

Rule No. 2

DESCRIPTION OF SERVICE

A. General

1. The character of service available at any particular location should be ascertained by inquiry at the Utility's office.
2. The tariff schedules included herein are applicable for service where the Customer purchases his entire electrical requirements from the Utility, and are not applicable where a part of the Customer's electrical requirements are supplied from some other source.
3. The tariff schedules included herein are applicable for service provided from overhead distribution facilities, or where underground distribution facilities are provided for the Utility's operating convenience or in accordance with the provisions of Rule No. 15, except where a schedule specifically provides otherwise.
4. Alternating current service of approximately 60-cycle frequency will be supplied.
5. Voltages referred to in the tariff schedules are nominal voltages.
6. Standard nominal voltage of the Utility are as follows: however, not all of them are available at each delivery point:
 - a. Distribution voltages – 120, 120/208, 120/240, 240, 277/480, 480, or depending on location, 2400, 4160 volts; 12,500, 14,400 or 24,900 volts.
 - b. Voltages in excess of 24,900 volts are transmission voltages. For its operating convenience, the Utility may elect to supply a Customer from lines of transmission voltage. Where such transmission voltage is 66,000 volts, the Utility may select as a standard delivery voltage one of the following: 2400, 4160, 12,500, 14,400, 24,900 volts, or such other voltage as the Utility may select, provided that in no case shall a Customer be required to advance to the Utility a greater amount of money to obtain service than he would be required to advance under the Utility's Rules applicable to the particular load, if he were regularly served from the Utility's nearest appropriate facilities ordinarily employed.
 - c. Where the Utility maintains four-wire wye-connected polyphase secondary mains: (1) 120, 120/208, and 208 volts, or (2) 277/480 volts.
 - d. Where specified in rate schedules, combined lighting and power service may be supplied at 120/208 volts four-wire wye or at 277/480 volts four-wire wye or 120/240 four-wire delta.

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DESCRIPTION OF SERVICE
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B. Phase and Voltage Specifications

1. Single-phase Service

a. Power

Voltage	Minimum Load Required	Maximum Connected Load Allowed
120 Volts	None	2-15 amp. branch circuits
120/240 Volts	None	400 amp. main switch
240 Volts	None	400 amp. main switch
2400 volts or over	At Utility's option	At Utility's option

b. Motors

(1) Installation consisting of one motor:

Voltage	Minimum Load Required	Maximum Connected Load Allowed
120 Volts	None	1/2 hp
240 Volts	None	10 hp

(2) For a group of motors, the voltage shall be in accordance with the specifications for the largest motor in the group.

c. Lighting is supplied at 120 or 120/240 volts, single-phase, except where otherwise specified in rate schedules.

d. Single-phase service may be supplied to installations having a proposed maximum load in excess of the switch capacities specified above provided the written approval of the Utility has been first obtained as to the number and size of motors, switches, circuits, and related facilities. 120/240 volt installations will be supplied by the following method as determined by the Utility:

1. From two or three separate 120/240 volt service connections. Energy so supplied will be measured through one meter. The connected load on any service connections shall not be greater than twice that on any other service connection.

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B. Phase and Voltage Specifications (Continued)

1. Single-phase Service (Continued)

e. Where the Utility maintains an A.C. low voltage network system, single-phase service is supplied at 120/208 volts, 3-wire, for which the maximum allowed is 100 amperes main switch. Loads in excess of a 100 ampere main switch will be supplied at 120/208 volts, 4-wire.

2. Three-phase Service

a. Power and Motor Service

Voltage	Minimum Connected Load Required	Maximum Demand Allowed
240 Volts	5 hp	1,000 kva
480 Volts	30 hp	3,000 kva
2,400 or 4,160 volts	As specified in Rate Schedules	12,000 kva
12,500, 14,400, or 24,900 Volts	As specified in Rate Schedules	30,000 kva

b. Where three-phase service is supplied at 208 volts from a 4-wire wye-connected service of 120/208 volts, the maximum demand allowed is 1,000 kva.

c. Service to all loads of 1,000 kva maximum demand, or over, must be approved by the Utility as to adequacy of facilities for service.

d. Three-phase load must be balanced between phases in accordance with good engineering practice.

