159.8	59.8 ✓

Loan 282-00 April 1971

EPM

Wh-Sales

Forecast Interval	Base Year 1960	Forecast	$\Delta$	Actual	$\Delta$	$R^2$	$R^2 - 1$
		710		710			
①	1961	760	50	725	15	3.33.3	2.33.3 ✓
②	1962	850	140	779	69	2.02.9	102.9 ✓
③	1963	950	240	901	191	125.7	25.7 ✓
④	1964	1050	340	979	269	126.4	26.4 ✓
⑤	1965	1160	450	1048	388	133.1	33.1 ✓
⑥	1966	1280	570	1137	427	133.5	33.5 ✓
⑦	1967	1400	690	1183	473	145.9	45.9 ✓
⑧	1968	1550	840	1222	512	164.1	64.1 ✓

Muh - Annual Peak Demand

Base Year 1960	Forecast	$\Delta$	Actual	$\Delta$	$R^2$	$R^2 - 1$	
	150		150				
①	1961	208	58	148	-2	-2900	-2800 ✓
②	1962	212	62	200	50	124.0	24.0 ✓
③	1963	250	100	216	66	151.5	51.5 ✓
④	1964	266	116	232	82	141.5	41.5 ✓
⑤	1965	285	135	237	87	155.2	55.2 ✓
⑥	1966	343	193	284	139	138.8	38.8 ✓
⑦	1967	363	213	310	160	133.1	33.1 ✓
⑧	1968	446	290	327	177	163.8	63.8 ✓

Loan 361-00 Jan. 1964  
BPM

Forecast Interval	Base Year = 1962	<u>Gwh - Subs</u>		Actual	$\Delta$	$\checkmark$	$\checkmark$
		Forecast	$\Delta$			R <sub>20</sub>	R <sub>20</sub> -1
		779		779			
①	1963	922	143	901	122	117.2	17.2 ✓
②	1964	1011	232	974	200	116.0	16.0 ✓
③	1965	1105	326	1048	269	121.2	21.2 ✓
④	1966	1211	432	1137	358	120.7	20.7 ✓
⑤	1967	1326	547	1183	404	135.4	35.4 ✓
⑥	1968	1455	676	1222	443	152.6	52.6 ✓
⑦	1969	1585	806	1331	552	146.0	46.0 ✓
⑧	1970	1741	962	1496	717	134.2	34.2 ✓

Base 1962	<u>Month</u>		<u>Annual Peak Demand</u>		$\checkmark$		
	200		200				
①	1963	229	29	216	16	181.3	81.3 ✓
②	1964	248	48	232	32	150.0	50.0 ✓
③	1965	268	68	267	67	101.5	1.5 ✓
④	1966	291	91	289	89	102.2	2.2 ✓
⑤	1967	318	118	310	110	107.3	7.3 ✓
⑥	1968	350	150	327	127	118.1	18.1 ✓
⑦	1969	380	180	350	150	120.0	20.0 ✓
⑧	1970	418	218	371	171	127.5	27.5 ✓



Loan 316 - MIE - 1962

Central Sys

MEX:

Much - Peak Demand

Forecast  
Deferral

Base  
Year = 1961

	Forecast	$\Delta$	Actual	$\Delta$	R <sup>2</sup> ✓	R <sup>2</sup> -1
	884		884			
① 1962	964	80	952	68	117.6	17.6 ✓
② 1963	1091	167	1038	154	1109.4	8.4 ✓
③ 1964	1146	262	1159	275	95.3	-4.7
④ 1965	1240	356	1270	386	92.2	-7.8
⑤ 1966	1340	456	1356	472	96.6	-3.4
⑥ 1967	1450	566	1459	575	98.4	-1.6
⑦ 1968	1570	686	1584	700	98.0	-2.0
⑧ 1969	1700	816	1738	854	95.6	-4.4
⑨ 1970	1840	956	1935	1051	91.0	-9.0

Much - Peak Demand - Oriental Sys

Base  
= 1961

	Forecast	$\Delta$	Actual	$\Delta$	R <sup>2</sup> ✓	R <sup>2</sup> -1
	192		192			
① 1962	239	47	211	19	247.4	147.4 ✓
② 1963	324	132	280	88	150.0	50.0 ✓
③ 1964	362	170	308	112	151.8	51.8 ✓
④ 1965	397	205	349	157	130.6	30.6 ✓
⑤ 1966	418	226	427	235	96.2	-3.8 ✓
⑥ 1967	440	248	488	296	83.8	-16.2 ✓
⑦ 1968	465	273	568	376	72.6	-27.4 ✓
⑧ 1969	494	302	695	503	60.0	-40.0 ✓
⑨ 1970	523	331	860	668	49.6	-50.4 ✓

