Technical Support Document
for the Final
Clean Air Interstate Rule

Boilermaker Labor Analysis and Installation Timing

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BOILERMAKER LABOR ANALYSIS AND INSTALLATION TIMING

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APPENDICES

BOILERMAKER LABOR ANALYSIS AND INSTALLATION TIMING

1. INTRODUCTION

This document summarizes the results of investigations conducted by EPA to verify that sufficient boilermaker labor would be available to support installation of NOx and SO_2 control retrofits required by the Clean Air Interstate Rule (CAIR). These controls would be installed in two phases, with January 1, 2010, as the compliance deadline for Phase I and January 1, 2015, as the compliance deadline for Phase II. The effect of two separate Phase I compliance deadlines of January 1, 2009, for NOx and January 1, 2010, for SO_2 was also evaluated.

EPA has conducted analyses, using the Integrated Planning Model (IPM), that provide projections for the amounts of NOx and SO_2 control retrofits that would be installed during the two CAIR phases. These projections have been used in determining adequacy of the available boilermaker labor during the period relevant to construction of these controls.

In the boilermaker labor estimates, EPA has used several factors that affect the availability of boilermakers, including the overall boilermaker population, percent of boilermaker population available to work on CAIR retrofits, average annual hours worked by a boilermaker, and duty rates (boilermaker-years/MW) for installing these retrofits. In addition, EPA has used construction schedule requirements necessary to install these retrofits. These factors and schedule requirements are based on the results of a study that was conducted by EPA for the proposed Clear Skies Act.[1]

EPA received several comments on the NPR proposal that questioned the accuracy of the above boilermaker availability factors. For the boilermaker duty rates specifically, one commenter (Utility Air Regulatory Group or UARG) provided its own estimates of these duty rates for both NOx and SO_2 retrofits, while another commenter (Southern Company) provided its estimate for SO_2 retrofits only. However, another commenter (Institute of Clean Air Companies or ICAC) agreed with EPA's unit rates.[2] The duty rate values suggested by UARG for both SCR and FGD were the most stringent, resulting in the highest boilermaker labor requirements. Therefore, only the UARG-suggested duty rates were further analyzed to provide a comparison against the boilermaker labor requirement resulting from the use of the duty rates used by EPA.

UARG and other commenters to the NPR proposal also pointed out that the natural gas prices and electricity demand rates used in EPA's analyses were below the levels projected by EIA. Additionally, some commenters, including UARG, indicated that

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[1] "Engineering and Economic Factors Affecting the Installation of Control Technologies for Multi-Pollutant Strategies," EPA-600/R-02/073, October 2002

[2] EPA uses unit rates of 0.152 and 0.175-boilermaker year/MW for SO_2 and SCR retrofits, respectively, which are based on the study in Reference 1.

EPA's capital cost estimates for SCR technology were lower than what had recently been experienced by the industry.

EPA has held several discussions with the International Brotherhood of Boilermakers (IBB), U.S. Bureau of Labor Statistics (BLS), and National Association of Construction Boilermaker Employers (NACBE) to verify its assumptions on the boilermaker availability factors. In addition, EPA has conducted sensitivity analyses to determine the impacts of using higher boilermaker duty rates, natural gas prices, electricity demand rates, and SCR prices, as suggested by the above commenters.

2. CONFIRMATION OF BOILERMAKER AVAILABILITY FACTORS

In the NPR proposal, EPA used the following factors in its boilermaker availability estimates for CAIR:

- Boilermaker population: 28,000
- Percentage of boilermakers available for CAIR retrofits: 35%
- Number of annual hours worked by a boilermaker: 2,000

EPA held several discussions with IBB, BLS, and NACBE to verify the above factors. Appendix A provides details on these discussions, as explained below:

a. According to the IBB, its membership in 2003 was at 26,000 boilermakers. Based on the current IBB policy, its local lodges continuously recruit new members to maintain an apprenticeship to journeymen ratio of 1 to 5 in all regions. This is intended to ensure continual growth in the active member population or to at least maintain membership at the current levels.

   The BLS does forecast the boilermaker population to be 24,994 in 2012. The BLS has based this forecast on a low boilermaker demand and an accelerated retirement rate among an aging boilermaker force. IBB is not in agreement with this forecast. Moreover, the past experience does not support this forecast, since the BLS projected the boilermaker population in 2002 to be 24,586, which was well below the actual IBB membership in 2002 of 26,696.

   The data provided by the IBB shows that the U.S. boilermaker population grew by approximately 35 percent or 6,700 boilermakers in just two years, between 1999 and 2001. IBB confirms that most of this increase consisted of new members (rather than the retired members returning back to work). This increased boilermaker population was in response to the surge in the construction of SCR retrofits resulting from the regulatory actions taken by EPA, including the NOx SIP Call rule. The increased boilermaker population during these years also shows the ability of the IBB to add new members in response to an increased demand.

   IBB states that it does not conduct forecasts regarding future membership numbers. Since the above investigations show IBB's ability to increase its membership with an increase in demand, an increased IBB membership can be

expected during the timeframe relevant to CAIR. However, EPA has conservatively used the current boilermaker population of 26,000 in its boilermaker availability analyses for the final rule. This is supported by IBB confirming that it has procedures in place to at least maintain the membership at the current level,

b. The IBB provides the following breakdown of boilermaker hours worked in the utility industry, during the last two years (see Appendix A, Table 3):

- In 2003: 21,022,101 hours or 76.09% out of a total of 27,626,923 hours
- In 2002: 29,468,043 hours or 79.18% out of a total of 37,216,496 hours

As a result of the NOx SIP Call, SCRs were installed on approximately 41.7 and 15.6 GW of coal-fired capacity in 2003 and 2002, respectively.[3] Using EPA's boilermaker duty rate of 0.175 year/MW and 2,000 hours worked per year, the total boilermaker hours required to complete the 57.3 GW of SCR retrofits during these two years would be 20,055,000 hours. These are approximately 31 percent of the total hours worked by the boilermakers during the last two years.

The percentage of the boilermaker hours spent on the SCRs would be greater, if the higher average boilermaker duty rate of 0.343 suggested by the commenter, UARG, is used in the above calculation (see Section 4.a below for details). For example, using the higher duty rate for SCR as proposed by UARG, the percentage of total hours worked by the boilermakers on the NOx SIP Call projects would increase to 60 percent. Even considering only the SCR capacity of 41.7 GW built during 2003, the percentage of NOx SIP Call hours will be 44 percent of the total boilermaker hours for 2002 and 2003. These percentages are significantly greater than the 35 percent value assumed by EPA as the portion of boilermaker population being available for constructing the CAIR retrofits. This analysis, therefore, supports the EPA's assumption that 35 percent of the overall boilermaker population would be available to work on the CAIR retrofits.

c. The IBB confirms that the average boilermaker hours worked per year during the last four years have ranged from approximately 1,150 to 1,450 hours. However, it is pointed out that this average is across all industries and is low, because boilermakers usually work on short-term projects. Many of these projects are in existing plants and they are scheduled to be executed only during short plant outages.

EPA believes that the average boilermaker hours worked across all industries do not apply to the air pollution control retrofit projects, which offer relatively long-term working opportunities for boilermakers. EPA, therefore, conducted an analysis to determine the average boilermaker annual hours worked on the NOx SIP Call SCR retrofit projects. For this analysis, data provided by the IBB on the boilermaker hours in 17 states with the heaviest concentration of SCR retrofits is used (see

[3] "Analysis of CAIR Compliance Schedule: A response to ICAC Estimates," Study Submitted Via Comment to the CAIR NPR Proposal by Hunton and Williams LLP for UARG (VII.C-1784 & 1786)

Appendix A, Table 5). This data is for 2002, the last year for which a breakdown of boilermaker hours was available. There are 29 lodges included in these 17 states. Using data from all lodges represents a conservative approach, since not all of the lodges were likely to have been involved in the SCR retrofits.

Based on the above data, the average number of boilermaker hours worked per year in all 29 lodges is 2,147 hours. The reported average annual hours worked by two of these lodges exceed 4,000 and, for another two lodges, they are below 750. While 4,000 hours appear to be excessive, the hours less than 750 are too low (most likely due to no SCRs being built in the corresponding lodges).

IBB indicated that, for the lodges with excessive hours, the work might have been performed by more than one boilermaker, since it would have been difficult for one boilermaker to work the available annual hours. However, IBB did not have information on the source of these additional boilermakers. It is highly likely that these boilermakers were those without work in the nearby lodges of the same state. Therefore, the hours worked by such boilermakers would still be counted towards the average hours worked per year in the 29 lodges.

To be conservative, EPA estimated the average boilermaker hours for the above lodges, without considering the annual hours greater than 4,000 and those less than 750. If these data are discarded from the standpoint of reliability or applicability to CAIR, the average for the remaining lodges is 2092 hours. These average hours are above the annual average boilermaker hours per year of 2,000 used by EPA in its analyses, and, therefore, they support EPA's number.

3. ADDITIONAL BOILERMAKER SOURCES

Based on comments received on the NPR proposal, EPA has determined that boilermakers available from certain sources were not considered in its analyses.[3] These sources and the extent of this availability are discussed in the following:

a. The IBB confirms that boilermakers from Canada are available to work on the U.S. projects (see Appendix A). According to the IBB, it has specific procedures in place to bring Canadian boilermakers to the U.S., on an expedited basis. In 2003, the number of Canadian boilermakers working on the NOx SIP Call projects was 1,325. Based on this information, EPA has conservatively assumed that 1,000 boilermakers would be available from Canada to work on the CAIR projects, if required.

b. Several control retrofits for CAIR will be constructed in traditionally non-union states (e.g., Texas, Kentucky, Georgia, Alabama, Florida, etc.). The IPM analyses conducted by EPA for the final rule indicate that approximately 15 percent of SO_2 scrubbers and 43 percent of SCRs will be installed in these states. ICAC reports that some of its member companies heavily rely on non-union boilermakers for projects similar to the CAIR retrofit projects (see Appendix B). As an example, ICAC has cited one of its members using substantial amounts of merit shop labor,

including non-union boilermakers. As suggested by ICAC in their comments on the CAIR proposal, EPA has conservatively assumed that 10 percent of the CAIR retrofits will be installed by non-union labor.[3]

c. Based on EPA data, an average 32 GW of new gas-fired combined cycle generation capacity was being constructed annually, during the NOx SIP Call SCR construction years of 2002 and 2003. A substantial number of boilermakers were involved in the construction of these gas-fired projects. Since only a small amount of new electric generation capacity is projected to be added during the Phase I construction period, the number of boilermakers involved in the building of new plants would be smaller and more of the boilermaker population would be available to work on CAIR retrofits.

