

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In The Matter of The Application )  
of CONSUMERS POWER COMPANY For )  
Authority to Conduct a Limited )  
Time-of-Day Rate Study and A )  
Controlled Service Rate Study )  

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Case No U-5306

DIRECT TESTIMONY OF

J H CLIMER

8006120

5,89

DIRECT TESTIMONY OF  
J. H. CLIMER

1 Q. Please state your name and business address.

2 A. James H. Climer, 212 West Michigan Avenue, Jackson, Michigan.

3 Q. By whom are you employed?

4 A. Consumers Power Company.

5 Q. What is your position with Consumers Power Company?

6 A. I am Director of Rates and Rate Research.

7 Q. What is your educational background?

8 A. I attended Notre Dame University and graduated from Iowa State Uni-  
9 versity with a Bachelor of Science Degree in Mechanical Engineering.

10 In addition, I have studied Survey Research Techniques at the University  
11 of Michigan. I am also a Registered Professional Engineer in the  
12 State of Michigan.

13 Q. How long have you been employed by Consumers Power Company, and in  
14 what capacities?

15 A. I joined Consumers Power Company in their Graduate Student in Training  
16 Programs upon graduation from college in 1947. From 1948 to 1956, I  
17 worked as an engineer and senior engineer in various bulk power  
18 assignments in steam generating plants as well as the general office.  
19 During this period, I was loaned to the Atomic Power Development  
20 Associates from 1952 to 1954. From 1956 to 1962, I worked as Staff  
21 Assistant to the Executive Vice President and to the Flint Division  
22 Manager. From 1962 to 1964, I was Senior Studies Analyst-Marketing  
23 in the Rate and Economic Studies Department. In 1964, I was respon-  
24 sible for the establishment and supervision of a separate Market  
25 Research Department. I became Director of Market Research in 1969

1 and Director of Rate Research in 1972. In April 1975, I became Direc-  
2 tor of Rates and Rate Research. I was a charter member of the American  
3 Marketing Association's Electric Utility Market Research Council from  
4 1963 to 1976 and President from 1967 to 1968. I was Vice Chairman  
5 of the A.M.A. Public Utility Section from 1970 to 1971 and Chairman  
6 in 1972. I was a member of the American Gas Association's Marketing  
7 Research Committee from 1963 to 1975, Vice Chairman from 1969 to 1971  
8 and Chairman from 1971 to 1973. I am presently a member of the American  
9 Gas Association Rate Committee and its Gas Rate Fundamentals Subcommittee.

10 Q. What are your duties as Director of Rates and Rate Research for Con-  
11 sumers Power Company?

12 A. I am responsible for the development and design of the Company's  
13 electric, gas, and steam rates as well as the development of policies  
14 relating to rules and regulations covering the rendition of service.  
15 I am also responsible for load research work, the development of sur-  
16 veys and sampling procedures and special analytical studies relating  
17 to rates.

18 Q. Have you previously testified before this Commission?

19 A. Yes. I have testified on several occasions before this Commission  
20 on rate matters.

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1 Q. Please identify the exhibits you are sponsoring in this proceeding.

