

Phase II regulation. Analyzed characteristics included changes in capacity, generation, revenue, cost of generation, and electricity prices. These changes were identified by comparing two scenarios: (1) The base case scenario (in the absence of any Section 316(b) regulation) and (2) the post compliance scenario (after the implementation of the new Section 316(b) regulations). The results of these comparisons were used to assess the impacts of the preferred option and two of the five alternative regulatory options considered by EPA: (1) the "Intake Capacity Commensurate with Closed-Cycle, Recirculating Cooling System based on Waterbody Type/Capacity" Option (hereafter the "waterbody/capacity-based" option) and (2) the "Intake Capacity Commensurate with Closed-Cycle, Recirculating Cooling System for All Facilities" Option (hereafter the "all closed-cycle" option).

Since publication of the proposed rule, EPA has made several changes to its IPM analysis. The following sections present a discussion of these changes and the results of the re-analysis of the preferred option and the waterbody/capacity-based option. EPA would use the same methodology as described in Chapter B3 of the EBA (as amended in this NODA) to analyze other options presented at proposal but not explicitly analyzed for this NODA if they were chosen for promulgation.

#### A. Changes to the IPM Analyses Since Proposal

This section presents the changes to the IPM assumptions and modeling procedures used at proposal. This section also describes modifications EPA made to the analyses to correct errors that were discovered after publication of the proposed rule.

##### 1. IPM Analysis of the Proposed Regulatory Requirements

For the proposal, EPA did not explicitly analyze the preferred option because of time constraints. Rather, EPA conducted an electricity market model analyses of two alternative options that had higher costs than those of the preferred option. To assess the expected economic impacts of the preferred option at proposal, EPA adopted an indirect approach.<sup>5</sup> EPA acknowledges that an analysis specific to the requirements of the preferred option is

preferable, and, as a result, EPA conducted an IPM model run using the proposed regulatory requirements for this NODA. The results of this analysis are presented in Section V.B below.

##### 2. Model Aggregation

At proposal, the steam electric generators of the 530 Phase II facilities that are modeled by the IPM were disaggregated from the existing IPM model plants (as used in the standard IPM base case used for other EPA regulations, the EPA Base Case 2000) and "run" as individual facilities along with the other existing model plants. This change increased the total number of model plants from 1,390 under the EPA Base Case 2000 to 1,777 under the 316(b) Proposal Base Case.<sup>6</sup> For this NODA, EPA made two further changes to the model aggregation, which increased the total number of model plants from 1,777 to 2,096:

- *Disaggregation of non-steam generators at Phase II facilities.* At proposal, EPA only disaggregated Phase II steam electric generators from the original model plant specification. These steam electric generators were then re-aggregated to the facility-level, and the facility-level output was used in EPA's facility impact analyses. Disaggregating only steam-electric generators led to the underestimation of certain facility-level operating characteristics (e.g., generation and revenues) because the facility-level results produced by the model did not include the economic activities of non-steam generators at Phase II facilities. Therefore, for this NODA analysis, EPA also disaggregated the non-steam generators at facilities subject to the rule from the original model plant specification, so that the facility-level results include the economic activities of the entire plant.

- *Phase III facilities.* In addition to disaggregating generators at Phase II facilities, EPA also disaggregated generators at Phase III facilities for this NODA. (At the time this analysis was started, the section 316(b) regulatory schedule called for proposal of the Phase III rule three months before promulgation of the Phase II rule.)

Because changes in model aggregation can result in changes to the base case results, EPA compared the base case results generated for the proposal and NODA analyses. This comparison identified little difference in the base case results caused by the modification in the model aggregation: Base case total

production costs (capital, O&M, and fuel) using the revised NODA specifications are lower by 0.2% to 0.3% in the years 2008, 2010, and 2020. Early retirements of base case oil and gas steam capacity under the NODA specifications decreased by 1,258 MW. Early retirements of base case nuclear and coal capacity remained constant. In addition, the revised model specifications result in changes in base case coal and gas fuel use by less than 1.0 percent.

##### 3. Capacity Utilization

Under the preferred option and the alternative regulatory options considered at proposal, facilities with a capacity utilization rate of less than 15 percent may be subject to less stringent compliance requirements than facilities with a utilization rate of 15 percent or more, depending on the water body from which they withdraw and the technologies they already have in place. EPA made the following changes to the determination of the capacity utilization of Phase II facilities for the economic analysis:

- *Capacity utilization rates based on steam-electric generators only.* At proposal, the 15 percent capacity utilization determination was based on the generation and capacity of the entire facility, including steam electric and non-steam generators. As discussed at Section III above, EPA believes that utilization of the steam electric part of the facility better reflects the facility's potential for adverse environmental impact because only the steam electric generators use cooling water subject to this regulation. At Section XI below, EPA invites comment on a refinement to the definition of "capacity utilization rate" at proposed § 125.93 to focus only on the steam electric generators at a facility. For the NODA, EPA is using the capacity utilization of only the steam electric generators at Phase II facilities so that the updated economic analyses, including the IPM analysis, include this potential refinement.

- *IPM capacity utilization rates.* At proposal, EPA used the average capacity utilization based on Energy Information Administration (EIA) data for 1995 to 1999. This utilization rate was often different from the rate based on the IPM base case results. This discrepancy might have led to an underestimation of economic impacts for those facilities whose utilization rate is less than 15 percent based on EIA data but 15 percent or more based on IPM data, and to an overestimation of economic impacts for those facilities whose utilization rate is 15 percent or more based on EIA data but less than 15

(Southwest Power Pool), and WSCC (Western Systems Coordinating Council). Electric generators in Alaska and Hawaii are not modeled by the IPM.

<sup>5</sup> For more information on this analysis, please refer to Section VIII.A of the preamble to the proposed rule and Chapter B3 of the EBA document.

<sup>6</sup> For more information on changes made to the EPA Base Case 2000, see EBA, Chapter B3, Section B3-2.2.