in particular, the multiplication factor F, which was applied to the auxiliary electrical consumption. This factor was defined in the 1993 Proposed Rule as the ratio of the energy consumed at the power plant to generate the auxiliary electric energy delivered to the fossilfuelled appliance to the useful heat equivalent of that electrical energy delivered at the appliance.

Many comments were received on the proposed formulation of energy descriptors to capture electrical consumption of furnaces/boilers, vented home heating equipment, and pool heaters. In general, the comments received were supportive of the goals of the proposed amendments.

Twenty-one commenters offered comments on the energy efficiency descriptor issues emphasizing the Ffactor. Midwest Gas of the Midwest Power Systems Inc. of Iowa supported fully the energy factor descriptor and the annual efficiency descriptor (Midwest Gas, No. 1, at 2). Columbia Gas Distribution Companies of Columbus, Ohio, Oklahoma Natural Gas Co., Texas Gas Transmission Corp., City Gas Company of Florida, Southern California Gas Co., Southern Union Gas of Texas, Lone Star Gas Co., and Texas and Brooklyn Union Gas of N.Y., all expressed support for the concept of the energy factor and the annual efficiency descriptors; however, they suggested that the source- based F-factor should be applied to all covered appliances, regardless of their primary energy source. They considered it unfair to apply the F-factor to fossil-fueled furnaces and boilers but not to allelectric appliances (Columbia Gas, No. 3, at 1; Oklahoma Natural Gas, No. 4, at 1; Texas Gas, No. 5, at 3; City Gas, No. 6, at 1; Southern California Gas, No. 24, at 1; Southern Union Gas, No. 26, at 1; Lone Star, No. 11, at 2; and Brooklyn Union, No. 19, at 1).

American Gas Association (AGA) and Hydronics Institute (HI) stated that they have long supported a full-cycle approach to energy decisions but are disappointed in that the proposed energy descriptors apply the F-factor only to the auxiliary electric energy in fossil-fueled furnaces and boilers and not to all-electric equipment. AGA considered the proposed approach illogical and biased and stated that it could result in a consumer purchasing electric furnaces because of their lower purchase price without fully considering operating cost. AGA recommended the inclusion of source energy for electric furnaces (AGA, Testimony, at 54, and No. 13, at 2; and HI, Testimony, at 75, and No. 16, at 2). Minnegasco, and Public Service Electric and Gas Co. (PSE&G) expressed the same concerns as the American Gas Association on the F-factor (Minnegasco, No. 18, at 3; and PSE&G, Testimony, at 102, and No. 9, at 3). The PSE&G further stated that if DOE adopts a source-to-site based F-factor, the factor should be regionally and seasonally applied because of regional and seasonal differences in electricity generation and demand side management programs. The PSE&G further suggested that the energy descriptor be defined to include air emissions and solid waste produced (PSE&G, Testimony, at 102, and No. 9, at 3)

Edison Electric Institute supported adoption of the proposed energy descriptors Energy Factor and Annual Efficiency, but without the F-factor (equivalent to setting F=1). Edison Electric Institute believed that site energy rather than source energy should be used in the calculation for Energy Factor and Annual Efficiency because (1) the appliance standard is to benefit the consumer who makes his or her decisions on energy usage based on site energy and has no control over the electrical power plant; (2) there is no technical justification for using source rather than site energy; (3) an unnecessary precedent would be created for other appliance standards that are currently defined using site energy; (4) given that electricity can be generated from renewable energy (wind, solar, hydro), the F-factor could distort the actual amount of energy needed for electricity generation and could have the tendency to favor fossil-fueled equipment over electric equipment; and (5) given that electricity is generated using different fuels and at different rates of conversion from heat to electricity, including nuclear and hydroelectric, a single F-factor would be misleading (Edison, No. 20, at 2).

Lennox Industries supported the inclusion of electrical energy in the proposed energy descriptors but objected that limiting the application of the F-factor on electric energy usage only to fossil-fueled furnaces and boilers would penalize this type of product and confuse the consumer (Lennox, Testimony, at 85).

Inter-City Products stated that (1) applying the F-factor to auxiliary electric energy consumption in gas-fired furnaces, but not to the electric energy consumption in electric furnaces, puts the gas-fired equipment at an unjustified disadvantage in comparison to electric furnaces and heat pumps, which could cause significant load shifting from gas to electric, (2) gas and electrical consumption cannot be separated for cost comparison in a single energy descriptor that combines two different forms of energy but not cost in the calculation because their operating cost will be different, and (3) there is no basis for the proposed value of 3.37 for the F-factor. Therefore, Inter-City stated that it would not support the proposed energy descriptors until these issues were resolved (Inter-City, No. 7, at 3).

GAMA objected to the proposed energy descriptors' immediate implementation in their present form, for reasons similar to those mentioned by Inter-City, supra. GAMA also suggested the possibility of developing two separate energy descriptors for fossil fuel and electric energy consumption. Carrier Corp. and Consolidated Industries both stated their support of GAMA (GAMA, Testimony, at 18, and No. 8, at 5; Carrier, No. 12, at 1; and Consolidated, No. 22, at 1). York International objected to the proposed energy descriptors and would support the descriptors only if the F-factor was not applied. York also considered F-factor's use inconsistent by not applying it to all-electric units (York, No. 10, at 1).

California Energy Commission supported the proposed energy descriptors with the F-factor (California, No. 25, at 3). The National Resources Defense Council (NRDC) strongly supported the proposed energy descriptors and the concept of applying a multiplication factor to auxiliary electrical energy consumed to reflect the cost of energy to the consumers. The NRDC suggested that other than the source-based F-factor, factors based on consumer cost or emission impacts (air pollution impacts or climate pollution impacts) could also be used to develop the F-factor. But NRDC suggested that a factor based on average consumer costs (the ratio of unit energy cost to consumers of electrical energy and fossil fuel) would be a more accurate and useful approach, as it is more reflective of the costs the consumer is incurring. The NRDC suggested that in order to avoid the necessity of changing the cost ratio due to fluctuations or changes in the gas to electric costs every year, a single value for the factor should be chosen and maintained for the next ten years or longer unless the factor changes drastically (NRDC, Testimony, at 68 and No. 15, at 2).

## III. Discussion of Issues for Further Comment

The main reason for the Department's 1993 proposal to establish the energy factor and the annual efficiency descriptor was to take into account the consumption of the auxiliary electric