

Final Draft Report

## Criteria and Resources for Facility-Based and Post-Rule Assessment

***Disclaimer***

*The SCAQMD staff is releasing this draft report to stakeholders and the AQMD Advisory Group for review and comment. With input from interested parties, AQMD staff will further develop and refine the facility-based analysis approach for future rule development projects.*

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**Criteria and Resources for Facility-Based  
and Post-Rule Assessment**

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# SECTION I.

## Introduction

In December 2000, South Coast Air Quality Management District (AQMD or the District) retained BBC Research & Consulting (BBC) to provide potential enhancements to the socioeconomic assessment process by working with AQMD to develop tools for facility-based assessments (FBAs) and post-rule assessments (PRAs). The purpose of this report is to provide guidance to AQMD in choosing rules that may be the best candidates for FBA or PRA. We also discuss the resources needed to perform FBAs or PRAs in terms of a range of staff hours and direct expenses required for each type of analysis.

This report is the last in a series of reports produced by BBC. Readers wishing for more information can consult the following documents.

- ***Task 1 Working Paper—Literature and Methodology Review***
- ***Task 2 Working Paper—Business Stakeholder Interviews***
- ***Summary Report: Interim Findings and Preliminary Recommendations Facility-based and Post-rule Assessment***
- ***Facility-based Assessment Case Studies: Proposed Rule 1137 and Proposed Amended Rule 1421***
- ***Guidelines and Methodology for Facility-based Assessments***
- ***Anticipated Guidelines and Methodology for Post-rule Assessments***

The criteria and resources discussion will make the most sense for readers who are familiar with the guidelines and methodology reports. These two reports outline in detail the steps required to complete an FBA or PRA.

Essentially, an FBA requires collecting information about the potentially regulated industry and profiling the financial characteristics of potentially impacted firms. Then the estimated costs of the proposed rule are compared to the firm level financial profiles to assess issues such as affordability. Other issues, such as impacts of the proposed rule on competitiveness and the potential for disproportionate impacts on various types of firms can also be addressed with the information developed in an FBA.

Depending on the objective of the analysis, a PRA requires gathering and analyzing information on either the financial costs firms have incurred to comply with an existing AQMD rule or on the economic conditions in the regulated industry since the rule's adoption. The analyst will then need to construct a baseline for the regulated industry, estimating what costs or economic conditions would have been had the rule not been passed. Finally, the actual conditions since the rule's adoption are compared with the baseline to quantify and assess the rule's effects in retrospect.

## SECTION II.

### Criteria

There are no absolute criteria for AQMD to use in deciding whether to pursue FBA or PRA on a given rule. Based on the past 18 months of work with AQMD and its stakeholders, we can, however, provide some guidance on the types or characteristics of rules where each of these forms of economic assessment may be most feasible and most valuable. AQMD will likely make the ultimate decision on whether to perform these types of analysis on a case-by-case basis, considering economic and situational factors and available institutional resources.

The remainder of this section first provides criteria for conducting an FBA, then criteria for conducting a PRA.

#### Facility-Based Assessment

BBC suggests three steps AQMD may use to determine if an FBA should be conducted for a given rule.

**Step 1—Consider the type of rule.** AQMD typically considers several different types of rules each year; some types are more amenable to FBA than others. It probably does not make sense to conduct an FBA for administrative rules, rules regulating the content of consumer products sold in the District or those involving market mechanisms spanning numerous industries. In these cases, potentially impacted facilities are either spread across the United States or so generally defined (e.g., all businesses regulated by AQMD or generators of NO<sub>x</sub>) as to make the first step of FBA, identification of potentially impacted facilities, almost impossible.

On the other hand, it is logical to consider rules that will impact industrial processes as candidates for conducting an FBA. Many of these rules are found within AQMD Regulations XI, Source Specific Standards, and XIV, Toxics.