2 A. I am sponsoring the following exhibits:

3 Exhibit A-\_\_\_\_(JHC-1)

4 Exhibit A-\_\_\_\_(JHC-2)

5 Q. Were the foregoing exhibits prepared by you or under your supervision?

6 A. Yes, they were.

7 Q. Would you please discuss Exhibit A-\_\_\_\_(JHC-1) entitled, "Potential  
8 Savings From Specific Appliances?"

9 A. Yes. This exhibit shows the potential annual savings a residential  
10 customer could realize on these experimental time-of-day rates by  
11 shifting the use of specific appliances from the on-peak period to  
12 the off-peak period. These potential savings represent the maximum  
13 available since the underlying assumption was that the customer would  
14 now use the appliance during the off-peak period. The annual energy  
15 costs for each of these selected appliances under the Company's exist-  
16 ing Residential Rate "A" is shown in Column (b) of this exhibit. This  
17 was calculated by multiplying the approximate annual usage for each of  
18 these appliances shown in Column (a) times 3.67¢ which is the average  
19 cost per kWh for 550 kWh excluding the service charge. The annual  
20 energy costs shown in Column (c) are based on 2.5¢ per kWh which is  
21 the off-peak rate for Experimental Rate "X-1". The annual energy costs  
22 for Experimental Rate "X-2" shown in Column (d) are based on the off-  
23 peak energy charge of 2.4¢ per kWh. Columns (e) and (f) represent the  
24 maximum available savings for each of these appliances under Experi-  
25 mental Rates "X-1" and "X-2" respectively.

1           Looking first at the dishwasher, this appliance currently costs  
2 approximately \$13.21 in annual energy costs to operate. This is based  
3 on an annual usage of 360 kWh or 30 kWh per month. If the customer  
4 were to run this appliance only during the specified off-peak hours  
5 then he could possibly save as much as \$4.57 per year on Rate "X-2"  
6 and \$4.21 per year on Rate "X-1".

7           The current annual energy cost for an electric range is estimated  
8 to be approximately \$43.12. These costs could be reduced by over 30%  
9 if it were used only during the off-peak period. While it is highly  
10 unlikely that all cooking and baking could be done during the off-peak  
11 period, a large portion of this such as baking, canning, and other  
12 such uses not directly associated with the preparation of specific  
13 meals could be. However, since it is impossible to determine exactly  
14 how much this would be, the estimated available annual savings of  
15 \$13.74 for Rate "X-1" and \$14.92 for Rate "X-2" assumes that the total  
16 annual usage of 1,175 kWh has been shifted to the off-peak period.

17           The electric clothes dryer is another large user of electric  
18 energy which offers the customer a potential to save on his annual  
19 electric bill. Currently it is estimated that a customer who owns an  
20 electric dryer spends \$36.33 per year in energy costs to operate it.  
21 If he were to only operate it during the specified off-peak hours he  
22 could save almost \$12 per year or \$1 per month. The washing machine,  
23 while not as large an energy user as the other appliances, still  
24 offers the customer a small potential savings of slightly over \$1 per  
25 year.

1           The electric water heater uses well over 4,000 kWh annually and  
2 therefore affords the customer the greatest potential savings. Be-  
3 cause this appliance is used to heat water for many household needs,  
4 the chances of being able to shift 100% of its usage to off-peak is  
5 realistically impossible. However, if the customer were to do his  
6 clothes washing and dish washing off-peak as I have suggested earlier,  
7 it would naturally follow that the energy used to heat the water for  
8 these uses would be off-peak as well. In addition, such things as  
9 showers and baths which use large amounts of hot water could be taken  
10 during the off-peak periods.

11           I would like to point out that these potential savings are in no  
12 way guaranteed and will differ with every customer. The other appli-  
13 ances and energy utilization equipment that a customer has will affect  
14 his usage pattern. When and how often he uses these appliances will  
15 have a significant impact on any savings that may be realized. In  
16 addition, any potential savings is not limited to these appliances  
17 alone, as there are many other electric appliances which, if their  
18 usage was shifted from the on-peak period to the off-peak period,  
19 could result in a savings to the customer. These five appliances were  
20 selected on the basis that their use is not necessarily tied to a  
21 specific time of day and therefore provide the greatest potential for  
22 off-peak use.

23 Q. Were the experimental rates designed by you or under your supervision?

24 A. Yes, they were.

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1 Q. Would you describe the theory behind the design of these experimental  
2 rates?

3 A. Yes. The theory used in designing these rates was that the costs  
4 relating to production and transmission facilities would be on-peak  
5 with the costs associated with the distribution facilities being  
6 spread equally to each customer. The costs relating to fuel and  
7 purchased and interchange power were assigned to on-peak and off-peak  
8 with on-peak being two mills higher. These experimental rates were  
9 designed to produce the same revenues by class as the Company's  
10 present standard rates, based on the average distribution of consump-  
11 tion between on-peak and off-peak periods. In other words, a sample  
12 customer will pay the same amount under the experimental rate if his  
13 percent on-peak usage is the same as the average percent on-peak  
14 consumption of the total rate group. Details of these calculations  
15 can be found in my work papers filed with the Application January 13, 1977.