Loan 316-ME - 1962

Occidental Sys

Minh - Peak Demand

Forecast  
Antenna

Base  
1961

	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>R%</u>	<u>R% - 1</u>
	223		223		✓	
① 1962	260	37	237	14	264.3	164.3 ✓
② 1963	286	63	261	38	165.8	65.8 ✓
③ 1964	307	89	305	82	162.4	2.4 ✓
④ 1965	335	112	348	125	89.6	-10.4 ✓
⑤ 1966	364	141	382	159	88.7	-11.3 ✓
⑥ 1967	394	171	455	232	73.7	-26.3 ✓
⑦ 1968	428	205	510	287	71.4	-28.6 ✓
⑧ 1969	465	242	597	374	64.7	-35.3 ✓
⑨ 1970	504	281	741	518	54.2	-45.8 ✓

Minh - Peak Demand - Mathem System

Base  
1961

	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>R%</u>	<u>R% - 1</u>
	137		137		✓	
① 1962	147	10	149	12	83.3	-16.7 ✓
② 1963	155	18	143	6	300.0	200.0 ✓
③ 1964	165	28	169	32	87.5	-12.5 ✓
④ 1965	173	36	185	48	75.0	-25.0 ✓
⑤ 1966	182	45	202	65	69.2	-30.8 ✓
⑥ 1967	191	54	223	86	62.8	-37.2 ✓
⑦ 1968	200	63	232	95	66.3	-33.7 ✓
⑧ 1969	210	73	257	120	60.8	-39.2 ✓
⑨ 1970	221	84	290	153	54.9	-45.1 ✓

Loan 316 -ME

		<u>Mah - Peak Demand</u>		<u>W Sys</u>			
<u>Forecast</u>	<u>Year</u>	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>P%</u>	<u>P%-1</u>
	Base year = 1961	86		86		✓	
①	1962	111	25	105	19	131.6	31.6 ✓
②	1963	126	40	110	24	166.7	66.7 ✓
③	1964	143	57	134	48	118.8	18.8 ✓
④	1965	157	71	148	62	114.5	14.5 ✓
⑤	1966	173	87	161	75	116.0	16.0 ✓
⑥	1967	190	104	179	93	111.8	11.8 ✓
⑦	1968	209	123	196	110	111.8	11.8 ✓
⑧	1969	230	144	239	153	94.1	5.9 ✓
⑨	1970	253	167	259	173	96.5	3.5 ✓

		<u>Mah - Peak Demand</u>		<u>ME Sys.</u>			
<u>Forecast</u>	<u>Year</u>	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>P%</u>	<u>P%-1</u>
	Base year = 1961	120		120		✓	
①	1962	128	8	132	12	66.7	-33.3
②	1963	153	33	145	25	132.0	32.0 ✓
③	1964	272	152	189	69	220.3	120.3 ✓
④	1965	299	179	221	101	177.2	77.2 ✓
⑤	1966	329	209	248	128	163.3	63.3 ✓
⑥	1967	361	241	293	173	139.3	39.3 ✓
⑦	1968	397	277	334	214	129.4	29.4 ✓
⑧	1969	437	317	399	279	113.6	13.6 ✓
⑨	1970	480	360	458	338	106.5	6.5 ✓

194 - ME 1958

Max - Peak Demand - Central Sys

Base Yr. 1957	Forecast	$\Delta$	Actual	$\Delta$	2%	2% - 1
	636		636			✓
① 1958	732	96	712	76	126.3	26.3 ✓
② 1959	806	170	774	138	123.2	23.2 ✓
③ 1960	886	250	812	176	142.0	42.0 ✓
④ 1961	974	338	884	248	136.3	36.3 ✓
⑤ 1962	1072	436	952	316	138.0	38.0 ✓

Max - Peak Demand - Oriental Sys

Base Yr. 1957	Forecast	$\Delta$	Actual	$\Delta$	2%	2% - 1
	99		99		✓	✓
① 1958	154	55	118	19	289.5	89.5 ✓
② 1959	184	85	162	63	134.9	34.9 ✓
③ 1960	214	115	185	86	133.7	33.7 ✓
④ 1961	236	137	192	93	147.3	47.3 ✓
⑤ 1962	262	163	211	112	145.5	45.5 ✓

