THE METROPOLE

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How much electrical jolt does your coffee contain?

This experiment entailed the following variables…

- ❖ brewing a 12-cup carafe of coffee with a name-brand, drip-type coffee-maker; and,
- ❖ leaving the coffee-maker "on" for three hours while occasionally going back for progressively deteriorating refills.

The adjoining pictures show some of the results. Maximum electricity consumption, during the brewing process, was 1,023 Watts. Total consumption was 0.40 kilowatt-hours. Total time during which the coffee-maker consumed electricity was 25 minutes and 12 seconds.

"Whoa," we hear you say, "but the coffee-maker was 'on' for three hours. What happened to the other two hours, 34 minutes, and 48 seconds?" For your answer, go back to the part about "…name-brand, drip-type coffee-maker." When the coffee-maker had finished brewing, an internal device disconnected electricity. If the "keep-hot" element fell below a suitable temperature, the internal device re-connected electricity. It stayed re-connected until the element regained its suitable temperature. Thus, despite three hours of "connect time" the coffee-maker was using electricity for only 14% of that time [((25.2 minutes ÷ 180 minutes) ÷ 100) = 14%].

What else can we learn from this coffee-making experiment? An obvious point is the correlation between heat-production and electricity-use.

While actually "working", the coffee-maker's maximum consumption was 1,023 Watts. What if the coffee-maker had lacked a "disconnect device"? What if it had used 1,023 Watts per hour for three hours? In that case, total kilowatt-hours would have been 3.069 [3,069 ÷ 1,000 = 3.069], rather than 0.40. With the "disconnect" operating, and electricity at $0.058 per kilowatt-hour, the 12 cups of coffee cost 2.3 cents. Without the "disconnect", the coffee would have cost 18 cents. Over 365 days, at 12 cups per day, this would become the difference between $8.40 and $$65.70 per year.

The final point to consider is amperage. While doing its work, the coffee-maker drew as much as 8.74 amperes. In a separate article, MTCC 1170 shows a typical set of circuit-breakers and a schematic. As the schematic shows, kitchen-counter plugs have capacity sufficient for an 8.74-ampere draw — even with another appliance also plugged in. Other household-plugs might not have the same capacity. An overloaded circuit can result in a tripped breaker — with all of the associated inconvenience.

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