

CITY OF VERNON
UTILITIES DEPARTMENT
RULES FOR ELECTRIC SERVICE

Rule No. 2: DESCRIPTION OF SERVICE

A. General. The following general rules shall apply to all services:

1. The character of service available at any particular location should be ascertained by inquiry at the City's office.
2. The Rate Schedules are applicable for service where the Customer purchases its entire electrical requirements from the City, except where such schedules specifically provide otherwise, and are not applicable where a part of the Customer's electrical requirements are supplied from some other source.
3. The Rate Schedules are applicable for service provided from overhead distribution facilities and underground distribution facilities in accordance with the provisions of Rules 15 and 16.
4. Alternating current service at a nominal frequency of 60 Hz will be supplied.
5. Voltages referred to in the Rate Schedules are Nominal Voltages.

B. Phase and Voltage Specifications. The following phases and voltages are supplied by the City:

1. Standard Nominal Voltages.
 - a. Standard Nominal Voltages for distribution are as follows: 120/208, 120/240, 240, 277/480, 4160, 7200 or 16500 volts.
 - b. The standard Nominal Voltage for transmission is 66,000 volts. For the City's Operating Necessity, the City may elect to supply a Customer from lines of transmission voltage. In such case, the Customer may select as a standard delivery voltage one of the following: 4160, 7200, 16500 volts, or such other voltage as the City may approve, provided that in no case shall a Customer be required to advance to the City a greater amount of money to obtain service than it would be required to advance under the City's Rules applicable to the particular load, if that customer was served from the City's nearest Distribution Line ordinarily employed.
 - c. Where the City maintains four-wire wye-connected polyphase secondary mains: 120/208 and 208 volts.
 - d. Where the City maintains four-wire delta-connected polyphase secondary mains: 120/240 and 240 volts.
2. Single-phase Service.

- a. The general description of single-phase service provided by the City is given in Table 2-1.

Table 2.1

Voltage	Minimum Load Required	Maximum Load Allowed
120/240 volts	None	400 amp. Main switch

- b. The maximum size 120 volt single-phase motor allowed is 1 hp and the maximum size 240 volt, or higher voltage, single-phase motor allowed is 10 hp.
- c. Single-phase service may be supplied to installations having a proposed main service switch in excess of the switch capacities specified above, in Table 2-1, provided the approval of the City has been first obtained as to the number and size of switches, circuits, and related facilities. 120/240 volt installations will be supplied by one of the following methods as determined by the City:
- (1) From two or three separate 120/240 volt service connections at one location. Energy so supplied will be totalized for billing purposes. The connected load on any service connection shall not be greater than twice that on any other service connection.
 - (2) From one 120/240 volt connection where the proposed main service switch does not exceed 600 amperes capacity.
- d. Where the City maintains four-wire wye-connected 120/208 volt secondary mains, single-phase service is supplied at 120/208 volts, three-wire, for which the maximum allowed is a 100-ampere main switch. Loads in excess of a 100-ampere main switch will be supplied at 120/208 volts, three-phase, four-wire.

3. Three-phase Service.

- a. The general description of three-phase service provided by the City is given in Table 2-2.

Table 2.2

Voltage	Minimum Connected Load Required	Maximum Demand Allowed	Maximum Main Switch Capacity Allowed
120/208 120/240 volts	3 kVA	1000 kVA	4000 amps.
277/480 volts	25 kVA	3000 kVA	4000 amps.
4160 volts	Consult City	12000 kVA	3000 amps.
7200 volts	Consult City	30000 kVA	Not specified
16500 volts	Consult City	30000 kVA	Not specified

- b. Domestic Service. In areas where the City does not maintain three-phase secondary mains, only single-phase service will be supplied unless the Customer's

load includes
at least one motor rated in excess of 10 hp.

- c. Where three-phase service is supplied from a four-wire wye-connected 120/208 volt service, the maximum demand allowed is 1,000 kVA.
- d. Service to all loads of 1,000 kVA maximum demand, or over, must be approved by the City as to adequacy of facilities for service.
- e. Loads on three-phase service must be balanced between phases in accordance with good engineering practice.
- f. Three-phase service may be supplied to installations having a proposed main service switch in excess of the switch capacities specified above, in Table 2-2, provided approval of the City has first been obtained as to the number and size of switches, circuits and related facilities. Such service will be supplied from two or three separate service connections at one location. Energy so supplied will be totaled for billing purposes. The loads will be balanced as closely as practicable between the services.