Max Peak Demand - Occidental Sys

Base 1957	Forecast	$\Delta$	Actual	$\Delta$	2%	2% - 1
	166		166			✓
① 1958	169	3	185	19	15.8	-84.2 ✓
② 1959	174	8	181	15	53.3	-46.7 ✓
③ 1960	182	16	207	41	39.0	-61.0 ✓
④ 1961	192	26	223	57	45.6	-54.4 ✓
⑤ 1962	202	36	237	71	50.7	-49.3 ✓

Max Peak Demand - MW Sys

Base 1957	Forecast	$\Delta$	Actual	$\Delta$	2%	2% - 1
	50		50			
① 1958	63	13	55	5	260.0	160.0 ✓
② 1959	73	23	57	7	328.6	228.6 ✓
③ 1960	84	34	70	20	170.0	70.0 ✓
④ 1961	97	47	86	36	130.6	30.6 ✓
⑤ 1962	105	55	105	55	100.0	0.0 ✓

Forecast  
Internal

Base  
Year = 1961

Gwh - Sales - Loan 316 - ME Total System

	<u>Forecast</u>	<u>Δ</u>	<u>Actual</u>	<u>Δ</u>	<u>20%</u>	<u>270-1</u>
	3962		3962			
① 1962	4952	990	4,828	866	114.3	14.3 ✓
② 1963	7346	3384	6,023	2061	104.2	64.2 ✓
③ 1964	10,508	6546	8,173	4211	155.4	55.4 ✓
④ 1965	11,719	7757	9,800	5838	132.9	32.9 ✓
⑤ 1966	13,014	9052	11,177	7215	125.5	25.5 ✓
⑥ 1967	13,944	9987	13,990	10028	99.6	-0.4 ✓
⑦ 1968	14,768	10806	15,899	11,937	90.5	-9.5 ✓
⑧ 1969	16,380	12418	17,857	13,895	89.4	-10.6 ✓
⑨ 1970	18,435	14473	20,095	16,133	89.7	-10.3 ✓

Gwh - Sales Loan 194 - ME Total Sys

Base  
Year = 1957

	2694		2694			
① 1958	3721	1027	3154	460	223.3	123.3 ✓
② 1959	3935	1241	3961	1267	97.9	-2.1 ✓
③ 1960	4249	1555	4065	1371	113.4	13.4 ✓
④ 1961	5074	2380	3962	1268	187.7	87.7 ✓
⑤ 1962	5673	2979	4828	2134	139.6	39.6 ✓
⑥ 1963	6184	3490	6023	3329	104.8	4.8 ✓
⑦ 1964	6740	4046	8173	5479	73.8	-26.2 ✓
⑧ 1965	7347	4653	9800	7106	65.5	-34.5 ✓

Loan 436- ME 1965

Forecast Interval	Gwh - Sales			Central Sys		
	Forecast	$\Delta$	Actual	$\Delta$	R%	R%-1
Base year = 1964	4625		4625		✓	✓
① 1965	4923	298	5085	460	64.8	-35.2
② 1966	5318	693	5673	1048	66.1	-33.9
③ 1967	5746	1115	6218	1593	70.0	-30.0
④ 1968	6204	1579	6834	2209	71.5	-28.5
⑤ 1969	6700	2075	n.a.			
⑥ 1970	7235	2610	n.a.			

Base year	Mwh - Peak Demand			Central Sys		
	Forecast	$\Delta$	Actual	$\Delta$	R%	R%-1
1964	1159		1159		✓	
① 1965	1217	58	1757	598	9.7	-90.3 ✓
② 1966	1268	109	2117	958	11.4	-88.6 ✓
③ 1967	1276	117	2065	906	12.9	-87.1 ✓
④ 1968	1200	41	1975	816	5.0	-95.0 ✓
⑤ 1969	895	-264	2117	958	-27.6	-727.6 ✓
⑥ 1970	640	-519	2267	1108	-46.8	-146.8 ✓

Loan 436-115

Forecast Interval

Gwh - Sales

Mathem Sys

✓

	Base Year = 1964	Forecast	Δ	Actual	Δ	R%	R%-1
		847		847		✓	
①	1965	883	36	911	64	56.3	-43.7 ✓
②	1966	910	63	952	105	60.0	-40.0 ✓
③	1967	990	143	1009	162	88.3	-11.7 ✓
④	1968	1076	229	1063	216	106.0	6.0 ✓
⑤	1969	1122	275	n.a.			
⑥	1970	1155	308	n.a.			