EPA estimated the number of additional boilermakers available for CAIR, due to the above slowdown in the construction of new electric generation plants. Both EPA and EIA project an insignificant amount of new coal-fired generating capacity addition during the CAIR-related period.[4] The EIA's projections do show 0.8 GW of coal-fired capacity being built during 2007 and no further capacity addition between 2007 and 2010. However, EPA notes that the boilermaker-related construction activities for the new coal-fired plants built during 2007 would have to be completed during the first three quarters of 2007, since the last three to four months of 2007 would be needed for completing the startup activities for these plants. Therefore, EPA has assumed that the new coal-fired plants built during 2007 would not affect the construction activities for CAIR-related air pollution control projects, which would start during the later part of 2007, as can be estimated from Figures 1 and 2.

The EPA's projections show approximately 15 GW of new or repowered gas-fired capacity being added, during this period.[5] The EIA's projections for new gas-fired capacity addition during Phase I are well below those of EPA's. The more conservative EPA projections for new generating capacity additions are, therefore, used to estimate the additional boilermaker labor that would become available for the Phase I retrofits.

A 250 MW combined cycle plant requires an average 48,000 boilermaker hours, while a 500 MW coal-fired plant requires an average 500,000 boilermaker hours.[3] Using these average unit sizes and the boilermaker hour estimates, it can be seen that boilermaker hours required for the new gas-fired units built during the NOx SIP Call years are greater than the new electric generating units projected by EPA to be built during the CAIR years (see next subsection for calculations). Some of the boilermakers that were involved with the new gas-fired capacity addition during the SIP Call years would therefore be available to work on the CAIR retrofits.

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[4] "Annual Energy Outlook 2005 (Early Release), Tables A9 and 9," December 2004, http://www.eia.doe.gov/oiaf/aeo/i.ndex.html

[5] See EPA's IPM Run CAIR 2004_EIA.

4. BOILERMAKER AVAILABILITY ANALYSES

EPA has used the IPM to project the amounts of air pollution controls that would be installed to meet the CAIR requirements. In addition, the IPM also projects the new generation capacity that would be added during the time frame relevant to the construction of the CAIR controls. Based on these IPM projections, the air pollution controls installed during the CAIR period include FGD scrubber, SCR, and SNCR. In some cases, an insignificant amount of activated carbon injection (ACI) systems are also projected to be installed (e.g., for the CAIR policy case, it is projected that only 0.5 GW of ACI retrofits would be added during Phase I and none in Phase II). EPA has used these IPM projections to estimate the boilermaker labor required during the CAIR period. An ACI system normally includes a vessel, blowers, piping, and injection nozzles in the flue gas ductwork upstream of an existing particulate control device. The boilermaker labor requirement for this type of system is insignificant. Because the amounts of ACI systems to be added are also insignificant, ACI system additions have not been taken into consideration in the boilermaker labor estimates.

The methodology for calculating the boilermaker labor, assumptions, types of analyses, and the results of analyses performed by EPA are described in the following:

a. Boilermaker Duty rates

The boilermaker labor requirements are estimated by multiplying the total capacity (in MW) of each type of air pollution control with a boilermaker duty rate (in boilermaker-year/MW) applicable to the corresponding control. The total capacity of retrofits for each type of control is obtained from various IPM analyses performed by EPA for the final CAIR. EPA uses the following duty rates for FGD and SCR, which are based on a study: [1]

- Duty rate for FGD: 0.152 boilermaker-year/MW
- Duty rate for SCR: 0.175 boilermaker-year/MW

For SNCR, EPA estimated the duty rate based on a labor requirement of 4.6 man-years for a 500 MW unit, as provided by one source.[6] Based on this information, the duty rate for SNCR is approximately 0.01 boilermaker-year/MW.

UARG provided its own estimates of the boilermaker duty rates for SCR and FGD systems. These rates are presented as a function of the unit size in MW, as reflected by the following correlations:

- Duty rate for FGD = $[209.4 \times \log_e(MW) - 1004.2] \times 1000/(MW \times H)$
- Duty rate for SCR = $[122.61 \times \log_e(MW) - 475.07] \times 1000/(MW \times H)$

In the above correlations, 'H' represents the number of average annual hours worked by a boilermaker. The correlations were used to determine the average boilermaker duty rate for all the units installing either SCR or FGD systems, during the two CAIR phases.

[6] "Comments to the CAIR NPR Proposal By Fuel Tech", Section VII.B-0981, March 18, 2004

These units and their respective sizes are identified in the IPM run for the CAIR policy case.[7] Based on EPA's assumption, the average boilermaker work hours are taken as 2,000 hours/year.

It is to be noted that the above correlation for FGD results in negative values, when the unit size falls below 121 MW. In order to avoid using the negative values, the few plants that were less than 121 MW in size were not used in the estimates for the average boilermaker duty rates. The estimated duty rates are as follows:

- Phase I
  - Average duty rate for FGD: 0.269 boilermaker-year/MW
  - Average duty rate for SCR: 0.343 boilermaker-year/MW
- Phase II
  - Average duty rate for FGD: 0.272 boilermaker-year/MW
  - Average duty rate for SCR: 0.344 boilermaker-year/MW

b. **Boilermaker Activity Period**

In the NPR proposal, it was estimated that the boilermakers would be used over a period of 18 months during the overall Phase I construction schedule, which would last between 2 to 3 years. This was based on the final CAIR becoming effective on June 30, 2005, the final state implementation plans (SIPs) becoming available by December 31, 2006, and a compliance deadline of January 1, 2010. With the current projections calling for the final CAIR to be effective on March 15, 2005, the overall boilermaker activity period for Phase I is extended by another 3.5 months. Therefore, in the boilermaker availability estimates covered by this report, a 21.5-month period has been used for the boilermaker activities.

The final CAIR is based on two separate compliance deadlines of January 1, 2009, and January 1, 2010, for meeting the Phase I NOx and SO_2 requirements, respectively. Only a portion of the above 21.5-month period would, therefore, be applicable to the Phase I SCR retrofits, while the entire 21.5 months would apply to the Phase I FGD retrofits.

Figures 1 and 2 show the engineering, procurement, and construction schedules for installing Phase I SCR and FGD controls. These schedules cover the periods starting from the time final SIPs are available to the completion of startup activities by the compliance deadlines set by CAIR for these controls. Based on the IPM runs for the final rule, the maximum number of SCR and FGD retrofits installed during Phase I on multiple units at the same plant would be six and five, respectively.[7] The schedules in Figures 1 and 2 show various installation-related activities for these multiple-unit retrofits in the available time periods.

The basis for the schedules in Figures 1 and 2 is the previously referenced engineering study.[1] The same estimates reported in this study for times required to complete

[7] See IPM Run "CAIR 2004."

activities related to equipment design, fabrication, delivery, construction, commissioning, and startup have been used in Figures 1 and 2. However, the schedule in Figure 1 is based on using a more conservative requirement of a two-month period for the outage construction related to the hookup (or tie-in) of SCR into the existing systems for each plant. In comparison, an outage construction period of one month was used in the above study. This change is based on comments received on this rule and further investigations conducted by EPA which show that a longer outage period may be necessary for incorporating an SCR system into an existing plant.

As shown in Figure 1, the time period available for completing the installation activities for all six SCR systems is 27.5 months. Given the schedule requirement for each activity, SCR installation on a maximum of three units can be completed during this time period, if back-to-back unit outages are assumed for completing the tie-in construction and startup activities. For plants installing SCR on more than three units, simultaneous two-unit outages would be necessary to perform outage-related activities. However, since there are only a few plants projected to install SCR on more than three units at the same site, these simultaneous unit outages are not expected have an adverse impact on the electrical grid reliability.

The plants with more than three multiple-unit SCR installations would have two options to meet the CAIR requirements, without requiring simultaneous unit outages. First, these plants would be able to defer installation of SCRs on some of the units by purchasing allowances from the 200,000-ton compliance supplemental pool being made available as part of CAIR. Second, the outage activities for some of the units at these plants could be extended into the first quarter of 2009, which is beyond the compliance deadline of January 1, 2009, since these units would not generate NOx emissions during an outage and therefore not require any allowances to compensate for them. As an example, Figure 1 shows outage activities for two of the six SCR units being performed after the Phase I compliance deadline.

As shown in Figure 2, the total time available for all activities related to the installation of five FGD systems at a single plant would be 39.5 months. This would provide sufficient time to perform the outage-related activities for these FGD systems, in back-to-back unit outages. In this case, it was assumed that these FGD systems would be installed in the latter part of this 39.5-month period. However, the affected plants would have the option to complete installation of their FGD systems earlier, since, for some plants, all or some of the planning activities could be completed during the first 18 months of the overall 4-3/4-year Phase I implementation period.

It should be noted that Figures 1 and 2 reflect extreme cases involving the maximum number of multiple-unit SCR and FGD retrofits. A plant requiring less than six SCR or five FGD retrofits would have more time and flexibility to schedule various activities within available installation periods.

Figures 1 and 2 also show the total lengths of periods involving boilermaker activities. If the two periods in these figures were superimposed, the overall boilermaker activity period for Phase I would be 27.5 months. In comparison, EPA has conservatively used

a period of only 21.5 months in the boilermaker availability analysis for the final rule. EPA assumes that construction of the retrofits required for Phase I would not be distributed uniformly over the available implementation period. The six-month margin present in EPA's assumption of 21.5 months for the boilermaker activity period, therefore, accounts for the expected non-uniformity in the scheduling of the Phase I retrofits. It should be noted that a five-month margin was present in the 18-month boilermaker activity period used for the NPR proposal, as shown in the above study.

The overall boilermaker activity period shown in Figure 1 is 16.5 months. This period covers the activities related to construction of all Phase I SCR retrofits and the portion of Phase I FGD construction work completed by January 1, 2009, the NOx compliance deadline. In the boilermaker availability analysis related to Phase I NOx compliance deadline, EPA has used a boilermaker activity period of 13 months. The 3.5-month margin present in this activity period is comparable to the margin proposed in the NPR proposal for the same activity period.

For Phase II, it has been conservatively assumed that the boilermakers would be used over a period of 36 months. This assumption is based on a consideration that some of the small size units, especially those owned by the co-operatives, may require more planning and financing time, i.e., their financing activities may extend into the second phase, even if they are started during Phase I.

c. Boilermaker Availability Factors

As discussed previously, the following availability factors have been used in the boilermaker labor analyses for the final CAIR:

- Boilermaker population: 26,000
- Percentage of boilermakers available for CAIR retrofits: 35%
- Number of annual hours worked by a boilermaker: 2,000

d. Boilermaker Labor Analyses and Results

EPA has performed several analyses using its own assumptions as well as the assumptions suggested by commenters for the boilermaker duty rates and other factors. Table 1 provides results of these analyses that show the boilermaker requirements for the CAIR phases. All retrofit projections for FGD and SCR systems are based on IPM analyses and include CAIR and non-CAIR retrofits required during the two phases. The table provides a breakdown of the CAIR and non-CAIR retrofits, where it was available.