16 Q. Would you now discuss the experimental rates themselves which are in-  
17 cluded in Exhibit A-\_\_\_\_(JHC-5)?

18 A. Yes. This is a complete set of the Company's proposed time-of-day  
19 experimental rates. Rate "X-1" is for residential service with the  
20 on-peak period being 5:00 P.M. to 9:00 P.M. for the calendar months  
21 of October through February and 10:00 A.M. to 5:00 P.M. for the calendar  
22 months of March through September. All weekends are considered off-  
23 peak. The rate has the same service charge as the existing residential  
24 rate of \$2.50 per month. The on-peak energy charge is 8.50¢ per kWh

1 and the off-peak energy charge is 2.50¢ per kWh. This is approxi-  
2 mately a 3:1 ratio of on-peak to off-peak. Presently, these customers  
3 pay on the average of 3.67¢ per kWh.

4 Rate "X-2" is for residential service as well, but the on-peak  
5 period is 9:00 A.M. to 9:00 P.M. for all calendar months with the  
6 weekends again being considered off-peak. The rate has a service charge  
7 of \$2.50 per month with an on-peak energy charge of 4.60¢ per kWh and  
8 an off-peak energy charge of 2.40¢ per kWh. This is a ratio of almost  
9 2:1. Because of the longer on-peak hours, the on-peak energy charge  
10 is less on this rate than "X-1".

11 Rate "X-3" is for residential storage heating service. This use  
12 will be separately controlled so that it can only be used for an 8-hour  
13 period during the hours of 9:00 P.M. to 9:00 A.M. for all weekdays  
14 and all day on the weekends. The rate for this use is 2.40¢ per kWh  
15 which is the same rate for the off-peak use for Rate "X-2".

16 Rate "X-4" is the time-of-day rate comparable to the Company's  
17 existing General Secondary Service Rate "B". Rate "B" customers  
18 include such types as churches, apartment buildings, gas stations  
19 and small machine shops. The on-peak hours are the same as those con-  
20 tained in Rate "X-1". The proposed service charge of \$4.10 per month  
21 is the same as that included now in Rate "B". The on-peak energy  
22 charge is 11.00¢ per kWh and the off-peak energy charge is 3.25¢ per  
23 kWh. This results in a ratio of over 3:1 of the on-peak rate to the  
24 off-peak rate. The average rate being charged our existing Rate "B"  
25 customers is 5.55¢ per kWh.

1           Rate "X-5" is again structured for Rate "B" except the on-peak  
2 hours are 9:00 A.M. to 9:00 P.M. for all weekdays. For this rate the  
3 on-peak charge is 6.50¢ per kWh and the off-peak charge is 3.15¢ per  
4 kWh. This is a ratio of slightly over 2:1.

5           Rate "X-6" was designed for small Rate "C" customers below 100 kW  
6 per month who cannot take advantage of the Company's current off-peak  
7 hour provision. Rate "C" customers include those customers whose  
8 load factor is better than Rate "B" customers and include such types  
9 as department stores, supermarkets, schools and large metal fabricating  
10 shops. The service charge of \$41.00 is the same as the existing  
11 Rate "C" which has a minimum demand requirement of 5 kW and a charge  
12 per kW of \$8.20. The on-peak hours for Rate "X-6" are the same as  
13 those for Rates "X-1" and "X-4". The on-peak rate is 9.40¢ per kWh  
14 and the off-peak rate is 2.10¢ per kWh. This is a ratio of almost  
15 4.5:1. These rates are comparable to an average rate of 3.91¢ for  
16 our existing Rate "C" customers in this category.

17           Rate "X-7" again is structured for the small Rate "C" customer  
18 with the on-peak hours being 9:00 A.M. to 9:00 P.M. for all weekdays.  
19 The on-peak rate is 5.00¢ per kWh and the off-peak rate is 2.00¢ per  
20 kWh. This is a ratio of 2.5:1.

