Given about 90 days of warm weather, growing tomatoes in your garden isn’t too hard. When cultivated in modern intensive ways, it requires fuels and electricity to make synthetic fertilizers and pesticides and to produce and power the machinery and supplementary irrigation. Field tomatoes need as little as 0.8 megajoule (about 190 kilocalories) per harvested kilogram. A typical tomato, bought at retail, weighs about 125 grams, of which 95 percent is water and most of the rest is carbohydrate and fiber. Its nutritional value lies in its vitamin C and A content. A tomato of that size contains only about 22 kcal (or 22 calories, in the
This luscious fruit originated in the Americas, then transformed the culinary practices of the world. It requires warmth, light, and fertilizer, often from artificial sources, which is why each tomato on your plate represents a great investment of energy.

A 125-gram tomato of Almería that is grown in an unheated plastic tunnel requires about 150 kcal; one grown in heated structures, about 560 kcal. It provides about 22 kcal of food energy, making the two kinds approximately 1:7 and 1:25 tomatoes. And with economies of scale favoring large-scale centralized production and long-distance shipping, the required storage, packing, and trucking to a regional distribution center raises the total energy cost to 460–875 kcal/125 g, raising the ratio to between 1:21 and 1:40. And because these tomatoes are grown in the relatively warm Mediterranean climate, they are far from being the world’s most energy intensive: Tomatoes produced in heated greenhouses in many European countries require 40 to 150 times as much commercial energy input as they yield in edible food energy.

Perhaps the best way to convey the energy cost of a 1:60 tomato is to express it in equivalent terms, as tablespoons (each equal to 14.8 milliliters) of diesel fuel to be poured over a sliced tomato instead of the classic oil-and-vinegar dressing. For a 125-gram tomato it would come to 10 tablespoons. For a family-size salad, requiring a kilogram of those regularly sized greenhouse tomatoes (cluster of eight, still attached to a strong green vine), you’d incur an energy production cost equivalent to 80 tablespoons, or 5 cups of diesel fuel. This is a perfect illustration of how our food production and distribution depend heavily on substantial fuel and electricity inputs!