Table 2 provides the estimate of the boilermakers available from the three additional sources discussed above, for Phase I. These estimates are based on EPA's projections for new electric generating capacity being added during this phase. The estimates in Table 2 are provided for three different cases: 1) for the CAIR policy case, 2) for the case assuming an acceleration of one year in the Phase I compliance deadline for both NOx and SO_2, and 3) for the case assuming an acceleration of one year in the Phase I compliance deadline for NOx only.

Table 3 provides the estimate of the boilermakers available from the three additional sources discussed above, for Phase II. This estimate uses the EPA-projected new and repowered coal-fired and combined cycle generation capacity addition during this phase. The estimates in Table 3 are provided for two different cases: 1) for the CAIR policy case and 2) for the case assuming an acceleration of one year in the Phase II compliance deadline.

The overall results of the analyses presented in Tables 1, 2, and 3 are discussed below:

1. Case 1

   This case presents the results of the Phase I boilermaker labor analysis that was prepared for the NPR proposal. This is presented here for information only. The IPM projected the retrofits to include 51.4 GW of FGD and 28.2 GW of SCR for Phase I.[8] The required boilermaker years for this case are 12,748, compared to the available boilermaker years of 14,700. This represents a contingency of 15 percent in the available boilermaker years.

2. Case 2

   This case presents the results of the Phase I boilermaker labor analysis that was prepared for the CAIR policy case. It is based on using EPA's projections for natural gas prices and electricity demand rates as well as EPA's boilermaker duty rates for FGD and SCR. The IPM projected the retrofits to include 39.6 GW of FGD and 23.9 GW of SCR for Phase I.[7] The required boilermaker years for this case are 10,203, compared to the available boilermaker years of 23,733. This represents a contingency of 133 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3). This is an optimistic case and it provides a lower band for key assumptions that drive the analysis. EPA did not want to rely on this case as the primary support for its determination of the Phase I NOx and SO_2 emission caps.

3. Case 3

   This case presents the results of the Phase I boilermaker labor analysis that was prepared to determine the impact of commenter-suggested assumptions. It is based on using EIA's projections for natural gas prices and electricity demand rates along with EPA's boilermaker duty rates for FGD and SCR. The IPM projected the retrofits to include 49.1 GW of FGD and 25.2 GW of SCR for Phase I.[5] The required boilermaker years for this case are 11,875, compared to the available boilermaker years of 23,900. This represents a contingency of 101 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3). This is also a fairly

[8] See IPM Run "EPA216_PM_29a."

optimistic case in the selection of key assumptions that EPA did not want to rely on heavily for its determination of the Phase I NOx and SO_2 emission caps.

4. Case 4

This case presents the results of the Phase I boilermaker labor analysis that was prepared to determine the impact of commenter-suggested assumptions. It is based on using EIA's projections for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for SCR and FGD. The IPM projected the retrofits to include 49.1 GW of FGD and 25.2 GW of SCR for Phase I.[5] The required boilermaker years for this case are 21,853, compared to the available boilermaker years of 24,898. This represents a contingency of 14 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3). This case uses highly conservative assumptions that are less optimistic on labor requirements for air pollution control retrofits and considers greater retrofitting needs that are reasonable to expect. EPA believes it prudent to rely on this case, in the interest of ensuring that the CAIR program can reliably comply with initial NOx and SO_2 caps it sets.

5. Case 5

This case presents the results of the Phase I boilermaker labor analysis that was prepared to consider the impact of increased SCR capital and fixed O&M costs, as suggested by some commenters. It is based on using EIA's projections for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for FGD and SCR and a 30-percent increase in the SCR capital and fixed O&M costs. The IPM projected the retrofits to include 47.9 GW of FGD and 25.2 GW of SCR for Phase I.[9] The required boilermaker years for this case are 21,534, compared to the available boilermaker years of 24,866. This represents a contingency of 15 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

6. Case 6

This case presents the results of the Phase I boilermaker labor analysis that was prepared to consider a commenter's view that all of the CAIR retrofits expected to be installed during the two phases could be installed by 2010. In this case, it is assumed that the Phase I and II SCR and FGD retrofits will all be built in the first phase, by 2010. In addition, the case is based on using EIA's projections for natural gas prices and electricity demand rates along

[9] See IPM Run "CAIR 2004_EIA_SCR Costs."

with UARG-suggested boilermaker duty rates for SCR and FGD. The IPM projected the retrofits to include 70 GW of FGD and 46.3 GW of SCR.[10] The required boilermaker years for this case are 34,725, compared to the available boilermaker years of 26,185. This represents a shortfall of 25 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

7. Case 7

This case presents the results of the Phase I boilermaker labor analysis that was prepared to determine the impact of an earlier compliance deadline, with no change in the Phase I NOx and SO_2 emission caps. In this case, it is assumed that the compliance deadline of January 1, 2010, will be accelerated by one year to January 1, 2009, for both NOx and SO_2. In addition, the case is based on using EIA's projections for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for FGD and SCR. The IPM projected the retrofits to include 49.1 GW of FGD and 25.2 GW of SCR.[5] The required boilermaker years for this case are 21,853, compared to the available boilermaker years of 14,862. This represents a shortfall of 32 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

8. Case 8

This case presents the results of the Phase I boilermaker labor analysis that was prepared to determine the impact of an earlier compliance deadline of January 1, 2009, for meeting only the NOx emission cap requirement. In this case, it is assumed that there is no change in the Phase I NOx and SO_2 caps and that January 1, 2010, is still the compliance deadline for meeting the SO_2 emission cap requirements. In addition, the case is based on using EIA's projections for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for FGD and SCR. The IPM projected the retrofits to include 49.1 GW of FGD and 25.2 GW of SCR.[5]

It should be noted that this case is similar to Case 4, since the factors that affect the boilermaker labor are the same for both of these cases. The estimates for the required and available boilermaker labor for the overall Phase I period are exactly the same for these cases. However, since the Phase I SCR retrofits in Case 8 must be installed by January 1, 2009, this analysis was performed to verify that sufficient boilermaker labor would be available for installing these SCR controls, prior to the required compliance deadline. As shown in Figure 2, some of the boilermaker-related activities for FGD controls would also be taking place, during this SCR installation period.

[10] See IPM Run "CAIR 2004_EIA_One Phase."

It was assumed that 35 percent of the boilermaker-related work for the Phase I FGD controls would be completed during this period, along with the SCR controls.

The required boilermaker years for this case are 13,268, compared to the available boilermaker years of 15,060. This represents a contingency of 14 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

9. Case 9

This case presents the result of the Phase II boilermaker labor analysis that was prepared to determine the impact of commenter-suggested assumptions. It is based on using EIA's assumptions for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for SCR and FGD. The IPM projected the retrofits to include 27.5 GW of FGD and 26.6 GW of SCR for Phase II.[5] The required boilermaker years for this case are 16,619, compared to the available boilermaker years of 24,288. This represents a contingency of 46 percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

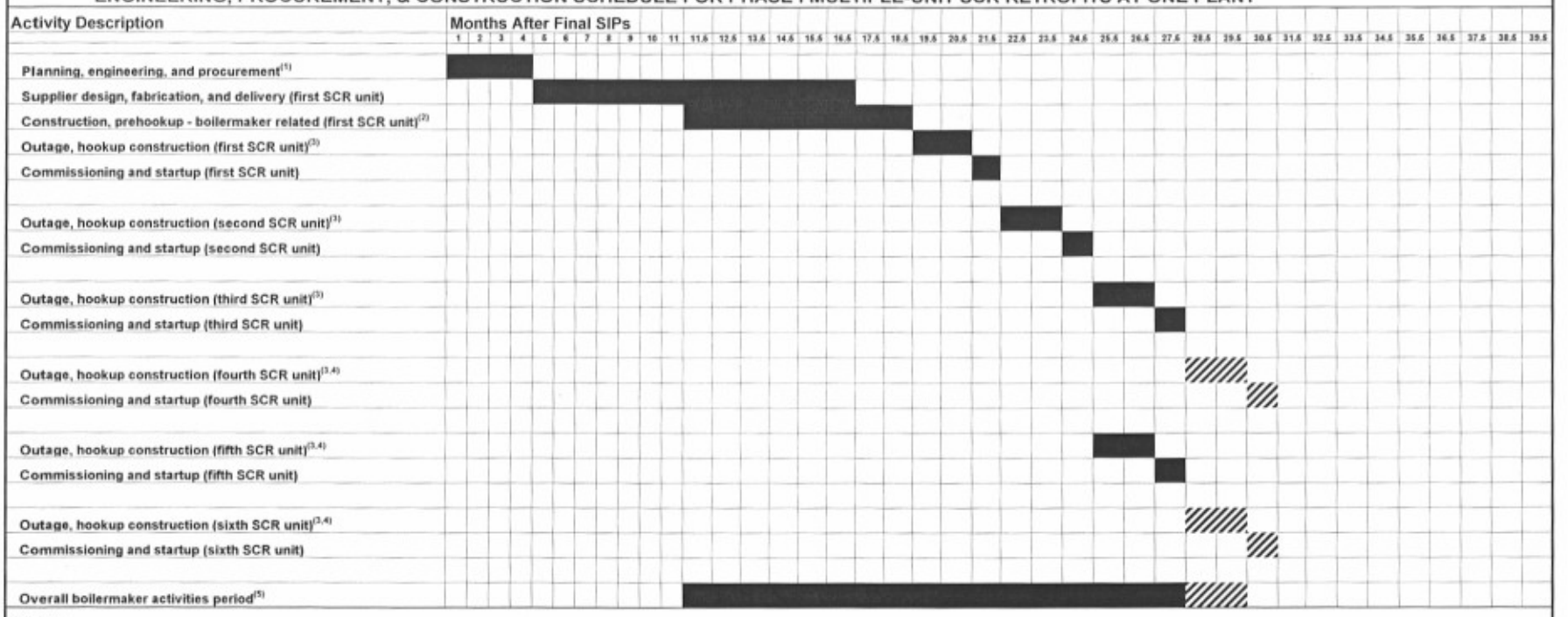
10. Case 10

This case presents the result of the Phase II boilermaker labor analysis that was prepared to determine the impact of an earlier compliance date, with no change in the Phase II NOx and SO_2 emission caps. In this case, it is assumed that the compliance deadline of January 1, 2015, will be accelerated by one year to January 1, 2014. In addition, it is based on using EIA's assumptions for natural gas prices and electricity demand rates along with UARG-suggested boilermaker duty rates for SCR and FGD. The IPM projected the retrofits to include 27.5 GW of FGD and 26.6 GW of SCR for Phase II.[5] The required boilermaker years for this case are 16,619, compared to the available boilermaker years of 16,746. This represents a contingency of one percent in the available boilermaker years. This analysis includes the union boilermakers and the boilermakers from the three additional sources discussed above (see Section 3).