21           Rate "X-8" is exactly the same as the Company's existing Rate "C"  
22 except time-of-day energy charges are also included in the rate. The  
23 2.30¢ per kWh on-peak charge and the 2.10¢ per kWh off-peak charge  
24 assumes the same 2 mills per kWh difference that are currently in the  
25 Company's large primary commercial and industrial rates.

1 Q. Mr Climer, will these experimental rates remain fixed throughout the  
2 test period?

3 A. Not necessarily. These experimental rates include the Company's standard  
4 fuel and purchased power adjustment clause and will be subject to any  
5 rate changes approved by the Commission in the general levels of the  
6 Company's standard rates, including the fuel and purchased power adjust-  
7 ment clause.

8 Q. Mr Climer, does this conclude your direct testimony in this proceeding?

9 A. Yes, it does.

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Case No U-5306

EXHIBITS OF J H CLIMER

CONSUMERS POWER COMPANY  
 Potential Savings from Specific Appliances

Appliance and Approximate Annual Usage (a)	Annual Energy Cost			Maximum Available Annual Savings	
	<u>"A"</u>	<u>"X-1"</u>	<u>"X-2"</u>	<u>"X-1"</u>	<u>"X-2"</u>
	(b)	(c)	(d)	(e)	(f)
Dishwasher 360 kWh	\$13.21	\$ 9.00	\$ 8.64	\$ 4.21	\$ 4.57
Range 1,175 kWh	43.12	29.38	28.20	13.74	14.92
Clothes Dryer 990 kWh	36.33	24.75	23.76	11.58	12.57
Washing Machine 100 kWh	3.67	2.50	2.40	1.17	1.27
Water Heater 4,410 kWh	161.85	110.25	105.84	51.60	56.01

Case No \_\_\_\_\_  
Exhibit A- (JHC-2)  
Witness J H Climer  
Date \_\_\_\_\_

CONSUMERS POWER COMPANY

Time-of-Day

Proposed Test Rates

RESIDENTIAL SERVICE  
(Experimental Rate "X-1")

Availability:

Available to customers selected by the Company desiring service at time-of-day rates during a special test period for domestic and farm uses, which include only those purposes which are usual in individual private family dwellings, or separately metered apartments, and in the usual appurtenant buildings served through the residential meter. This rate is not available for space heating, commercial or industrial service, or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase, 120/240 nominal volts.

Monthly Rate:

Service Charge:

\$2.50 per customer per month plus,

Energy Charge:

8.50¢ per kWh for all kWh consumed during the on-peak period  
2.50¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

(Continued on Sheet No. )

Effective: For electric service rendered on  
and after

Rate "X-1"  
(Continued from Sheet No. ....)

Monthly Rate: (Contd)

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

Minimum Charge:

The service charge included in the rate.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

Service for single phase motors may be included under this rate, provided the individual capacity of such motors does not exceed 3 hp, nor the total capacity of 10 hp, without the specific consent of the Company.

Schedule of On-Peak Hours:

Monday through Friday

- (1) Calendar months of October through February:

The hours between 5:00 PM and 9:00 PM

- (2) Calendar months of March through September:

The hours between 10:00 AM and 5:00 PM

RESIDENTIAL SERVICE  
(Experimental Rate "X-2")

Availability:

Available to customers selected by the Company desiring service at time-of-day rates during a special test period for domestic and farm uses, which include only those purposes which are usual in individual private family dwellings, or separately metered apartments, and in the usual appurtenant buildings served through the residential meter. This rate is not available for space heating, commercial or industrial service, or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase, 120/240 nominal volts.

Monthly Rate:

Service Charge:

\$2.50 per customer per month plus,

Energy Charge:

4.60¢ per kWh for all kWh consumed during the on-peak period  
2.40¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

(Continued on Sheet No.        )

Effective: For electric service rendered on  
and after

Rate "X-2"  
(Continued from Sheet No. ....)