Mwh - Peak Demand

	Base 1964						
		169		169		✓	✓
①	1965	162	-7	185	16	-43.8	-143.8 ✓
②	1966	167	-2	202	33	-6.1	-106.1 ✓
③	1967	181	12	223	54	22.2	-77.8 ✓
④	1968	197	28	232	63	44.4	-55.6 ✓
⑤	1969	206	37	257	88	42.0	-58.0 ✓
⑥	1970	212	43	290	121	35.5	-64.5 ✓

Loan 436-ME

Forecast Interval

GWh - Sales NW Sys  
Forecast     $\Delta$     Actual     $\Delta$     R%    R%-1

Base 1964	Forecast	$\Delta$	Actual	$\Delta$	R%	R%-1
	587		587		✓	
① 1965	667	80	642	55	145.5	45.5 ✓
② 1966	761	174	704	117	148.7	48.7 ✓
③ 1967	921	334	771	184	181.5	81.5 ✓
④ 1968	985	398	843	256	155.5	55.5 ✓
⑤ 1969	1045	458	n.a.			
⑥ 1970	1125	538	n.a.			

Month - Peak Demand

Base 1964	Forecast	$\Delta$	Actual	$\Delta$	R%	R%-1
	134		134			
① 1965	152	18	148	14	128.6	28.6 ✓
② 1966	197	63	161	27	233.3	133.3 ✓
③ 1967	206	72	179	45	160.0	60.0 ✓
④ 1968	222	88	196	62	141.9	41.9 ✓
⑤ 1969	239	105	239	105	100.0	0.0 ✓
⑥ 1970	261	127	259	125	101.6	1.6 ✓



Loan 426-11E

Forecast Interval

		Sub-Sales		NE Sys			
		Forecast	$\Delta$	Actual	$\Delta$	R%	R%-1
	Base 1964	760		760			
①	1965	964	204	934	174	117.2	17.2 ✓
②	1966	1239	479	1058	298	160.7	60.7 ✓
③	1967	1389	629	1282	522	120.5	20.5 ✓
④	1968	1543	783	1546	786	99.6	-0.4 ✓
⑤	1969	1694	939	m.a.			
⑥	1970	1879	1119	m.a.			

MWh - Peak Demand

	Base 1964	189		189		✓	✓
①	1965	225	36	221	32	112.5	12.5 ✓
②	1966	266	77	248	59	130.5	30.5 ✓
③	1967	302	113	293	104	108.7	8.7 ✓
④	1968	330	141	334	145	97.2	-2.8 ✓
⑤	1969	364	175	394	210	83.3	-16.7 ✓
⑥	1970	402	213	458	264	79.2	-20.8 ✓

436 -  
Loan ME

But 1967  
absorbed IEMSA

Total Sys - CFE

Gwh - Sales

Forecast Interval

	Forecast	$\Delta$	Actual	$\Delta$	Rtg	Rtg-1
Base 1964	8173		8173			
① 1965	10398	2225	9800	1627	136.8	36.8 ✓
② 1966	11900	3727	11,177	3004	124.1	24.1 ✓
③ 1967	13875	5702	13,990	5817	98.0	-2.0 ✓
④ 1968	14900	6727	15,899	7726	87.1	-12.9 ✓
⑤ 1969	16436	8263	17,857	9684	85.3	-14.7 ✓
⑥ 1970	18135	9962	20,095	11,922	83.6	-16.4 ✓

Gwh Sales = Total Sector Final Sales

	Gwh Sales	$\Delta$	Total Sector Final Sales	$\Delta$	Rtg	Rtg-1
Base 1964	11,065		11,065			
① 1965	12,054	989	12,117	1052	94.0	-6.0 ✓
② 1966	13,796	2731	13,389	2324	117.5	17.5 ✓
③ 1967	15,417	4352	14,933	3868	112.5	12.5 ✓
④ 1968	16,653	5588	16,675	5610	99.6	-0.4 ✓
⑤ 1969	17,840	6775	19,213	8148	83.1	-16.9 ✓
⑥ 1970	19,120	8055	21,683	10618	75.9	-24.1 ✓

Loan M/E 436 -

Interconnected Oriental  
+ occidental ✓

Forecast  
Interval

	<u>Sales - Gwh</u>				<u>Ratio</u>	
	<u>Forecast</u>	<u>A</u>	<u>Actual</u>	<u>D</u>	<u>Ratio</u>	<u>Ratio-1</u>
Base year 1964	2617		2617		✓	
① 1965	3099	482	3058	441	109.3	9.3 ✓
② 1966	4070	1453	3413	796	182.5	82.5 ✓
③ 1967	4832	2215	4052	1435	154.4	54.4 ✓
④ 1968	5219	2602	4738	2121	122.7	22.7 ✓
⑤ 1969	5510	2893	n.a.			
⑥ 1970	5783	3166	n.a.			