5. CONCLUSIONS

This report summarizes the results of investigations and analyses performed by EPA to determine if adequate boilermaker labor would be available to support construction of the SCR and FGD retrofits required by the final CAIR. These results are summarized in the tables and appendices attached to this report. For additional details of EPA's review of the comments on the rule, please refer to the Preamble and Response to Comment Document for the final CAIR.

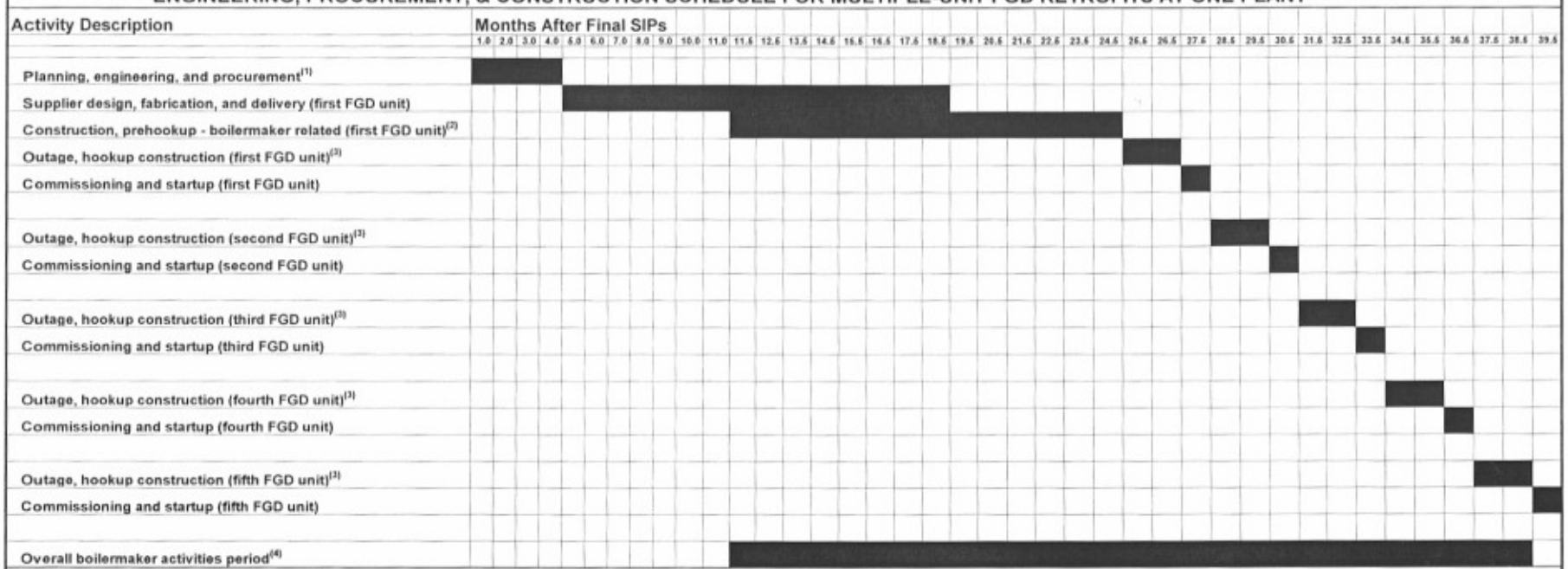
FIGURE 1
ENGINEERING, PROCUREMENT, & CONSTRUCTION SCHEDULE FOR PHASE I MULTIPLE-UNIT SCR RETROFITS AT ONE PLANT



NOTES:

1. Planning, engineering, and procurement activities will be common for all six SCR systems. While planning and engineering include such activities as conceptual system designs, technology selection, and development of technical specifications, procurement includes development of bids by suppliers, evaluation of bids, and award of contract.
2. The overall construction for the retrofit project will start earlier than the starting time shown for boilermakers. This will include other construction activities, such as foundation works.
3. Outage construction will include hookup of the SCR system to the existing equipment. Boilermakers will be extensively used during this period. It is to be noted that only the outage construction, commissioning, and startup activities are shown for SCR retrofits on the second through sixth units. Other activities for these units will be similar to those shown for the first SCR unit.
4. In order to comply with the Phase I compliance deadline of January 1, 2009, installation all six units would have to be completed within 27.5 months. This would require that the outage construction and startup activities for some of the units be completed during simultaneous outages. As shown, the plant would also have an option to perform outage construction and startup activities for some of the units after the January 1, 2009, compliance deadline, since these units would not emit NOx during such activities and, therefore, purchase of allowances would not be required.
5. The total boilermaker activity period for the SCR retrofit example shown extends to 16.5 months. This period would be greater, if outage activities for some units are performed after the compliance deadline (see Note 4 for explanation).

FIGURE 2
ENGINEERING, PROCUREMENT, & CONSTRUCTION SCHEDULE FOR MULTIPLE-UNIT FGD RETROFITS AT ONE PLANT



NOTES:

1. Planning, engineering, and procurement activities will be common for all five FGD systems, While planning and engineering include such activities as conceptual system designs, technology selection, and development of technical specifications, procurement includes development of bids by suppliers, evaluation of bids, and award of contract.
2. The overall construction for the retrofit project will start earlier than the starting time shown for boilermakers. This will include other construction activities, such as foundation works.
3. Outage construction will include hookup of the FGD system to the existing equipment. Boilermakers will be extensively used during this period. It is to be noted that only the outage construction, commissioning, and startup activities are shown for FGD retrofits on the second through fifth units. Other activities for these units will be similar to those shown for the first FGD unit.
4. The total boilermaker activity period for the FGD example shown extends to 27.5 months. However, the boilermaker analysis for all Phase I SCR and FGD retrofits for CAIR is based on an overall boilermaker activity period of 21.5 months, which conservatively assumes that the boilermaker labor will not be uniformly distributed over the available period.

TABLE 1

CALCULATIONS FOR THE AVAILABILITY OF BOILERMAKERS FOR CAIR - PHASE I & II ANALYSES

Case No.	1	2	3	4	5	6	7	8[1]	9	10
Description	**CAIR NPR Proposal**	**CAIR Phase I Policy Case (Using EPA NPR Assumptions and All Available Boilermaker Sources)**	**CAIR Phase I Policy Case (Using EIA Electricity Demand and Natural Gas Prices, EPA Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Phase I Policy Case (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Phase I Policy Case (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, 30% Higher SCR Capital Costs, and All Available Boilermaker Sources)**	**CAIR Policy Case - All Controls In Phase I (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Policy Case - Phase I NOx and SO2 Accelerated By One Year (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Policy Case - Phase I NOx Accelerated By One Year (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Phase II Policy Case (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**	**CAIR Phase II Accelerated By One Year (Using EIA Electricity Demand and Natural Gas Prices, UARG Boilermaker Duty Rates, and All Available Boilermaker Sources)**
Expected date for final CAIR Rule	6/30/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005
Expected date for SIPs to be available	12/31/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006
Compliance deadline, Phase I	1/1/2010	1/1/2010	1/1/2010	1/1/2010	1/1/2010	1/1/2010	1/1/2009	1/1/2009 (NOx)	1/1/2010	1/1/2010
Compliance deadline, Phase II	1/1/2015	1/1/2015	1/1/2015	1/1/2015	1/1/2015	NA	1/1/2015	1/1/2015	1/1/2015	1/1/2014
Availability of Union Boilermakers										
Time available for procuring and installing controls, years	3	3.25	3.25	3.25	3.25	3.25	2.25	2.25	5	4
Duration of boilermaker activities during the construction schedule, months	18	21.5	21.5	21.5	21.5	21.5	12	13	36	24
Projected membership of International Brotherhood of Boilermakers	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Projected percentage of boilermakers available for controls retrofits	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Annual hours per boilermaker, hrs	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Projected number of boilermakers available for controls retrofit	9,800	9,100	9,100	9,100	9,100	9,100	9,100	9,100	9,100	9,100
Boilermaker Requirements for Scrubbers:										
Scrubbers to be installed for CAIR, GW	48.75	37	45.4	45.4	Incl.	66.4	45.4	15.89	23.1	23.1
Scrubbers to be installed for base case, GW	2.65	2.6	3.7	3.7	Incl.	3.6	3.7	1.295	4.4	4.4
Total scrubber capacity to be installed, GW	51.4	39.6	49.1	49.1	47.9	70	49.1	17.185	27.5	27.5
Required boilermaker years/MW of scrubbers	0.152	0.152	0.152	0.269	0.269	0.269	0.269	0.269	0.271	0.271
Boilermaker years required, yrs	7,813	6,019	7,463	13,208	12,885	18,830	13,208	4,623	7,453	7,453
Boilermaker Requirements for SCRs:										
SCRs to be installed for CAIR, GW	23.9	18.2	20.6	20.6	Incl.	38.5	20.6	20.6	21.1	21.1
SCRs to be installed for base case, GW	4.3	5.7	4.6	4.6	Incl.	7.8	4.6	4.6	5.5	5.5
Total SCR capacity to be installed, GW	28.2	23.9	25.2	25.2	25.2	46.3	25.2	25.2	26.6	26.6
Required boilermaker years/MW of SCR	0.175	0.175	0.175	0.343	0.343	0.343	0.343	0.343	0.344	0.344
Boilermaker years required, yrs	4,935	4,183	4,410	8,644	8,644	15,881	8,644	8,644	9,150	9,150
Boilermaker Requirements for SNCRs:										
SNCRs to be installed for CAIR, GW	0	0	0.2	0.2	Incl.	0.2	0.2	0.2	0	0
SNCRs to be installed for base case, GW	0	0.1	0	0	Incl.	1.3	0	0	1.8	1.8
Total SNCR capacity to be installed, GW	0	0.1	0.2	0.2	0.6	1.5	0.2	0.2	1.8	1.8
Required boilermaker years/MW of SNCR	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Boilermaker years required, yrs	0	1	2	2	6	14	2	2	17	17
Total boilermaker years required, yrs	12,748	10,203	11,875	21,853	21,534	34,725	21,853	13,268	16,619	16,619
Total boilermaker years available from union sources	14,700	16,304	16,304	16,304	16,304	16,304	9,100	9,858	27,300	18,200
Add'l boilermaker years due to fewer new capacity additions (see Tables 2 and 3)		4617	4617	4617	4617	4617	2577	2792	-7674	-5116
Add'l boilermaker years due to Canadian sources (see Tables 2 and 3)		1792	1792	1792	1792	1792	1000	1083	3000	2000
Add'l boilermaker years due to non-union sources (see Tables 2 and 3)		1,020	1,188	2,185	2,153	3,472	2,185	1,327	1,662	1,662
Total boilermaker years available, yrs		23,733	23,900	24,898	24,866	26,185	14,862	15,060	24,288	16,746
Existing contingency in available boilermaker years, %		**133%**	**101%**	**14%**	**15%**	**-25%**	**-32%**	**14%**	**46%**	**1%**