3. Where three-wire single-phase or polyphase service is supplied, the load must be balanced as nearly as practicable between two sides or several phases, respectively. In no case is the load on one side of a three-wire single-phase service to be greater than twice that on the other, nor the load on any one phase of a polyphase service greater than twice that of any other.

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- C. Motor Protection and Equipment. Customer's motor equipment must conform with the following requirements.
1. Motors that cannot be safely subjected to full rated voltage on starting or that drive machinery of such a nature that the machinery, itself, or the product it handles will not permit the motor to resume normal speed upon the restoration of normal supply voltage shall be equipped with devices that will disconnect them from the line upon failure of supply voltage and that will prevent the automatic reconnection of the motors upon restoration of normal supply voltage.
 2. All motors of 1 hp or larger shall be equipped with thermal relays, fuses, or other automatic over-current interrupting devices to disconnect completely such motors from the line as a protection against damage due to overheating.
 3. Three-phase motors driving elevators, hoists, tramways, cranes, conveyors, or other equipment, which would create hazard to life in the event of uncontrolled reversal of motor rotation, shall be provided with reverse-phase and open-phase protection to disconnect completely the motors from the line in the event of phase reversal or loss of one phase.
- D. Allowable Motor Starting Currents
1. The starting current drawn from the Utility's lines shall be considered the nameplate locked rotor current or that guaranteed by the manufacturer. At its option the Utility may determine the starting current by test, using a stop ammeter with not more than 15% overswing or an oscillograph, disregarding the value shown for the first 10 cycles subsequent to energizing the motor.

If the starting current for a single motor exceeds the value stated in the following tables, reduced voltage starting or other suitable means must be employed, at the Customer's expense, to limit the current to the value specified, except where specific exemptions are provided in Sections D-2, 3, and 4.

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D. Allowable Motor Starting Currents (Continued)

TABLE 1

ALTERNATING CURRENT – SINGLE-PHASE MOTORS

Allowable Locked Rotor Currents

<u>Rated Size</u>	<u>120 Volts</u>	<u>240 Volts</u>
1/2 hp and less	40 amperes	20 amperes
3/4 and 1 hp		27 amperes
1 1/2 hp		30 amperes
2 hp		40 amperes
3 hp		60 amperes
5 hp		100 amperes
7 1/2 hp		110 amperes
10 hp		147 amperes

TABLE 2

Allowable Locked Rotor Currents

<u>Rated Size</u>	<u>240 Volts</u>	<u>480 Volts</u>	<u>2,400 Volts</u>
3 hp	60 amperes	30 amperes	
5 hp	90 amperes	45 amperes	
7 1/2 hp	120 amperes	60 amperes	
10 hp	150 amperes	75 amperes	
15 hp	220 amperes	110 amperes	
20 hp	250 amperes	125 amperes	
25 hp	304 amperes	152 amperes	
30 hp	360 amperes	180 amperes	
40 hp	380 amperes	190 amperes	
50 hp	400 amperes	200 amperes	40 amperes
60 hp		240 amperes	48 amperes
75 hp		300 amperes	60 amperes
100 hp		400 amperes	80 amperes
125 hp		500 amperes	100 amperes
150 hp		600 amperes	120 amperes
200 hp and over		4 amperes per hp	0.8 amperes per hp

2. Reduce-voltage starters may be omitted on any motor of a group installation provided that its starting current does not exceed the allowable starting current of the largest motor of the group.

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D. Allowable Motor Starting Currents (Continued)

3. A reduced-voltage starter may be omitted on any motor in a group installation provided that its starting current does not exceed three times the maximum demand in amperes of the entire installation.
4. Where service conditions permit, subject to Utility approval, reduced-voltage starters may be omitted in the original installation until such time as the Utility may order the installation of a reduced-voltage starter to be made, and, similarly, the Utility may at any time require starting current values lower than set forth herein where conditions at any point on its system require such reduction to avoid interference with service.