Mwh - Peak Demand

Base year 1964	610		610		✓	✓
① 1965	723	113	694	84	134.5	34.5 ✓
② 1966	947	337	805	195	172.8	72.8 ✓
③ 1967	1160	556	938	328	167.7	67.7 ✓
④ 1968	1426	816	1073	463	176.2	76.2 ✓
⑤ 1969	1905	1295	1286	676	191.6	91.6 ✓
⑥ 1970	2344	1734	1593	983	176.4	76.4 ✓

Gwh = Added for years 1964-66.

Mwh = Added and divided by 1.005 for years 1964-66.



Forecast Interval ②

29

	<u>R%</u>	<u>Gah</u>	<u>R% - 1</u>
AR.	192.5 ✓		92.5
	75.9 ✓		-24.1
BR.	82.8 ✓		-17.2
①	258.0 ✓		158.0
ET.	63.3 ✓		-36.7
MA.	151.9 ✓		51.9
	84.7 ✓		-15.3
	144.0 ✓		44.0
SI	95.7 ✓		-4.3
	88.7 ✓		-11.3
	105.6 ✓		5.6
EEBB	79.3 ✓		-20.7
	158.2 ✓		58.2
	107.5 ✓		7.5
CVC	100.0 ✓		0.0
	112.0 ✓		12.0
	175.4 ✓		75.4
EPM	72.7 ✓		-27.3
②	202.9 ✓		102.9
	116.0 ✓		16.0
MEy	164.2 ✓		64.2
	97.9 ✓		-2.1
	66.1 ✓		-33.9
	60.6 ✓		-40.0
	148.7 ✓		48.7
	160.7 ✓		60.7
	124.1 ✓		24.1
	117.5 ✓		17.5
	182.5 ✓		82.5

total 3588.8

Mean \* 123.8

115.8

Forecast Interval - R% Guh

29      28      20      18      12      9  
 3                      4                      5                      6                      7                      8

AR	155.9 ✓ 65.3 ✓	138.2 ✓ 63.7 ✓	127.1 ✓ —	120.7 ✓ —	118.7 ✓ —	— —
BR	120.1 ✓ 107.9 ✓	122.5 ✓ 70.9 ✓	144.8 ✓ —	141.3 ✓ —	— —	— —
ET.	125.6 ✓	131.7 ✓	145.1 ✓	162.3 ✓	174.5 ✓	—
ML	98.0 ✓ 79.9 ✓ 94.1 ✓	94.5 ✓ 73.0 ✓ 102.3 ✓	<del>82.8</del> <sup>93.6</sup> ✓ 71.6 ✓ 100.6 ✓	<del>73.6</del> <sup>82.8</sup> ✓ 55.1 ✓ —	<del>64.7</del> <sup>73.6</sup> ✓ 77.3 ✓ —	<del>59.6</del> <sup>64.7</sup> ✓ 70.2 ✓ —
SI.	95.5 ✓ 98.1 ✓ 106.2 ✓	77.2 ✓ 102.6 ✓ 90.4 ✓	102.2 ✓ 91.8 ✓ —	82.2 ✓ — —	— — —	— — —
EBRS	115.0 ✓ 167.3 ✓ 87.4 ✓	141.9 ✓ 158.9 ✓ —	132.9 ✓ 156.9 ✓ —	122.8 ✓ 147.3 ✓ —	120.1 ✓ 129.0 ✓ —	124.2 ✓ — —
CVC	108.9 ✓ 138.9 ✓	109.5 ✓ 117.8 ✓	61.6 ✓ 109.9 ✓	44.6 ✓ 124.1 ✓	— 112.8 ✓	— 110.2 ✓
①	217.7 ✓	171.8 ✓	192.2 ✓	① 202.7 ✓	① 234.8 ✓	① 222.2 ✓
BPM	145.5 ✓ 125.7 ✓ 121.2 ✓	186.8 ✓ 126.4 ✓ 120.7 ✓	162.4 ✓ 133.1 ✓ 135.4 ✓	165.7 ✓ 133.5 ✓ 152.6 ✓	— 145.9 ✓ 146.0 ✓	— 164.1 ✓ 134.2 ✓
MEY	↑ 155.4 ✓ 113.4 ✓ 70.0 ✓ 89.3 ✓ 181.5 ✓ 120.5 ✓ 98.0 ✓ 112.5 ✓ 154.4 ✓	132.9 ✓ 187.7 ✓ 71.5 ✓ 106.0 ✓ 155.5 ✓ 99.6 ✓ 87.1 ✓ 99.6 ✓ 122.7 ✓	125.5 ✓ 139.6 ✓ — — — — 85.3 ✓ 83.1 ✓ —	99.6 ✓ 104.8 ✓ — — — — 83.6 ✓ 75.9 ✓ —	90.5 ✓ 73.8 ✓ — — — — — — —	89.4 ✓ 65.5 ✓ — — — — — — —
Total Mean *	3468.2 119.6	3263.4 116.6	2399.7 119.8	2101.2 116.8	1496.4 124.7	1044.7 115.1