Monthly Rate: (Contd)

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

Minimum Charge:

The service charge included in the rate.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations

Service for single phase motors may be included under this rate, provided the individual capacity of such motors does not exceed 3 hp, nor the total capacity of 10 hp, without the specific consent of the Company.

Schedule of On-Peak Hours:

Monday through Friday for calendar months of January through December the hours between 9:00 AM and 9:00 PM.

CONTROLLED RESIDENTIAL STORAGE HEATING SERVICE  
(Experimental Rate "X-3")

Availability:

Available to customers selected by the Company desiring service for domestic storage heating purposes only, provided the customer has installed and uses storage heating equipment approved by the Company. Electric energy to serve any other equipment or facility shall be metered separately and purchased by the customer at the standard residential rate. This rate is not available for commercial or industrial service, or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase, 120/240 nominal volts. Service shall be supplied for approximately eight consecutive hours during the period from 9:00 PM to 9:00 AM.

Monthly Rate:

Service Charge:

\$2.50 per customer per month plus,

Energy Charge:

2.40¢ per kWh for all kWh

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

(Continued on Sheet No. )

Effective: For electric service rendered  
on and after

Rate "X-3"  
(Continued from Sheet No. )

Monthly Rate: (Contd)

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

Minimum Charge:

The service charge included in the rate.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

GENERAL SECONDARY SERVICE  
(Experimental Rate "X-4")

Availability:

Available to customers selected by the Company desiring secondary voltage service at time-of-day rates during a special test period. This rate is also available for service to any selected customer where the Company elects to provide one transformation from the available primary distribution voltage to another primary voltage desired by the customer. This rate is not available for space heating, auxiliary or standby service, for resale purposes or for street-lighting service.

Nature of Service:

Alternating current, 60 hertz, single phase or three phase, the particular nature of the voltage in each case to be determined by the Company.

Monthly Rate:

Service Charge:

\$4.10 per customer per month plus,

Energy Charge:

11.00¢ per kWh for all kWh consumed during the on-peak period  
3.25¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

(Continued on Sheet No. )

Effective: For electric service rendered  
on and after

Rate "X-4"  
(Continued from Sheet No. )

Monthly Rate: (Contd)

Minimum Charge:

Special minimum charges shall be billed in accordance with Rule 12(f).

Delayed Payment Charge:

A delayed payment charge of 2% of the total net bill, but not less than 20¢, shall be added to any bill which is not paid on or before the due date shown thereon. The due date shall be 21 days following the date of mailing.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

When the service is three phase, 3-wire, lighting may be included provided the customer furnishes all transformation facilities required for such purpose and so arranges the lighting circuits as to avoid excessive unbalance of the three phase load. When the service is single phase, or 4-wire, three phase, the single phase individual motor capacity shall not exceed 3 hp, nor the total single phase motor capacity 10 hp without the specific consent of the Company.

Where the Company elects to measure the service on the primary side of the transformers, 3% will be deducted for billing purposes from the energy measurements thus made.

Schedule of On-Peak Hours:

Monday through Friday

(1) Calendar months of October through February:

The hours between 5:00 PM and 9:00 PM

(2) Calendar months of March through September:

The hours between 10:00 AM and 5:00 PM

GENERAL SECONDARY SERVICE  
(Experimental Rate "X-5").

Availability:

Available to customers selected by the Company desiring secondary voltage service at time-of-day rates during a special test period. This rate is also available for service to any selected customer where the Company elects to provide one transformation from the available primary distribution voltage to another primary voltage desired by the customer. This rate is not available for space heating, auxiliary or standby service, for resale purposes or for street-lighting service.

Nature of Service:

Alternating current, 60 hertz, single phase or three phase, the particular nature of the voltage in each case to be determined by the Company.

