



ENERGY STAR® Program Requirements for Commercial and Industrial Transformers

Eligibility Criteria

Below is the product specification for ENERGY STAR qualified C&I transformers. A product must meet all of the identified criteria if it is to be labeled as ENERGY STAR by its manufacturer.

- 1) Definitions: Below is a brief description of a transformer and common energy consumption characteristics relevant to ENERGY STAR.
 - A. Transformer: A transformer converts electricity from one voltage to another according to the requirements of the end-user(s). Electricity is converted by passing a current from one set of electric windings to another by means of a magnetized core. The conversion levels are dictated by the ratios of the turns of the windings in the transformer.
 - B. Commercial and Industrial (C&I) Low Voltage Transformer: For the purposes of this agreement, a low-voltage transformer is a distribution transformer with both the primary and secondary windings designed to operate at system voltages in the low-voltage classes (i.e., less than 1000V).¹
 - C. ENERGY STAR Efficiency Guideline: The efficiency levels at which C&I transformers can qualify for the ENERGY STAR designation are found below in Section 3.
- 2) Qualifying Products: For the purposes of ENERGY STAR, C&I transformers shall include both single-phase and three-phase distribution transformers and include the transformer rating categories listed in Table 1 below.
- 3) Energy-Efficiency Specifications for Qualifying Products: C&I transformers qualifying for the ENERGY STAR program must meet the specifications outlined in the Table 1 below.

| Table 1: C&I Distribution Transformers (Temperature: 75° C and % of Nameplate Load: 35%) | |
|---|--------------------|
| Single Phase kVA | Low Voltage |
| 15 | 97.7 |
| 25 | 98 |
| 37.5 | 98.2 |
| 50 | 98.3 |
| 75 | 98.5 |
| 100 | 98.6 |
| 167 | 98.7 |
| 250 | 98.8 |
| 333 | 98.9 |
| Three Phase kVA | Low Voltage |
| 15 | 97 |
| 30 | 97.5 |
| 45 | 97.7 |
| 75 | 98 |

¹ Institute of Electrical and Electronic Engineers (IEEE) 1986, An American National Standard: IEEE Recommended Practice for Electric Power Distribution for Industrial Plants, ANSI/IEEE, Std 141-1986 (revision of Std 141-1976).

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| 112.5 | 98.2 |
| 150 | 98.3 |
| 225 | 98.5 |
| 300 | 98.6 |
| 500 | 98.7 |
| 750 | 98.8 |
| 1000 | 98.9 |

- 4) Test Criteria: Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR criteria above. Partner shall use applicable testing standards outlined in ANSI/IEEE Standard C57.12.91 and use an industry acceptable sampling methodology.

- 5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. The ENERGY STAR C&I transformer specification for manufacturers is effective immediately.

- 6) Future Specification Revisions: ENERGY STAR reserves the right to revise the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. Revisions to the specification are generally made following discussions with industry.