\* 119.6      \* 116.6      \* 119.8      \* 116.8      \* 124.7      \* 115.1

Forecast Interval - R%    Guh

	(4) 9	(3) 10	(0) 11	(0) 12	(0) 13
MA	59.6 ✓	57.3 ✓	—	—	—
EBB B	122.9 ✓	112.9 ✓	—	—	—
CVC	116.6 ✓	127.6 ✓	—	—	—
MEX	89.7 ✓	—	—	—	—
Total	386.8	297.8	0	0	0
Mean	* 97.2	* 99.3	0	0	0

(4)  
-524.3  
1.7%

MEX

Mwh (R-100) 90  
-100.1  
-143.8  
-127.6  
-146.8  
-100 to -80

~~227~~  
240

CVC

-83.3 ✓

RT.

~~-20.0~~ ✓

-20 to 0  
~~-20.0~~ ✓

BPM

-100.0 ✓

MA

-22.6 ✓

~~0~~

-100.0 ✓

-32.9 ✓

SI

-13.3 ✓

MEX

-84.2 ✓

-37.5 ✓

-17.0 ✓

-90.3 ✓

-21.4 ✓

-10.1 ✓

-88.6 ✓

-22.4 ✓

-12.9 ✓

-87.1 ✓

-30.3 ✓

-16.8 ✓

-95.0 ✓

-21.6 ✓

-15.5 ✓

3.3% (8)

-728.5

SI

-34.5 ✓

-9.2 ✓

-23.6 ✓

MEX

-4.7 ✓

-80 to -60

EEEB

-26.1 ✓

-7.8 ✓

MEX

-61.0 ✓

CVC

-31.0 ✓

-3.4 ✓

-77.8 ✓

-25.2 ✓

-1.6 ✓

-64.5 ✓

MEX

-27.4 ✓

-2.0 ✓

~~-40.0~~ ✓

-26.3 ✓

-4.4 ✓

-28.6 ✓

-9.0 ✓

-35.3 ✓

-3.8 ✓

-25.0 ✓

-16.2 ✓

-30.8 ✓

-10.4 ✓

-37.2 ✓

-11.3 ✓

-33.7 ✓

-16.7 ✓

-39.2 ✓

-12.5 ✓

-33.3 ✓

~~0~~

-20.8 ✓

-2.8 ✓

10.0  
24

-206.7

11.7%  
28

-296.8

-60 to -40

MA

-43.5 ✓

-52.5 ✓

CVC

-46.2 ✓

MEX

~~-40.0~~

-50.4 ✓

-45.8 ✓

-45.1 ✓

-46.7 ✓

-49.3 ✓

-54.4 ✓

-55.6 ✓

-58.0 ✓

4.6% (11)