Monthly Rate:

Service Charge:

\$4.10 per customer per month plus,

Energy Charge:

6.50¢ per kWh for all kWh consumed during the on-peak period  
3.15¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

(Continued on Sheet No. )

Effective: For electric service rendered  
on and after

Rate "X-5"  
(Continued from Sheet No. . . )

Monthly Rate: (Contd)

Minimum Charge:

Special minimum charges shall be billed in accordance with Rule 12(f):

Delayed Payment Charge:

A delayed payment charge of 2% of the total net bill, but not less than 20¢, shall be added to any bill which is not paid on or before the due date shown thereon. The due date shall be 21 days following the date of mailing.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

When the service is three phase, 3-wire, lighting may be included provided the customer furnishes all transformation facilities required for such purpose, and so arranges the lighting circuits as to avoid excessive unbalance of the three phase load. When the service is single phase, or 4-wire, three phase, the single phase individual motor capacity shall not exceed 3 hp, nor the total single phase motor capacity 10 hp without the specific consent of the Company.

Where the Company elects to measure the service on the primary side of the transformers, 3% will be deducted for billing purposes from the energy measurements thus made.

Schedule of On-Peak Hours:

Monday through Friday for calendar months of January through December the hours between 9:00 AM and 9:00 PM.

GENERAL SECONDARY SERVICE  
(Experimental Rate "X-6")

Availability:

Available to customers selected by the Company desiring secondary voltage service at time-of-day rates during a special test period. This rate is also available for service to any selected customer where the Company elects to provide one transformation from the available primary distribution voltage to another primary voltage desired by the customer. This rate is not available for space heating, streetlighting service or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase or three phase, the particular nature of the voltage in each case to be determined by the Company.

Monthly Rate:

Service Charge:

\$41.00 per customer per month plus,

Energy Charge:

9.40¢ per kWh for all kWh consumed during the on-peak period  
2.10¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

(Continued on Sheet No. )

Effective: For electric service rendered  
on and after

Rate "X-6"  
(Continued from Sheet No. )

Monthly Rate: (Contd)

Minimum Charge:

The service charge included in the rate.

Delayed Payment Charge:

A delayed payment charge of 2% of the total net bill shall be added to any bill which is not paid on or before the due date shown thereon. The due date shall be 21 days from the date of mailing.

Term and Form of Contract:

Special test agreement covering a 24-month period

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

When the service is three phase, 3-wire, lighting may be included, provided the customer furnishes all transformation facilities required for such purpose, and so arranges the lighting circuits as to avoid excessive unbalance of the three phase load. When the service is single phase, or 4-wire, three phase, the single individual motor capacity shall not exceed 3 hp, nor the total single phase motor capacity 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the primary side of the transformers, 3% will be deducted for billing purposes from the demand and energy measurements thus made.

Schedule of On-Peak Hours:

Monday through Friday

(1) Calendar months of October through February:

The hours between 5:00 PM and 9:00 PM.

(2) Calendar months of March through September:

The hours between 10:00 AM and 5:00 PM.

GENERAL SECONDARY SERVICE  
(Experimental Rate "X-7")

Availability:

Available to customers selected by the Company desiring secondary voltage service at time-of-day rates during a special test period. This rate is also available for service to any selected customer where the Company elects to provide on transformation from the available primary distribution voltage to another primary voltage desired by the customer. This rate is not available for space heating, streetlighting service or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase or three phase, the particular nature of the voltage in each case to be determined by the Company.

Monthly Rate:

Service Charge:

\$41.00 per customer per month plus,

Energy Charge:

5.00¢ per kWh for all kWh consumed during the on-peak period  
2.00¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

(Continued on Sheet No. )

Effective: For electric service rendered  
on and after

Rate "X-7"  
(Continued from Sheet No. )

Monthly Rate: (Cont'd)

Minimum Charge:

The service charge included in the rate.

Delayed Payment Charge:

A delayed payment charge of 2% of the total net bill shall be added to any bill which is not paid on or before the due date shown thereon. The due date shall be 21 days from the date of mailing.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

When the service is three phase, 3-wire, lighting may be included, provided the customer furnishes all transformation facilities required for such purpose, and so arranges the lighting circuits as to avoid excessive unbalance of the three phase load. When the service is single phase, or 4-wire, three phase, the single individual motor capacity shall not exceed 3 hp, nor the total single phase motor capacity 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the primary side of the transformers, 3% will be deducted for billing purposes from the demand and energy measurements thus made.