E. Interference With Service

1. Customers who operate equipment which causes detrimental voltage fluctuations (such as, but not limited to, hoists, welders, radio transmitters, X-ray apparatus, elevator motors, compressors, and furnaces) must reasonable limit such fluctuations upon request by the Utility. The Customer will be required to pay for whatever corrective measures are necessary.
2. Any Customer who superimposes a current of any frequency upon any part of his electrical system, other than the current supplied by the Utility, shall, at his expense, prevent the transmission of such current beyond his electrical system.

F. Power Factor. The Utility may require the Customer to provide, at his own expense, equipment to increase the operating power factor of each complete unit of neon, fluorescent, or other gaseous tubelighting equipment to not less than 90% lagging or leading.

G. Wave Form: The Utility may require that the wave form of current drawn by equipment of any kind be in conformity with good engineering practice.

H. Added Facilities: Added facilities are facilities provided by the Utility which are in addition to, or in substitution for, the standard facilities which the Utility would normally install. Except where otherwise provided by rate schedule, when a Customer makes written application for added facilities and the installation of such facilities is acceptable to the Utility, the added facilities will be installed at the expense of the Customer.

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DESCRIPTION OF SERVICE

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I. Welder Service

1. Rating of Welders. Electric welders will be rated for billing purposes as follows:

- a. Motor Generation Arc Welders
 The horsepower rating of the motor driving a motor generator type arc welder will be taken as the horsepower rating of the welder.
- b. Transformer Arc Welders
 Nameplate maximum kva input (at rated output amperes) will be taken as the rating of transformer type arc welders.
- c. Resistance Welders
 Resistance welder ratings will be determined by multiplying the welder transformer nameplate rating (at 50% duty cycle) by the appropriate factor listed below:

Type of Welder	Transformer Nameplate Rating @ 50% Duty Cycle	Factor	
		Utility Owned Distrib. Transf.	Customer Owned Distrib. Transf.
Rocker Arm, Press or Projection Spot	20 kva or less	.60	.50
Rocker Arm or Press Spot	Over 20 kva)		
Projection Spot	21 to 75 kva, incl.)	.80	.60
Flash or Butt	100 kva or over)		
Seam or Portable Gun	All Sizes)		
Flash or Butt	67 to 100 kva, incl)	*	*
Projection Spot	Over 75 kva)	1.20	1.90
Flash or Butt	66 kva or less)		

*Each flash or butt welder in this group will be rated at 80 kva where distribution transformer is owned by the Utility or 60 kva where distribution transformer is owned by the Customer.

- d. Ratings prescribed by a, b, and c, above, normally will be determined from nameplate data or from data supplied by the manufacturer. If such data are not available or are believed by either the Utility or Customer to be unreliable, the rating will be determined by test.
- e. If established by seals approved by the Utility, the welder rating may be limited by the sealing of taps which provide capacity greater than the selected tap and/or by the interlocking lockout of one or more welders with other welders.

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I. Welder Service (Continued)

1. Rating of Welders (Continued)

f. When conversion of units is required for tariff application, 1 welder kva will be taken as 1 horsepower for tariffs stated on a horsepower basis and 1 welder kva will be taken as 1 kilowatt for tariffs stated on a kilowatt basis.

2. Billing of Welders. Welders will be billed at the regular rates and conditions of the tariffs on which they are served subject to the following provisions:

a. Connected Load Type of Schedule

Welder load will be included as part of the connected load with ratings as determined under Section 1, above, based on maximum load that can be connected at any one time, and no allowance will be made for diversity between welders.

b. Demand Metered Type of Schedule

Where resistance welders are served on these schedules the computation of diversified resistance welder load shall be made as follows:

Multiply the individual resistance welder ratings, as prescribed in Sections 1-c to 1-f inclusive, above, by the following factors and add the results thus obtained:

- 1.0 times the rating of the largest welder
- 0.8 times the rating of the next largest welder
- 0.6 times the rating of the next largest welder
- 0.4 times the rating of the next largest welder
- 0.2 times the ratings of all additional welders

If this computed diversified resistance welder load is greater than the metered demand, the diversified resistance welder load will be used in lieu of the metered demand for rate computation purposes.