NOTES

1. Only NOx and SO_2 controls built by January 1, 2009, are shown in this case.

TABLE 2

ADDITIONAL BOILERMAKER LABOR SOURCES
PHASE I IMPACT

Effect of New Generation Capacity Addition

Compliance deadline, Phase I	1/1/2010	1/1/2009[7]	1/1/2009[8]
New Coal-Fired Plants to be Added During CAIR Construction:			
Total construction period during which boilermakers are used, months	21.5	12	13
New coal-fired power plant capacity to be built in 2007-2010, GW[1]	0	0	0
New or repowered combined cycle plants to be built in 2007-2010, GW	15.5	15.5	15.5
Capacity of new coal fired power plants to be built during CAIR period, GW	0.0	0.0	0.0
No. of new coal fired power plants built, with average 500 MW size	0	0	0
Boilermaker hours required per 500 MW coal plant, hrs[2]	500,000	500,000	500,000
Capacity of combined cycle plants to be built during CAIR period, GW	9.2	5.2	5.6
No. of new combined cycle plants built, with average 250 MW size	37	21	22
Boilermaker hours required per 250 MW combined cycle plant, hrs[2]	48,000	48,000	48,000
Total boilermaker hours required between 2007-2010	1,774,467	990,400	1,072,933
Boilermaker years required between 2007-2010[3]	887	495	536
SIP Call Experience with New Combined Cycle Power Plants:			
Capacity of new combined cycle plants built during NOx SIP Call, GW/yr[2]	32	32	32
Capacity of new combined cycle plants built during equivalent CAIR period, GW	57	32	35
No. of new combined cycle plants built, with average 250 MW size	229	128	139
Boilermaker hours required per 250 MW combined cycle plant, hrs[2]	48,000	48,000	48,000
Total boilermaker hours used during SIP Call	11,008,000	6,144,000	6,656,000
Boilermaker years used during SIP Call	5,504	3,072	3,328
No. of additional boilermaker years available for CAIR	**4,617**	**2,577**	**2,792**

Effect of Canadian Labor Availability

No. of Canadian boilermakers available during 2003[4]	1,300	1,300	1,300
No. of Canadian boilermakers assumed to be available during CAIR[4]	1,000	1,000	1,000
No. of boilermaker years available for CAIR due to Canadian labor	**1,792**	**1,000**	**1,083**

Effect of Non-Union Labor Availability

% of projects assumed to be built by non-union boilermakers[5]	10	10	10
Increase in the available boilermaker years for CAIR[6]	Note 6	Note 6	Note 6

NOTES

1. New coal-fired generation capacity addition is projected to be negligible during 2007-2010, by both EPA and EIA (see "Annual Energy Outlook 2005 (Early Release), Tables A9 and 9, December 2004), http://www.eia.doe.gov/oiaf/aeo/index.html. Combined cycle capacity is based on EPA'sIPM projections (see IPM Run CAIR 2004_EIA).
2. Boilermaker estimates provided by UARG. See comments to the NPR proposal, VII.C-1784 and 1786.
3. Based on an average boilermaker annual hours of 2,000 (see report).
4. Phone conversations with International Brotherhood of Boilermakers (see report).
5. Assumption by EPA, based on the number of projects in traditionally non-union states (see report).
6. This increase will be 10% of the boilermaker years required for each case (see Table 1)
7. This case reflects acceleration of the Phase I compliance deadline by one year for both NOx and SO_2.
8. This case reflects acceleration of the Phase I compliance deadline by one year for only NOx.

TABLE 3

ADDITIONAL BOILERMAKER LABOR SOURCES
PHASE II IMPACT[1]

Effect of New Generation Capacity Addition

Compliance deadline, Phase I	1/1/2015	1/1/2014
New Coal-Fired Plants to be Added During CAIR Construction:		
Total construction period during which boilermakers are used, months	36	24
New coal-fired power plant capacity to be built in 2010-2015, GW[2]	54	54
New or repowered combined cycle plants to be built in 2010-2015, GW[2]	12.0	12.0
Capacity of new coal fired power plants to be built during CAIR period, GW	32.4	21.6
No. of new coal fired power plants built, with average 500 MW size	65	43
Boilermaker hours required per 500 MW coal plant, hrs	500,000	500,000
Capacity of combined cycle plants to be built during CAIR period, GW	7.2	4.8
No. of new combined cycle plants built, with average 250 MW size	29	19
Boilermaker hours required per 250 MW combined cycle plant, hrs	48,000	48,000
Total boilermaker hours required between 2007-2010	33,779,866	22,519,910
Boilermaker years required between 2007-2010[3]	16,890	11,260
SIP Call Experience with New Combined Cycle Power Plants:		
Capacity of new combined cycle plants built during NOx SIP Call, GW/yr	32	32
Capacity of new combined cycle plants built during equivalent CAIR period, GW	96	64
No. of new combined cycle plants built, with average 250 MW size	384	256
Boilermaker hours required per 250 MW combined cycle plant, hrs	48,000	48,000
Total boilermaker hours used during SIP Call	18,432,000	12,288,000
Boilermaker years used during SIP Call	9,216	6,144
No. of additional boilermaker years available for CAIR	**-7,674**	**-5,116**

Effect of Canadian Labor Availability

No. of Canadian boilermakers available during 2003	1300	1300
No. of Canadian boilermakers assumed to be available during CAIR	1000	1000
No. of boilermaker years available for CAIR due to Canadian labor	**3000**	**2000**

Effect of Non-Union Labor Availability

% of projects assumed to be built by non-union boilermakers	10	10
Increase in the available boilermaker years for CAIR	see Note 3	see Note 3

NOTES
1. See Table 2 for general notes.
2. The new coal- and gas-fired capacity addition is based on EPA's IPM projections (see IPM Run CAIR 2004_EIA).
3. This increase will be 10% of the boilermaker years required for each applicable case (see Table 1)

APPENDIX A

SUMMARY OF DISCUSSIONS

WITH

IBB, BLS, AND NACBE

Results of Follow-up Boilermaker Issues

The purpose of this paper is to clarify certain issues surrounding the availability of Construction Boilermakers to support the projected construction activities associated with the IPM's CAIR model run results. This paper will address the following:

- Projected Boilermaker Population Numbers
- Apprentice Training & Boilermaker Cross-Training
- Boilermaker Work Restrictions
- Available Boilermaker Work Hours per Year
- Available Avenues to Increase Boilermaker Workforce in a Time of Shortage

All correspondences used to support the following information within this paper are attached.

Projected Boilermaker Numbers

The International Brotherhood of Boilermakers does not conduct forecasts concerning future membership numbers. However, the union's recruitment policy mandates that local lodges continuously recruit new members to maintain an apprentice to journeymen ratio of 1 to 5 in their regions. The purpose of the ratio is to at least maintain the current number of active journeymen by offsetting attrition due to the retirement of older Boilermakers, but foremost intended as a built in escalator to ensure continual growth in the active member population.

Within the last year, the Brotherhood has formed Tripartite Subcommittees on Manpower, consisting of industry owners, signature contractors, and international and local union representatives, in order to track and project short-term Boilermaker manpower needs. The Tripartite Subcommittee Reports are weekly manpower demand projections for the next six months. Due to the short-term scope of the reports and the hesitancy of the industry to announce construction projects, the Brotherhood maintains its population growth through the 1 to 5, apprentice to journeyman, ratio.

Table 1 Boilermaker Census Data[1]

International Brotherhood of Boilermakers Census Data for Active Journeymen & Apprentices			
Year	Total	U.S.	Canada
1998	22342	17717	4625
1999	24788	19031	5757
2000	26769	20536	6233
2001	32095	25730	6365
2002	33054	26696	6358
2003	32500	26000	6500

The U.S. Department of Labor's, Bureau of Labor Statistics, calculated the active journeymen and apprentice Boilermaker population to be 24586 in 2002[2], which is nearly 2100 fewer active Boilermakers than was officially enrolled in the Brotherhood in 2002. The US DOL forecasts the Boilermaker population to be 24994 by 2012[3], however the active Brotherhood Boilermaker population in 2003 exceeds these projections nearly nine years ahead of schedule by 2100 members. The Boilermaker occupation was given the "little to no growth" rating by the US DOL due to results obtained from a 2002 workgroup data

[1] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 11/10/2003.
[2] U.S. Department of Labor Bureau of Statistics Website. http://bls/oco/ocos221.htm. 07/20/2004.
[3] Ibid.

collection, which revealed an aging Boilermaker work force. The workgroup age analysis determined the largest boilermaker age group to be the 45-54 year olds, with almost 42% of the Boilermaker work force being over the age of 44 in 2002.[4] Given the typical early retirement age of most Boilermakers, many openings will be created in order to replace the retiring workers. In addition to the aging work force, there is little or no growth currently projected due to the issues associated clean air and water regulations as well as some other changes within the industry such as the move towards more prefabricated and smaller boilers.[5] Despite the US DOL forecasts, the Brotherhood maintains a journeyman to apprentice ratio of 5 to 1 in order to sustain and increase the active Boilermaker population. With all local Boilermaker lodges experiencing an abundance of apprenticeship applicants, the Brotherhood should be able to maintain its active member population regardless of an aging workforce.

Apprentice Training & Boilermaker Cross-Training

Despite the US DOL's Boilermaker profession analysis stating that "some areas currently are experiencing a shortage of applicants for the apprentice programs[6]", the Boilermaker Brotherhood's Apprenticeship Program Coordinator assures that all local lodges have a waiting list full of qualified applicants for the apprenticeship programs.[7] The Brotherhood also affirms the problem isn't with recruiting members, but rather keeping the Boilermakers working upon completion of the apprenticeship program.