-547.5

-20 to 0

AR. -5.0 ✓

MA. -16.7 ✓

-14.0 ✓

-3.9 ✓

-19.1 ✓



Mwh (R-100) 70

MAA 0.7 ✓  
 MEX 0.7 ✓  
 ↓ ↓  
 add

	0 to 20	cut 0 to 20	20 to 40	40 to 60
AR	13.6 ✓	13.6 ✓	39.3 ✓	51.8 ✓
	11.4 ✓	6.5 ✓	29.4 ✓	42.0 ✓
	9.6 ✓	1.6 ✓	26.3 ✓	47.3 -
	5.7 ✓	12.5 ✓	23.2 ✓	45.5 -
	3.7 ✓	8.7 ✓	36.3 ✓	41.9 ✓
	11.3 ✓	<u>17.5</u> 372.9	38.0 ✓	<del>69.0</del> ✓
	11.9 ✓	306	34.9 ✓	<u>1,675.6</u>
	17.3 ✓	20 to 40	33.7 ✓	
MAA	8.3 -	AR 23.0 ✓	30.6 -	60 to 80
	2.7 ✓	Et. 38.3 ✓	28.6 ✓	Et. 60.0 ✓ 60.1 ✓
	14.7 ✓	MAA 32.4 ✓	30.5 ✓	SI 69.6 ✓
BBEB	7.0 ✓	39.7 ✓	39.5 ✓	65.3 ✓
	14.1 -	BBEB 34.2 ✓	<u>1118.8</u>	76.6 ✓
CVC	15.8 ✓	36.5 ✓	15.00%	<del>81.0</del>
	9.6 ✓	33.4 ✓	40 to 60	64.9 ✓
	7.3 ✓	22.7 ✓	Et. 46.7 ✓	BBEB 75.2 ✓
	6.3 ✓	CVC 22.2 ✓	MAA 48.7 ✓	62.7 ✓
	19.9 ✓	26.1 ✓	SI 41.7 ✓	63.9 ✓
EPM	1.5 ✓	29.8 ✓	54.8 ✓	CVC 78.9 ✓
	2.2 ✓	34.2 ✓	56.2 ✓	62.8 ✓
	7.3 ✓	27.0 ✓	47.6 ✓	EPM 63.8 ✓
	18.1 ✓	29.8 ✓	41.5 ✓	MAA 65.8 ✓
	<del>20.0</del>	35.1 ✓	48.6 ✓	66.7 ✓
MEX	2.4 ✓	EPM 21.5 ✓	CVC 53.4 ✓	77.2 ✓
	17.6 ✓	24.0 ✓	51.5 ✓	63.3 ✓
	8.4 ✓	38.8 ✓	52.4 ✓	70.0 ✓
	16.8 ✓	33.1 ✓	55.8 ✓	72.8 ✓
	14.5 ✓	→ 20.0 ✓	51.5 ✓	67.7 ✓
	16.0 ✓	27.5 ✓	EPM 41.5 ✓	76.2 ✓
	11.8 ✓	MAA 30.6 ✓	55.2 ✓	76.4 ✓
	11.8 ✓	31.6 ✓	50.0 ✓	<u>1,439.9</u>
	5.9 ✓	32.0 ✓	MAA 50.0 ✓	
	3.5 ✓			

80 to 100

100 +

BR 96.7 ✓  
98.0 ✓  
80.5 ✓

BR 634.6 ✓  
144.2 ✓  
106.1 ✓

RT 99.2 ✓  
82.3 ✓

102.7 ✓

BERB 86.8 ✓

107.0 ✓

SI 80.0 ✓  
96.4 ✓

120.2 ✓

84.1 ✓

141.0 ✓

CVC 97.1 ✓

127.8 ✓

80.7 ✓

118.3 ✓

84.4 ✓

100.2 ✓

96.4 ✓

RT 243.7 ✓

EPM 81.3 ✓

SI 132.0 ✓

MEX 89.5 ✓

BERB 133.4 ✓

91.6 ✓

456.9 ✓

1425.0

CVC 285.2 ✓

103.2 ✓

110.3 ✓

EPM 627.3 ✓

MEX 147.4 ✓

164.3 ✓

200.0 ✓

120.3 ✓

160.0 ✓

228.0 ✓

133.3 ✓

41945.0

16  
6.7

6.7  
25

180 total

(-1)

(1)

Each

-(12 - 100) %

% Breakdown

-228.3 ✓

-80 to -100

Calc  
-20 to -40

Calc  
0 to -20

NONE

CVC ✓ -38.4 ✓

REEB -7.6 ✓

RPM ✓ -27.3 ✓

70.7 ✓

-60 to -80

MEX ✓ -26.2 ✓

-12.6 ✓

NONE

✓ -34.5 ✓

MEX -0.4 ✓

✓ -35.2 ✓

-9.5 ✓

-40 to -60

✓ -33.9 ✓

-10.6 ✓

ARZ -59.4 ✓

✓ -30.0 ✓

-10.3 ✓

MA -40.4 ✓

✓ -28.5 ✓

-2.1 ✓

-42.7 ✓

(13.3%)

40.0  
✓ -29.1 ✓

-11.7 ✓

-44.9 ✓

(24) -672.7

-0.4 ✓

~~-55.4~~  
~~-55.9~~

-2.0 ✓

CVC

MEX -43.7 ✓

0 to -20

-12.9 ✓

~~-40.0~~

ARZ -5.5 ✓

-14.7 ✓

(3.3)