**Step 2—Consider the significance of the proposed rule.** In considering whether to conduct an FBA, AQMD should make a preliminary assessment of the potential significance of a rule. The types of questions AQMD should consider include the following.

- Is there reason for potential concern about the affordability of the proposed rule? A rough order of magnitude test could be used here—such as comparing initial rule cost estimates (at the firm level) to available data on annual firm revenues. Private sources such as Dun and Bradstreet and InfoTrac USA can provide revenue ranges for at least some of the potentially regulated firms. As a general rule of thumb, if anticipated rule-related costs at the firm level have a magnitude of less than 1 percent of annual individual firm revenues, affordability is less likely to be a substantial issue. There will, of course, be exceptions.

- Might the rule have a disproportionate impact on disadvantaged business owners or employees from diverse racial or ethnic groups? At least for rules affecting industries that have been previously regulated, AQMD staff and decision makers will often have prior insight into the potential for concern in this area.
- Might the rule have disproportionate impacts on distinct industry segments, such as small or large businesses? FBA looking at different sizes of firms may be especially useful when the potentially regulated industry features a wide variety of different scales of operation and when the anticipated compliance requirements (and corresponding costs) appear relatively insensitive to the size of operation.
- Is the industry perceived as a declining or struggling industry? An industry already experiencing economic difficulties may be more sensitive to regulatory "shocks" than a healthy industry.
- Has the industry been regulated in the past? If so, there may be concerns about the cumulative impacts of AQMD rules. Regulations at the Federal level, as well as AQMD rules, may be relevant.
- Does the rule require a substantial change in the production process or materials used in the production process? Such changes may raise concerns about quality of product and productivity, as well as the direct costs of compliance. Interaction with stakeholders through an FBA process may help to understand these concerns even if it does not provide definitive answers.

It will be impossible to answer any of these questions with precision at the beginning of the rule-making process. Indeed, the point of an FBA is to provide more definitive insight into these questions. However, staff and Board members will often likely know enough about the local business community and the local economy to informally assess the possibility of significant rule impacts.

**Step 3—Consider the feasibility of completing an FBA.** It is important to think about the feasibility of completing an FBA from the perspective of resource and time requirements and from the perspective of quality of results. The more difficult it is to complete an FBA, the more expensive the effort will be and, potentially, the less meaningful the results may be.

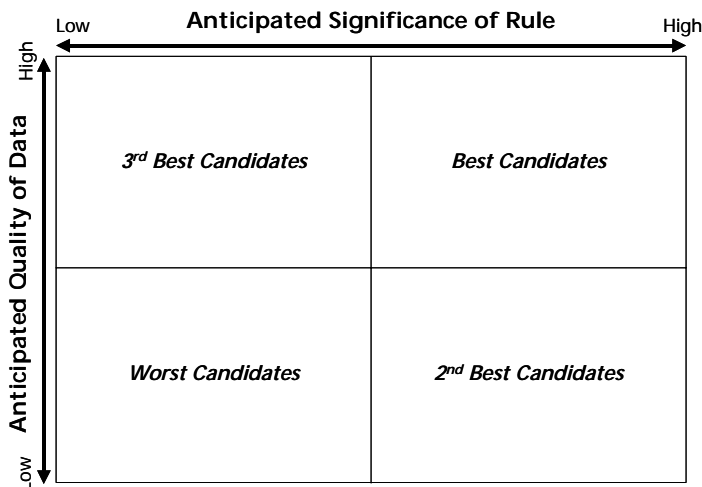
As discussed in detail in ***Guidelines and Methodology for Facility-based Assessments***, the availability of data drives the quality of an FBA and the amount of effort required. The type of detailed financial information available on industries potentially impacted by proposed rules varies. In some cases, it is relatively simple to collect secondary data on firm characteristics that allow for the development of representative firm profiles. (It may be difficult to find reliable data about firms in the L.A. Basin, national averages may need to be used.) In other cases, there is a scarcity of secondary data. Typically, it will be easier for staff to collect secondary data about manufacturing industries than service or retail industries. If the industry features primarily branch operations of national or multi-national companies, it will be difficult to obtain data on the specific facilities within the District. Industries with a high proportion of relatively large firms (e.g., revenues greater than \$1 million per year) will tend to be easier to research, and more data is available if the firms are publicly owned.