The apprenticeship program is anticipated to take 4 years or 6000 hours for individuals with not previous work-related experience. Those individuals entering the program with prior work-related experience will be required to complete fewer training hours, ultimately graduating the apprenticeship program ahead of schedule.

Union members within different divisions of the Brotherhood with similar training requirements and relevant trade skills can be expedited more quickly through the training program. For example, members of the Shipbuilding division, typically comprised of 30,000 members, could be expedited into the Construction division within a year if needed, due to the closely related trade skills required for employment in both divisions. Given the relative ease of like-trade cross training, any deficiencies in Boilermaker numbers could be easily hedged off by pooling divisional resources and utilizing available Canadian Boilermakers.

Boilermaker Work Restrictions

Unlike other trade professions, Boilermakers are not state licensed and therefore can work in any state irregardless of which local lodge they hold membership in. In times of manpower shortages, the Brotherhood has expediting procedures to bring Canadian workers into the country to meet the demand of construction activities. This "Premium Processing" was initiated in the summer of 2002, as a result of manpower shortages, and has cut the average process time for approving the use of Canadian worker into the US from 3 months to 30-40 days.[8]

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[4] Lawhorne, William. Analyst in Office of Occupational Statistics and Employment Projections, Bureau of Labor Statistics. Email on 07/20/04.

[5] Ibid.

[6] [6] U.S. Department of Labor Bureau of Statistics Website. http://bls/oco/ocos221.htm. 07/20/2004

[7] Smith, Pat. Coordinator, Boilermaker National Apprenticeship Program. Email on 07/20/04.

[8] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 08/10/2004.

Available Boilermaker Work Hours per Year

Table 2 Average Boilermaker Hours Worked per Year for 2000 to 2003[9]

	Hours Worked / Yr. (US Only)
2000	1456.9
2001	1395.8
2002	1394.1
2003	1153.1

The National Association of Construction Boiler Employers', NACBE, Executive Director confirmed that historically, active Boilermakers have been working 1400 hours per year due to the inherently intermittent work schedule of Boilermakers, specifically during the summer and winter months. The electric utility industry provides over 60 percent of the Boilermaker employment opportunities. The majority of the work in the utility industry generally can only be performed with units are taken off-line, narrowing the window of work opportunity for the Boilermakers[10]. Based on historical data, the utility industry appears to be unable to support full-time, year-round employment of the Boilermaker craft.

Table 3 Breakdown of Boilermaker Work Hours Per Industry for 2001 to 2003[11]

	2001		2002		2003	
Industry	Hours	%	Hours	%	Hours	%
Utility	26290640	73.71%	29468043	79.18%	21022101	76.09%
Refinery	2574264	7.22%	2879989	7.74%	2767786	10.02%
Chemical	1294106	3.63%	879254	2.36%	772232	2.80%
Paper	1748957	4.90%	1536667	4.13%	962983	3.49%
Metals	913695	2.56%	607990	1.63%	602332	2.18%
Other	2844681	7.98%	1844553	4.96%	1499489	5.43%
TOTAL All Industries	**35666343**	**100.00%**	**37216496**	**100.00%**	**27626923**	**100.00%**

A quick analysis of Boilermaker data posted on NACBE's website revealed that the average boilermaker worked 1372 hours in 2003, which accounted for only working 65 percent of the year at a full-time status. The baseline assumed in all of NACBE's data analysis is a 2080-hour work year, which is a result of a 40-hour week, 52 weeks per year. Due to the cyclical nature of Construction Boilermaker's work, the industry has yet been able to sustain all active members on a full-time schedule. Both the Executive Director of NACBE and the Brotherhood's Apprenticeship Program Coordinator welcome the idea of a 2000+ hour/year schedule and feel the Construction Boilermakers could support that level of activity[12]. However, the average Construction Boilermaker has been unable to achieve a schedule of 2000+ hours per year due to the lack of construction activity in the electric industry, not due to the unavailability of Boilermakers.[13]

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[9] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 11/10/03.

[10] Erickson, John. Executive Director, National Association of Construction Boilermaker Employers. Email on 07/19/04.

[11] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 11/10/03.

[12] Branscum, D. and Erickson, J. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers and Executive Director, National Association of Construction Boilermaker Employers. Email on 07/19/04 and Email on 07/20/04.

[13] Ibid.

Table 4 Comparison of NEEDS 2000[14] and 2003[15] SCR and Scrubber Units

NOx SIP CALL STATES	TOTAL CHANGE in # of UNITS	NEEDS 2000 Data		NEEDS 2003 Data		BREAKDOWN of TOTAL CHANGE in NUMBER of UNITS	
		SCR	Scrubber	SCR	Scrubber	SCR	Scrubber
AL	12		4	12	4	12	0
CT	5			4	1	4	1
DC	0					0	0
DE	3			3		3	0
IL	10		4	6	8	6	4
IN	17		18	17	18	17	0
KY	21		24	16	29	16	5
MA	11			9	2	9	2
MD	1	3	1	4		1	-1
MI	9		4	9	4	9	0
NC	9		2	9	2	9	0
NJ	16		1	13	4	13	3
NY	23	1	3	22	5	21	2
OH	16		8	15	9	15	1
PA	13	5	21	14	25	9	4
RI	8			8		8	0
SC	12		6	12	6	12	0
TN	17		2	17	2	17	0
VA	7	5	4	8	8	3	4
WV	8	3	12	11	12	8	0
TOTALS	217	17	114	209	139	192	25

Closer analysis of SCR and scrubber construction activity within the NO_x SIP Call States and the average hours worked per year of Construction Boilermakers within those states, revealed that many Boilermakers were average greater than 2000 work hours per year in 2002. This is primarily due to the long-term environmental construction activities within their states to support new clean air regulations. Data gathered and compared from the NEEDS 2000 and 2003 databases provided relative levels of construction activities for each NO_x SIP Call States, see Table 4.

In many cases, Construction Boilermakers within the NO_x SIP Call States were able to maintain schedules greater than 2000 work hours per year from 1999 to 2002. Table 5 illustrates that a majority of the Construction Boilermaker populations within the NO_x SIP Call States were consistently able to achieve a full-time schedule due to the level of construction activities. Conversely, Table 5 reveals that even though a substantial amount of Construction Boilermakers were working 2000+ hours per year, there was still a portion of the Boilermaker population that was not, suggesting that even though the demand for Construction Boilermakers was relatively high from 1999 to 2002, the Boilermaker population could have been able to support higher levels of construction activity.

[14] Analysis of Environmental Protection Agency Website Data. http://www.epa.gov/airmarkets/epa-ipm/needs_2000.xls. Accessed 08/02/04.

[15] Analysis of Environmental Protection Agency Website Data. http://www.epa.gov/airmarkets/epa-ipm/needs_2003.xls. Accessed 08/02/04.

Table 5 Analysis of Boilermaker Work Hours per Year in NO_x SIP Call States[16]

NOx SIP Call States	Total Amount of SCRs & Scrubbers installed between 1999-2003 from NEEDS 2000 & 2003 Data	1999 - 2002 Average Hours Worked per Person	2003 Active Members	Location	Local Lodge No.	% of Hours Worked per Annual Full-Time Schedule (2080hr/yr)				Average Hours Worked Per Year			
						1999	2000	2001	2002	1999	2000	2001	2002
						%	%	%	%	hrs	hrs	hrs	hrs
AL		2350.4	307	Birmingham	108	161	85	70	136	3348.8	1768	1456	2828.8
AL	12	1040	599	MuscleShoals	455	55	43	45	57	1144	894.4	936	1185.6
AL		1071.2	276	Mobile	112	69	63	44	30	1435.2	1310.4	915.2	624
CT	5	2776.8	116	Hartford	237	103	159	183	89	2142.4	3307.2	3806.4	1851.2
IL		2454.4	234	Peoria	60	120	125	78	149	2496	2600	1622.4	3099.2
IL	10	3021.2	369	Belleville	363	139	148	120	174	2891.2	3078.4	2496	3619.2
IL		2906.8	382	Chicago	1	128	116	168	147	2662.4	2412.8	3494.4	3057.6
IN	17	1913.6	875	Hammond	374	80	68	102	118	1664	1414.4	2121.6	2454.4
KY	21	1835.6	661	Elizabethtown	40	69	77	81	126	1435.2	1601.6	1684.8	2620.8
MA	11	3338.4	406	Boston	29	94	113	221	214	1955.2	2350.4	4596.8	4451.2
MD	1	1965.6	288	Baltimore	193	145	92	75	66	3016	1913.6	1560	1372.8
MI	9	2152.8	608	Detroit	169	86	151	99	78	1788.8	3140.8	2059.2	1622.4
NC	9	1638	302	Greensboro	30	88	75	90	62	1830.4	1560	1872	1289.6
NJ	16	1762.8	682	Bayonne	26	84	69	84	102	1747.2	1435.2	1747.2	2121.6
NY		2423.2	157	New York	5	52	109	153	152	1081.6	2267.2	3182.4	3161.6
NY	23	993.2	180	Albany	197	30	45	41	75	624	936	852.8	1560
NY		1378	158	Buffalo	7	91	61	52	61	1892.8	1268.8	1081.6	1268.8
NY		858	175	Oswego	175	53	35	42	35	1102.4	728	873.6	728
OH		3437.2	349	Toledo	85	188	145	128	200	3910.4	3016	2662.4	4160
OH	16	2210	265	Cleveland	744	125	124	131	45	2600	2579.2	2724.8	936
OH		1804.4	685	Piketon	105	66	54	102	125	1372.8	1123.2	2121.6	2600
PA	13	1882.4	818	Philadelphia	13	85	98	87	92	1768	2038.4	1809.6	1913.6
PA		1804.4	1520	Pittsburgh	154	64	86	75	122	1331.2	1788.8	1560	2537.6
SC	12	1237.6	219	Charleston	687	69	54	66	49	1435.2	1123.2	1372.8	1019.2
TN		1586	306	Knoxville	453	68	60	68	109	1414.4	1248	1414.4	2267.2
TN	17	2334.8	522	Chattanooga	454	81	70	134	164	1684.8	1456	2787.2	3411.2
TN		1383.2	189	Memphis	263	90	42	73	61	1872	873.6	1518.4	1268.8
VA	7	1970.8	244	Richmond	45	90	80	142	67	1872	1664	2953.6	1393.6
WV	8	1695.2	728	Charleston	667	68	79	90	89	1414.4	1643.2	1872	1851.2

Available Avenues to Increase Boilermaker Population in Times of Shortage

The Brotherhood has multiple ways of dealing with US Boilermaker shortages, both projected and realized. The most easily expedited option to deal with realized US shortages is the use of Canadian Boilermakers to support US projects, which typically take 30-40 days. In 2003, the US utilized 1325 Canadian Boilermakers to support US projects. Through June 30 of 2004, the US had utilized 555 Canadian Boilermakers to support US construction projects.[17]

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[16] Analysis of National Association of Construction Boilermaker Empoyers Website Data. http://www.nacbe.com/manhour.html. Accessed on 07/20/04.