(6) -286.5

BRZ -17.2 ✓

-16.4 ✓

MA -14.3 ✓

-6.0 ✓

-20 to -40

-2.0 ✓

-0.4 ✓

ARZ ✓ -24.1 ✓

-5.5 ✓

-16.9 ✓

✓ -34.7 ✓

-6.4 ✓

(19.9%)  
(20.0%) (36) -320.1

✓ -36.3 ✓

-17.2 ✓

BRZ ✓ -29.1 ✓

-9.7 ✓

ET -36.7 ✓

-15.3 ✓

MA ✓ -26.4 ✓

-5.9 ✓

✓ -35.3 ✓

ST -4.3 ✓

✓ -20.1 ✓

-4.5 ✓

✓ -27.0 ✓

-17.8 ✓

✓ -28.4 ✓

-11.0 ✓

✓ -22.7 ✓

-11.3 ✓

✓ -29.8 ✓

-1.9 ✓

ST ✓ -22.8 ✓

-8.2 ✓

REEB ✓ -20.7 ✓

-7.3 ✓

-9.6 ✓

Sub - (R-100) %

	<u>0 to 20</u>	<u>cut 0 to 20</u>	<u>cut 20 to 40</u>	<u>cut 40 to 60</u>
AR.	18.7 ✓	17.2 ✓	35.4 ✓	(11.1%) 54.4 ✓
BR.	7.9 ✓	17.5 ✓	34.2 ✓	(20) <u>1,000.7</u>
Et.	2.2 ✓	12.5 ✓	MEX 32.9 ✓	
MA	9.0 ✓	(19.4%) 9.3 ✓	25.5 ✓	<u>60 to 80</u>
	2.3 ✓	(35) <u>359.4</u>	39.6 ✓	Et. 62.3 ✓
	0.6 ✓		20.5 ✓	74.5 ✓
SI	2.2 ✓	<u>20 to 40</u>	36.8 ✓	EEEE 67.3 ✓
	2.6 ✓	AR. 38.2 ✓	24.1 ✓	CVC. 75.4 ✓
	5.6 ✓	27.1 ✓	(17.8) 22.7 ✓	71.8 ✓
	6.2 ✓	20.7 ✓	(32) <u>894.1</u>	EPM
EEEE	15.0 ✓	BR. 20.1 ✓		62.4 ✓
	12.9 ✓	22.5 ✓	<u>40 to 60</u>	65.7 ✓
	14.1 ✓	Et. 25.6 ✓	AR. 55.9 ✓	64.1 ✓
	7.5 ✓	31.7 ✓	BR. 49.8 ✓	MEX 64.2 ✓
CVC	<del>0.0</del> ✓	EEEE 32.9 ✓	41.3 ✓	(5.6%) 60.7 ✓
	13.0 ✓	22.8 ✓	Et. 45.1 ✓	(10) <u>668.4</u>
	8.9 ✓	20.1 ✓	MA 51.9 ✓	
	9.5 ✓	24.2 ✓	44.0 ✓	<u>80 to 100</u>
	12.0 ✓	22.9 ✓	EEEE 41.9 ✓	AR. 92.5 ✓
	17.8 ✓	(16.1) 29.0 ✓	47.3 ✓	CVC. 92.2 ✓
	9.9 ✓		58.2 ✓	EPM 86.8 ✓
	12.8 ✓	33.3 ✓	58.9 ✓	MEX. 87.7 ✓
	10.2 ✓	38.9 ✓	56.9 ✓	81.5 ✓
	14.6 ✓	24.1 ✓	EPM 45.5 ✓	(3.3%) 82.5 ✓
EPM	11.7 ✓	27.6 ✓	45.9 ✓	(6) <u>523.2</u>
	17.2 ✓	EPM 25.7 ✓	52.6 ✓	
	16.0 ✓	26.4 ✓	46.0 ✓	<u>100 +</u>
MEX	14.3 ✓	33.1 ✓	MEX 55.4 ✓	BR. 158.0 ✓
	13.4 ✓	33.5 ✓	45.5 ✓	SI. 126.8 ✓
	4.8 ✓	21.2 ✓	48.7 ✓	CVC. 107.0 ✓
	6.0 ✓	20.7 ✓	55.5 ✓	117.7 ✓ (over)

to 100%

CVC 102.7 ✓

134.0 ✓

122.2 ✓

BPM 102.9 ✓

233.3 ✓

MEV 123.3 ✓

10 1327.9

5.640

(207 (3.00) 10