4. Combined Single-phase Service and Three-phase Service.

- a. Service may be supplied at 120/208 volts four-wire wye-connected where the City does not maintain four-wire secondary polyphase mains provided: (1) written application is made for such service by the Customer; (2) the Customer's load is of such a size as to require an individual transformer installation of not less than 15 kVA of transformer capacity; and (3) the Customer provides space acceptable to the City on its Premises to accommodate the installation of the City's facilities when, in the opinion of the City, such space is considered necessary.
- b. In underground areas where the City maintains 120/208 volt or 240 volt three-phase mains, service may be supplied at 277/480 volts, four-wire provided: (1) written application is made for such service by the Customer, and (2) the Customer provides space acceptable to the City on its Premises to accommodate the installation of the City's facilities when, in the opinion of the City, such space is considered necessary.
- c. Service may be supplied at 120/240 volts four-wire delta-connected where the City does not maintain four-wire secondary polyphase mains provided: (1) written application is made for such service by the Customer; (2) the Customer's load is of such a size as to require an individual transformer installation of not less than 15 kVA of transformer capacity; (3) the imbalance between phases is less than 100 kW; and (4) the Customer provides space acceptable to the City on its Premises to accommodate the installation of the City facilities when, in the opinion of the City, such space is considered necessary.
- d. The maximum demand allowances for combined single-phase and three-phase are set forth in B.3. above.

5. At the option of the City, the above voltage and phase specifications may be modified because of service conditions at the location involved.

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 overcurrent 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, conveyers, 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. The starting current drawn from the City lines shall be considered the nameplate locked rotor current or that guaranteed by the manufacturer. At its option the City 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.

1. If the starting current for a single motor exceeds the value stated in Tables 2-3 and 2-4, 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.

Table 2.3
Alternating Current –Single –Phase Motors

Rated Size	Allowable Locked Rotor Currents	
	120 Volts	240 Volts
1 hp & less	50 amperes	36 amperes
1 ½ hp	n/a	48 amperes
2 hp	n/a	60 amperes
3 hp	n/a	80 amperes
5 hp	n/a	120 amperes
7 ½ hp	n/a	170 amperes
7 ½ hp	n/a	170 amperes

Table 2-4
 Alternating Current-Three-Phase Motors

Rated Size	Allowable Locked Rotor Currents		
	240 Volts	480 Volts	2400 Volts
3 hp	64 amperes	32 amperes	n/a
5 hp	92 amperes	46 amperes	n/a
7 ½ hp	127 amperes	63 amperes	n/a
10 hp	162 amperes	81 amperes	n/a
15 hp	232 amperes	116 amperes	n/a
20 hp	290 amperes	145 amperes	n/a
25 hp	365 amperes	183 amperes	n/a
30 hp	435 amperes	218 amperes	n/a
40 hp	580 amperes	290 amperes	n/a
50 hp	725 amperes	363 amperes	70 amperes
60 hp	n/a	435 amperes	87 amperes
75 hp	n/a	535 amperes	107 amperes
100 hp*	n/a	725 amperes	142 amperes

*Over 100 hp - the City should be consulted for allowable locked rotor currents.

2. Where service conditions permit, subject to City approval, reduced-voltage starters may be omitted in the original installation until such time as the City may order the installation of a reduced-voltage starter to be made, and, similarly, the City 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.
3. A reduced-voltage starter 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.
4. 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.

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 reasonably limit such fluctuations upon request by the City. The Customer will be required to pay for whatever corrective measures are necessary.
2. Prior to the installation of any new arc furnace or design modification of an existing furnace, the Customer shall provide basic design information for the installation to aid the City in determining a method of service and the allowable level of load fluctuations.
3. Any Customer who superimposes a current of any frequency upon any part of his electrical system, other than the current supplied by the City, shall, at his expense, prevent the

transmission of such current beyond the Customer's electrical system.

- F. Power Factor.** The City may require the Customer to provide, at its own expense, equipment to increase the operating power factor of each complete unit of neon, fluorescent, or other gaseous tube lighting equipment to not less than 90%, lagging or leading.
- G. Wave Form.** The City may require that the wave form of current drawn by equipment of any kind be in conformity with good engineering practice.
- H. Added Facilities.**
1. Where a Customer requests and the City agrees to install Added Facilities, the costs thereof shall be borne by the Customer. Such costs shall include continuing costs as may be applicable. Unless otherwise provided by the City Rate Schedules, these Added Facilities will be installed, owned and maintained or allocated by the City solely as an accommodation to the Customer.
 2. Added Facilities will be installed under the terms and conditions of a contract in the form on file with the City of Vernon. Such contract will include, but is not limited to, the following terms and conditions:
 - a. Where new facilities are to be installed for Customer's use as Added Facilities, the Customer shall advance to the City the additional installed cost of the Added Facilities over the cost of standard facilities. At the City's option, the City may finance the new facilities.
 - b. Customers being served by the Customer-financed Added Facilities shall pay a monthly charge of 0.9% of the amount advanced.
 - c. Customers being served by City-financed Added Facilities shall pay a monthly charge of 1.7% of the additional cost associated with the Added Facilities.
 - d. Where existing facilities are allocated for the Customer's use as Added Facilities, the Customer shall pay a monthly charge for the Added Facilities of 1.7% of the estimated installed cost of that portion of the existing facilities which are allocated to the Customer.
 - e. Where the City determines the collection of continuing monthly charges is not practicable, the Customer will be required to make an equivalent one-time payment in lieu of the monthly charges.
 - f. All monthly charges shall be reviewed and refiled with the City Council when changes occur in the City's costs for providing such service.