[17] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 08/10/2004.

The Brotherhood in an effort to hedge off projected shortages has the ability to issue mandates to the construction lodges, specifying the amount of new journeyman members each lodge must achieve by a certain date. In 2000 the union issued such a mandate that effectively increased the Boilermaker population by approximately 5200 members in one year's time. The mandate required each construction lodge to increase journeyman membership through the recruitment of qualified Construction Boilermakers and increasing the apprenticeship program recruitment activities. Of the 5200 new members generated by the 2002 mandate, roughly only 300 were previously retired construction Boilermakers returning to work. The majority of the new members were generated from non-union workers and new apprenticeship member.[18]

The Brotherhood can also effectively increase the Boilermaker population by drawing on and cross training members of other divisions within the Brotherhood. Those members in different divisions can be expedited through the training process based on previous training and work experience. For example, a member of the Shipbuilding division could be cross-trained within a year to an active journeyman status.

Prepared by Erin Hoyt
Clean Air Markets Division
Phone (202) 343-9633

[18] Branscum, Dale. Assistant to the International President, Director of Construction Division, International Brotherhood of Boilermakers. Email on 08/12/04.

ATTACHMENTS

Skipper Branscum
<sbranscum@boilermakers.org>

07/19/2004 11:50 AM

To: Erin Hoyt/DC/USEPA/US@EPA
cc:
Subject: Re: Follow-up to phone conversation with Erin Hoyt, I

Erin

Your notes of our conversation look fine to me. The only thing I might add is that our construction Boilermakers are hoping that the clean air work will materialize to help ensure more steady employment over the next 5-6 years.

Dale Branscum
Skipper

Sent from my BlackBerry Wireless Handheld

----Original Message-----
From: Hoyt.Erin@epamail.epa.gov <Hoyt.Erin@epamail.epa.gov>
To: Skipper Branscum <sbranscum@boilermakers.org>
Sent: Mon Jul 19 10:32:32 2004
Subject: Follow-up to phone conversation with Erin Hoyt, EPA

Mr. Branscum,

Once again thank you for taking the time to answer my questions last
week. Please find attached a write-up summarizing our conversation If
you would like to add or change anything please let me know via email or
telephone, otherwise I'll assume no news is good news.

(See attached file: dbranscumconversation.doc)

Thanks,
Erin Hoyt
Clean Air Markets Division
EPA - Washington D.C.
202 343-9633

ATTACHMENT:

Boilermaker Follow-up Information

The following information is a result of a telephone conversation with Dale Branscum the Assistant to the International President Director Construction Division within the International Brotherhood of Boilermakers on July, 15, 2004.

Q: How many boilermakers are projected to be in the Construction Division of the Boilermakers Union from 2006 to 2010? Will the Union have plans to bring in more members, in light of the expected increase in construction projects resulting from EPA's proposed CAIR rule?

A: The Brotherhood does not conduct forecasts concerning future membership numbers. However, local lodges recruit to continuously maintain an apprentice to journeymen ratio of 1 to 5 in their respective regions. The purpose of the ratio is to at least maintain the current number of active journeymen, but foremost intended as a built in escalator, in order to ensure a slow, continual growth in the active member population.

Provided the following Census Data for 2003:

Total Active Boilermakers and Apprentices		32500
Breakdown	Canada Members	6500
	US Members	26000

Q: How quickly can new members be added? Is the training requirement 4 years? Can members from other divisions of Boilermakers be added more easily (how long is their training requirement)?

A: The apprentice program is anticipated to take four years/6000 hrs to complete, for an individual with no applicable work experience. Apprentice training time can be shortened based on previous work experience and is dealt with on a case-by-case situation. Other divisions of the Brotherhood with similar training requirements and relevant trade skills can be expedited more quickly into the construction division, such as Shipbuilders, with an expected training time or less than one year.

Q: In the late 1990's and the early 2000's, there were several gas-fired combined cycle projects being constructed. Since the building of such projects has slowed down and is not expected to pick up in the near future, can we assume that more boilermakers will be available to work on the environmental-related control projects?

A: The boilermaker construction division appears to be in a "repair" mode right now, but very hopeful that clean air regulation will materialize to help ensure more steady employment in the next 5 to 6 years. With that in mind, the Brotherhood is expecting around 2010 to be in a "construction/building boom" phase.

Q: How easily can boilermakers from Canada be brought in for US projects? How many of these boilermakers are expected to be available in the 2006 to 2010 time frame?

A: When the manpower to support projects within the US is short, the Brotherhood has expediting procedures to bring Canadian workers into the US. Once again, no forecasts associated with boilermaker member numbers for either Canada or US.

Q: Are there any restrictions on boilermakers registered in a state, or can anybody work in a state?

A: Unlike other trade professions, there are no state licensing requirements for boilermakers and therefore can work in any state.

John Erickson
<jerickson@commonarc.com>

07/20/2004 01:23 PM

To: Erin Hoyt/DC/USEPA/US@EPA
cc:
Subject: Boilermaker Follow-up Information

Erin,

I have made a few changes that should help in the overall understanding. It was a pleasure speaking with you and if I can add
anything further please let me know.

jericksonconversation_.doc ----- Forwarded by Erin Hoyt/DC/USEPA

ATTACHMENT:

Boilermaker Follow-up Information

The following information is a result of a telephone conversation with John Erickson the Executive Director of NACBE (National Association of Construction Boilermaker Employers) on July 19, 2005. Phone number 630.232.1973

Q: NACBE's website posts a spreadsheet detailing the percentage of how much of a full period of employment each member achieved in the workers Local Union. What is considered a "full period of employment", i.e. the baseline for the analysis?

A: The baseline is assumed to be 2080-work hrs/yr.; a result of a forty-hour week, 52 weeks a year. However, this is a huge assumption considering a boilermaker's work is based around spring and fall utility outage schedules and is usually worked on an overtime basis. Historically, active members are working 1400 hrs/yr due to lack of leveled work throughout the year, specifically during summer and winter months. Construction Boilermakers would welcome the opportunity to work more hours, such as 2000+ hours/yr., however the electric utility industry provides over 60 percent of the Boilermaker employment opportunities and the work in those facilities can generally only be performed when units can be taken off-line. The industry is not able to currently support full year-round employment of the Boilermaker craft.

Historically, Boilermaker employment is spread throughout the year as follows:

	AVG % of Years Work / Quarter
First Quarter	20%
Second Quarter	30%
Third Quarter	20%
Forth Quarter	30%

"Lawhorn, William - BLS" <Lawhorn.William@bls.gov>

07/20/2004 02:08 PM

To: Erin Hoyt/DC/USEPA/US@EPA
cc:
Subject: FW: Follow-up to conversation with Erin Hoyt, EPA

Erin,
I made a few changes to the documentation.

If you have additional questions let me know,

Bill Lawhorn
Bureau of Labor Statistics
Office of Occupational Statistics and Employment Projections
2 Massachusetts Ave., NE, Room 2135
Washington, DC 20212
Phone: (202) 691-5093
Fax: (202) 691-5700
Email: Lawhorn.william@bls.gov

-----Original Message-----
From: Hoyt.Erin@epamail.epa.gov
[mailto:Hoyt.Erin@epamail.epa.gov]
Sent: Tuesday, July 20, 2004 1:50 PM
To: Lawhorn, William - BLS
Subject: Follow-up to conversation with Erin Hoyt, EPA

Mr. Lawhorn,

Please find attached a summary of our conversation concerning Boilermakers. If you would like to add or delete anything please let me know via email, so it will be documented.

(See attached file: blawhornconversation.doc)

Thank you for your time,
Erin Hoyt
Clean Air Markets Division
EPA - Washington DC
202 343-9633

blawhornconversation.doc ----- Forwarded by Erin Hoyt/DC/USEPA/US on 08/23/2004 01:05 PM -----

ATTACHMENT:

Boilermaker Follow-up Information

The following information is a result of a telephone conversation with Bill Lawhorn, an Analyst with the Bureau of Labor Statistics' Office of Occupational Statistics and Employment Projections, on July 20, 2004. Phone number 202.691.5093.

Q: The DOL's Bureau of Labor Employment Matrix estimates Boilermaker employment to be 24,586 in 2002. However, the International Brotherhood of Boilermakers estimated 2002 employment numbers to be roughly higher by 2,100 employees. Can you give any insight into the discrepancy given the Brotherhood is listed as a reference?

A: First of all, the data is statistical data and is open to error or discrepancies such as this. A discrepancy could possibly be in the classification of Boilermaker, meaning that the Brotherhood could be including factory or other workers in their numbers, which we are not.

Q: Does the number reflect both journeymen and apprentice?

A: Yes the number accounts for all those employed under the Boilermaker classification, whether they are journeymen or apprentices.

Q: The DOL's website states "some areas currently are experiencing a shortage of applicants for apprenticeship programs", are these regional shortage you are referring to or is the field in general experiencing a shortage?

A: The belief behind that comment isn't so much that entire regions are experiencing shortages, but rather some local lodges are experiencing applicant shortages. However, the larger problem appears to be getting qualified applicants for the Boilermaker positions.

Q: DOL's Labor Employment Matrix projects "little or no growth in employment" for Boilermakers through the year 2012, meaning by definition between 2002 and 2012 a relative growth of 0-2%. Can you elaborate as to why?

A: The projection takes into account the aging Boilermaker work force. The largest age group, based on 2002 CPS data, was the 45-54 year olds; with almost 42% of the Boilermaker work force being over the age of 44 in 2002. Given the typical early retirement age of most Boilermakers, many openings will be created in order to replace the retiring workers. However, there is little or no growth currently projected due to the issues associated clean air and water regulations as well as some other changes within the industry such as the move towards more prefabricated and smaller boilers.

