

the customers that are power generation utilities are unlikely to face any significant effects as a result of the Stage 2 DBPR. In sum, the Stage 2 DBPR does not regulate the supply of energy, does not generally regulate the utilities that supply energy, and is unlikely significantly to affect the customer base of energy suppliers. Thus, the Stage 2 DBPR would not translate into adverse effects on the supply of energy.

The second consideration is whether the Stage 2 DBPR would adversely affect the distribution of energy. The Stage 2 DBPR does not regulate any aspect of energy distribution. The utilities that are regulated by the Stage 2 DBPR already have electrical service. As derived later in this section, the proposed rule is projected to increase peak electricity demand at water utilities by only 0.007 percent. Therefore, EPA estimates that the existing connections are adequate and that the Stage 2 DBPR has no discernable adverse effect on energy distribution.

The third consideration is whether the Stage 2 DBPR would adversely affect the use of energy. Because some drinking water utilities are expected to

add treatment technologies that use electrical power, this potential impact is evaluated in more detail. The analyses that underlay the estimation of costs for the Stage 2 DBPR are national in scope and do not identify specific plants or utilities that may install treatment in response to the rule. As a result, no analysis of the effect on specific energy suppliers is possible with the available data. The approach used to estimate the impact of energy use, therefore, focuses on national-level impacts. The analysis estimates the additional energy use due to the Stage 2 DBPR, and compares that to the national levels of power generation in terms of average and peak loads.

The first step in the analysis is to estimate the energy used by the technologies expected to be installed as a result of the Stage 2 DBPR. Energy use is not directly stated in *Technologies and Costs for Control of Microbial Contaminants and Disinfection By-Products* (USEPA 2003k), but the annual cost of energy for each technology addition or upgrade necessitated by the Stage 2 DBPR is provided. An estimate of plant-level energy use is derived by

dividing the total energy cost per plant for a range of flows by an average national cost of electricity of \$0.076/kilowatt hours per year (kWh/yr) (U.S. Department of Energy, Energy Information Administration (USDOE EIA) 2002). These calculations are shown in detail in Chapter 8 of the *Economic Analysis for the Stage 2 DBPR* (USEPA 2003i). The energy use per plant for each flow range and technology is then multiplied by the number of plants predicted to install each technology in a given flow range. The energy requirements for each flow range are then added to produce a national total. No electricity use is subtracted to account for the technologies that may be replaced by new technologies, resulting in a conservative estimate of the increase in energy use. Table VIII-3 shows the estimated energy use for each Stage 2 DBPR compliance technology in kilowatt hours per year (kWh/yr). The incremental national annual energy usage is 0.08 million megawatt-hours (mWh).

Table VIII-3. Total Increased Annual National Energy Usage Attributable to the Stage 2 DBPR

Technology	Number of Plants Selecting the Technology	Total Increase in Energy Usage as a Result of the Stage 2 DBPR
	(a)	(b)
Chloramines (with and without advanced tech.)	1,719	2,610,918
Chlorine Dioxide	9	37,335
UV	736	11,033,906
Ozone	19	1,545,741
MF/UF	0	1,821
GAC10	-	-
GAC10 + Adv. Disinfectants	18	14,914,955
GAC20	113	24,049,135
GAC20 + Adv. Disinfectants	34	4,366,613
NF	-	-
Membranes	17	17,680,345
TOTAL	2,667	76,240,768

Notes: Detail may not add due to independent rounding

To determine if the additional energy required for systems to comply with the rule would have a significant adverse effect on the use of energy, the numbers in Table VIII-3 are compared to the national production figures for electricity. According to the U.S. Department of Energy's Information

Administration, electricity producers generated 3,800 million mWh of electricity in 2001 (USDOE EIA 2002). Therefore, even using the highest assumed energy use for the Stage 2 DBPR, the rule when fully implemented would result in only a 0.002 percent increase in annual average energy use.

In addition to average energy use, the impact at times of peak power demand is important. To examine whether increased energy usage might significantly affect the capacity margins of energy suppliers, their peak season generating capacity reserve was compared to an estimate of peak