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POLK-BURNETT ELECTRIC COOPERATIVE

Policy No.: **M-36**

Subject: **Motors and Motor Starting Currents**

Objective: To establish starting current limits for induction motors served by the Cooperative in order to restrict power fluctuations to the primary distribution system resulting from such motors.

Policy: The Cooperative should always be consulted on motor installations. The maximum permissible size depends upon the installed location on the distribution system. Generally, a single-phase motor or phase converter shall be provided service by the Cooperative if the peak starting current is less than 260 amps. Three- phase motors shall be served without restriction if the peak starting current is less than 450 amps. Variable frequency drives may be used to reduce the impacts of motor starting in single-phase or three-phase applications but overall current must not exceed levels listed above and harmonic distortion should not exceed levels in IEEE 519 standards. For purposes of determining starting current, the NEMA starting kVA code letter "F": (5.0-5.6 skva/hp) shall be used with the following formulae:

$$\text{Single-phase starting current} = \frac{(1000)\ (hp)\ (5.6)}{\text{Rated Voltage}_{L\text{-}N}}$$

$$\text{Three-phase starting current} = \frac{(1000)\ (hp)\ (5.6)}{(1.73)\ (\text{Rated Voltage}_{L\text{-}L})}$$

As an alternate to this formula the starting current may be computed at (6) x (full load current).

Remediation: If it is determined that a specific motor is causing unacceptable power fluctuations on the primary or secondary distribution system, the member will be required to resolve the problem at their expense. The Cooperative shall have the right to deny or disconnect the service if installations do not meet this requirement or if it affects the Cooperative's service to other consumers.

Motor Protection: All motors should be provided with devices that will protect the motor against overload or short circuit. Motors that cannot be safely subjected to full voltage at starting should be provided with applicable protection devices. The direction of phase rotation and the continuity of all three-phase current are maintained with great care, but the Cooperative cannot guarantee against accidental or temporary change of phase or single-phasing (loss-of-phase) conditions.

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Edward O. Gullickson, President
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