Skipper Branscum
<sbranscum@boilermakers.org>

08/10/2004 11:55 AM

To: Erin Hoyt/DC/USEPA/US@EPA
cc:
Subject: RE: Follow-up to phone conversation with Erin Hoyt,

Erin J. Hoyt
Clean Air Markets Division
US EPA Washington, DC

Dear Erin:

Sorry for the delay in responding to your earlier request about Canadian Boilermakers working in the U.S. I have been traveling quite a lot over the past few weeks and am just now getting back into the office. Things certainly pile up when I'm gone. I was only able to get complete data on Canadian Boilermakers working in the U.S. for the year 2003. During 2003 our signatory contractors utilized 1325 Canadian Boilermakers on U.S. projects. This year through June 30, 2004, 555 Canadian Boilermakers have been used on U.S. projects. This information was supplied to me by our Labor-Management group titled M.O.S.T. (Mobilization, Optimization, Stabilization, and Training) M.O.S.T. handles and expedites the H-2B Visa process in conjunction with our signatory contractors when a need for Canadian Boilermakers is identified. This "Premium Processing" was initiated in the summer of 2002 and has allowed for expedited approval of Canadian Boilermakers into the U.S. during manpower shortages, typically during the spring and fall outage seasons. I have requested data for prior years, but I have not received anything other than the 2003 and 2004 data. According to M.O.S.T., processing time has been reduced to between 30-40 days from start to finish. This is a vast improvement over the 3 month processing period required prior to this expedited process.

Regarding the increase in active journeyman from 2000 to 20001, during this time, our union mandated each of our construction lodges to increase journeyman membership through recruitment of qualified construction boilermakers to meet the demands of our industry. Also at this same time, our apprenticeship program enrollment was increased to train additional boilermakers to meet future demands and to replace retiring boilermakers. Most of the recruitment activity took place during the year 2000. Additionally, we added to our list of locals two locals that had been set up as holding locals to provide membership to individuals recruited into our union who were not members of one of our regular construction lodges. You

will notice that Local 55 and Local 906 appear for the first time on the 2001 report. Together, these two locals account for over 1000 journeyman boilermakers. The combination of these two locals and the additional boilermakers recruited into our regular construction lodges accounts for the rapid increase shown between 2000 and 2001.

I do not have the industry specific information you have requested for the years 1999 and 2000. I attempted to obtain that information when I supplied it to Meg Victor earlier. I do however have the 2003 U.S. industry breakdown. They are as follows:

Utility - 21,022,101 man-hours
Refinery - 2,767,786 man-hours
Chemical - 772,232 man-hours
Paper - 962,983 man-hours
Metals - 602,332 man-hours
Other - 1,499,489 man-hours

As you can see, the overwhelming majority of our work is in the utility sector which is the sector you are concerned with. Unfortunately, we do not track data specific to long term environmental projects; we only group man-hours into sectors as noted above.

The ability to meet the manpower needs of our industry is ever present on the minds of our leadership. Regular reports are provide that indicate compliance with the Union's policy on apprenticeship enrollment. Our union's policy is to maintain a 1-5 ratio of apprentices to journeyman boilermakers. This policy has the effect of gradually increasing the number of journeyman over time. For example, based on a 1-5 ratio, a local with 100 journeyman should graduate 20 apprentices raising the number of journeyman to 120. Applying the 1-5 ration will now require 4 additional apprentices, which will one day again increase the journeyman numbers. This is thought to be a means to gradually add growth to our locals and to offset attrition due to retirement of our older Boilermakers.

I trust this additional information is helpful to you and demonstrates the Boilermakers ability to meet the manpower demands of the utility industry. We are eagerly awaiting the upcoming clean air work which will provide stable employment to our members and signatory contractors.

Please let me know if I may be of any further assistance.

Sincerely,

Skipper
Dale Branscum, II
Assistant to the International President

Director Construction Division
International Brotherhood of Boilermakers
753 State Ave. Suite 570
Kansas City, Kansas 66101
Phone: (913) 371-2640
Fax: (913) 281-8105
Email: dbranscum@boilermakers.org

-----Original Message-----
From: Hoyt.Erin@epamail.epa.gov
[mailto:Hoyt.Erin@epamail.epa.gov]
Sent: Tuesday, August 10, 2004 8:07 AM
To: Skipper Branscum
Subject: Re: Follow-up to phone conversation with Erin Hoyt, EPA

Skipper,

Thanks again for gathering all the information I've been requesting. In addition to any Canadian data you may have, is there any information concerning the breakdown of total US Manhour by Industry for the years 1999, 2000, and 2003 (I have 2001 and 2002 data from when you supplied the information to Meg Victor). In particular, do you track any hours specific to long term environmental projects within the utility industry?

If the Canadian data is unavailable, could you estimate how many Canadian workers could be available for work in the US during a time of shortage? 1000 Construction Boilermakers? 2000?

Also, the Lodge's Active and Journeymen Total Numbers increased by nearly 5000 employees from 2000 to 2001, can you give any insight as to how/why this happened? Again, I'm just trying to prove that when demand for the boilermakers increase, the current boilermaker population could either increase to meet the demand, or work more hours per year to support the level of demand.

Hopefully, my group will be finalizing our analysis of this issue by the end of this week (and my continuous requests will stop!), I'll keep you posted to when it makes it into the Federal Register. Once again, thank you for all your help.

Cheers,

Erin J. Hoyt
Clean Air Markets Division
US EPA Washington, DC
(202) 343-9633

Skipper Branscum
<sbranscum@boilermakers.org>

08/12/2004 11:30 AM

To: Erin Hoyt/DC/USEPA/US@EPA
Cc:
Subject: RE: Follow-up to phone conversation with Erin Hoyt,

Erin:

It was nice visiting with you again.

The majority of the 5000 boilermaker increase from 2000-2001 came from recruitment of non-union workers and new apprentices. There were a few retired boilermakers who returned to work during that period, but the number was very small. According to our Pension Fund office, less than 300 retirees returned to active employment during the calendar year 2001. However, with retirees available to return to work during manpower shortages, that does provide us with a small reserve when needed.

Thanks for the information you provided regarding the reports and contact information for the Bureau of Labor Statistics.

I look forward to seeing the EPA's final report regarding this matter. Please forward this final report to me when available.

Sincerely,

Skipper
Dale Branscum, II
Assistant to the International President
Director Construction Division
International Brotherhood of Boilermakers
753 State Ave. Suite 570
Kansas City, Kansas 66101
Phone: (913) 371-2640
Fax: (913) 281-8105
Email: dbranscum@boilermakers.org

-----Original Message-----
From: Hoyt.Erin@epamail.epa.gov
[mailto:Hoyt.Erin@epamail.epa.gov]
Sent: Thursday, August 12, 2004 8:09 AM
To: Skipper Branscum
Subject: Re: Follow-up to phone conversation with Erin Hoyt, EPA

Skipper,

Hopefully this will be the last question. Some issues were raised as to whether the 5000 employee increase from 2000-2001 was due to new journeymen/apprentice or retired boilermakers coming back to work. Do you know if this is true or have any statistics about this?

The nice gentleman who I spoke with at the Bureau of Labor name is Bill Lawhorn. You can reach him at 202 691-5093 or Lawhorn.william@bls.gov

The email address concerning boilermaker statistics/future projections and the DOL is www.bls.gov/oco/ocos221.htm

Thanks again,
Erin Hoyt

Skipper Branscum
<sbranscum@boilermakers.org>

08/18/2004 11:52 AM

To: Erin Hoyt/DC/USEPA/US@EPA
cc:
Subject: RE: Follow-up to phone conversation with Erin Hoyt,

Erin:

The committee I spoke of is called the Tripartite Subcommittee on Manpower, (tripartite meaning three parties) - consisting of representatives of the owner community, our signatory contractors and the union (both local and international). Hope this is helpful.

Skipper
Dale Branscum, II
Assistant to the International President
Director Construction Division
International Brotherhood of Boilermakers
753 State Ave. Suite 570
Kansas City, Kansas 66101
Phone: (913) 371-2640
Fax: (913) 281-8105
Email: dbranscum@boilermakers.org

-----Original Message-----
From: Hoyt.Erin@epamail.epa.gov
[mailto:Hoyt.Erin@epamail.epa.gov]
Sent: Tuesday, August 17, 2004 4:25 PM
To: Skipper Branscum
Subject: RE: Follow-up to phone conversation with Erin Hoyt, EPA

Skipper,

Looks like the report will be in the docket within a couple weeks! Just one more polishing detail.

The Committees you spoke about during our last phone conversation were call "Tripartide" Committees? They consisted of owners, consultants,
and local lodge representatives and were used to track the short term manpower needs, six months in advance, on a weekly schedule basis.
Please let me know if this is correct.

Thanks again,
Erin Hoyt
US EPA - Washington DC
Clean Air Markets Division
202 343-9633

APPENDIX B

NON-UNION LABOR INFORMATION

Chad Whiteman
<cwhiteman@icac.com
>

To: Sikander Khan/DC/USEPA/US@EPA
cc:
Subject: Non Union Labor Information

09/15/2004 06:54 PM

Sikandar,

I wanted to provide some additional information to you concerning the use of non union labor for the retrofit of control technologies. Some of our member companies rely heavily on non union (or merit shop) labor. At one company, almost 100 million hours of merit shop labor was utilized between 2000 - 2002, mostly on industrial and heavy construction projects, including ESPs, SCRs and baghouses. These workers have the same skill sets as 'boilermakers' but are not always affiliated with a union.

The practice of hiring union or non union labor varies by vendor company, owner preference and by geographical region. Some vendors rely heavily on merit shop workers, which means that they hire craft workers and subcontractors regardless of their labor union affiliation. It is estimated that 30-40% of the contemplated retrofit work (mainly SCRs & FGDs) is in areas of the country where it can be accomplished on a merit shop basis.

The type of labor used is also influenced by the purchaser of the equipment. Merit shop contractors can perform pollution control retrofit (& new) installation work in most areas of the country. There are areas where union boilermakers have traditionally performed air pollution control retrofit work, but with the support of the owner, merit shop contractors could perform the work. Additionally, for the states that have deregulated power markets, owners are more sensitive to capital cost issues than in the past so they will look for ways to further minimize costs. One of the ways they may choose to minimize costs is through the employment of non union laborers. In general, vendors encourage the maximum utilization of qualified local labor as this promotes local employment and lowers project costs since it does not require per diem payments.

Another way to get more work done using union labor is through proper structuring of a Project Labor Agreement (PLA). A PLA is usually put into place on a project which is to be built by union crafts. Among other things it usually establishes craft jurisdiction (what craft does what work), what union organizations are being dealt with, and labor rates. By allowing for some flexibility in jurisdiction and giving the contractor rights to bring in crafts if they are not available locally, the boilermaker pool can effectively be expanded.

This is further information supporting ICAC's comments on the CAIR rule that the implementation will not be adversely affected by skilled labor. Please give me a call if you have any questions.

Thank you,

Chad S. Whiteman
Institute of Clean Air Companies
(202) 457-0911 ext. 109
(202) 331-1388 (fax)
cwhiteman@icac.com
www.icac.com