Schedule of On-Peak Hours:

Monday through Friday for calendar months of January through December the hours between 9:00 AM and 9:00 PM.

GENERAL SECONDARY SERVICE  
(Experimental Rate 'X-8')

Availability:

Available to customers selected by the Company desiring secondary voltage service where the billing demand is 100 kW or more. This rate is also available for service to any selected customer where the Company elects to provide one transformation from the available primary distribution voltage to another primary voltage desired by the customer. This rate is not available for space heating, streetlighting service or for resale purposes.

Nature of Service:

Alternating current, 60 hertz, single phase or three phase, the particular nature of the voltage in each case to be determined by the Company.

Monthly Rate:

Capacity Charge:

\$668.00 per month including the first 100 kW of billing demand,  
\$ 6.60 per kW for all over 100 kW of billing demand.

Energy Charge:

2.30¢ per kWh for all kWh consumed during the on-peak period  
2.10¢ per kWh for all kWh consumed during the off-peak period

Fuel Cost Adjustment and Purchased Power Cost Adjustment:

This rate is subject to the Company's Fuel Cost Adjustment and Purchased Power Cost Adjustment as set forth in Rule 16 of the Company's Standard Rules and Regulations.

Tax Adjustment:

- (a) Bills shall be increased within the limits of political subdivisions which levy special taxes, license fees or rentals against the Company's property, or its operation, or the production and/or sale of electric energy, to offset such special charges and thereby prevent other customers from being compelled to share such local increases.
- (b) Bills shall be increased to offset any new or increased specific tax or excise imposed by any governmental authority upon the Company's generation or sale of electrical energy.

Minimum Charge:

The capacity charge included in the rate.

Delayed Payment Charge:

A delayed payment charge of 2% of the total net bill shall be added to any bill which is not paid on or before the due date shown thereon. The due date shall be 21 days from the date of mailing.

Rate "X-8"  
(Continued from Sheet No. )

Billing Demand:

The billing demand shall be the kilowatts (kW) supplied during the period of maximum use in the billing month adjusted for off-peak hour operation as specified below, but not less than 60% of the highest billing demand of the preceding 11 months, nor less than 100 kW.

Demands created during off-peak hours shall be disregarded provided the billing demand shall not be less than 50% of the greatest demand created in such off-peak hours nor less than 100 kW.

The Company reserves the right to make special determination of the billing demand and/or minimum charge should equipment which creates high demands of momentary duration be included in the customer's installation.

Adjustment for Power Factor:

When the power factor during the period of maximum use in a billing month is less than 80% lagging, the Company reserves the right to increase the capacity charge for such billing month in the ratio that 80% bears to such power factor. The Company may, at its option, determine the power factor by test or by permanently installed measuring equipment.

Term and Form of Contract:

Special test agreement covering a 24-month period.

Rules and Regulations:

Service is governed by Company's Standard Rules and Regulations.

When the service is three phase, 3-wire, lighting may be included, provided the customer furnishes all transformation facilities required for such purpose, and so arranges the lighting circuits as to avoid excessive unbalance of the three phase load. When the service is single phase, or 4-wire, three phase, the single individual motor capacity shall not exceed 3 hp, nor the total single phase motor capacity 10 hp, without the specific consent of the Company.

Where the Company elects to measure the service on the primary side of the transformers, 3% will be deducted for billing purposes from the demand and energy measurements thus made.

(Continued on Sheet No. )

Rate "X-8"  
(Continued from Sheet No. )

Schedule of On-Peak Hours:

Monday through Friday

- (1) Calendar months of October through February:  
The hours between 5:00 P.M. and 9:00 P.M.
- (2) Calendar months of March through September:  
The hours between 10:00 A.M. and 5:00 P.M.

Effective: For electric service  
rendered on and after

Issued under authority of order of the  
Michigan Public Service Commission dated