Another factor to consider in terms of the ease of completing an FBA is the homogeneity of potentially impacted businesses. It is simpler to collect information about and from businesses that are fairly similar in terms of their processes and end products. It will be more difficult to produce meaningful information from an FBA for a rule that cuts across several different industries with

different characteristics. If a lack of secondary data means that industry financial characteristics need to be collected through working groups or focus groups, it will be difficult to conduct this exercise if multiple industries are involved or if the industry in question is highly diversified in its operations.

**Summary.** Exhibit II-1, below, summarizes the application of the proposed criteria for performing FBAs on AQMD rules. Again, it is important to emphasize that deciding whether to conduct an FBA involves judgment calls on the part of the Board and management. The decision-making guidelines illustrated below do not provide an absolute threshold for determining when to perform an FBA.

**Exhibit II-1.**  
**Choosing Among Proposed AQMD Rules for Facility-based Assessment**



### Post-Rule Assessment

As described in more detail in ***Anticipated Guidelines and Methodology for Post-rule Assessments*** BBC has distinguished between two different potential objectives for retrospective analyses of the effects of AQMD rules. The following discussion provides potential criteria for determining when each type of PRA may be most appropriate. As in determining whether to perform an FBA, the key overall considerations are whether there may be significant issues to be investigated and the likely feasibility of the analysis.

**PRA of compliance costs.** Information developed during the rule-writing and prospective rule assessment processes, as well as input received from stakeholders after the rule is adopted, may provide an indication that a PRA of the rule's compliance costs could provide useful information. Based on both the relatively infrequent prior examples of PRAs performed for AQMD and other agencies, consideration of the following questions may help determine whether there are significant compliance cost issues to be examined.



- Were the compliance costs highly uncertain at the time of the rule's adoption? Uncertainty may be greatest in cases where rules involve new technologies, or offer multiple (or flexible) compliance approaches.
- Were the compliance costs expected to be relatively large at the time of the rule's adoption? There is no absolute standard here, but rules that were anticipated to either impose a fairly heavy cost burden on individual facilities or expected to result in relatively large total costs by affecting a large number of facilities throughout the District may warrant retrospective examination.
- Has feedback from stakeholders since the rule's adoption suggested that actual costs have been substantially different from projections at the time of the rule's adoption? In such cases, a PRA may help to either confirm or refute such contentions and may provide information that can help in making more accurate projections of compliance costs in future prospective assessments.

In ***Anticipated Guidelines and Methodology for Post-rule Assessments*** we noted that it may be easiest to perform PRAs with a compliance cost focus on rules for which costs can be inferred from market pricing information—such as rules regarding the content of consumer products and allowance trading programs. Some have suggested that PRAs on rules requiring specific changes in business processes are often "targets of opportunity," performed largely because there is data available (often from the Pollution Abatement Costs and Expenditures [PACE] database of information on manufacturing firms).

If AQMD can identify rules that are likely candidates for a compliance cost PRA at the time of the rule's adoption, the feasibility of performing such an analysis may be enhanced by installing reporting and data tracking procedures from the outset.

**PRA of economic impacts.** Either the rule-writing and prospective rule assessment processes, or input received from stakeholders after the rule is adopted, may also indicate that a PRA of the economic effects of an AQMD rule may be warranted. The following generalized rule or industry performance characteristics may indicate such an assessment could be useful.

- Rules that raise significant economic concerns prior to adoption. Such concerns may emerge from either stakeholder input or AQMD's prospective socioeconomic assessment of the proposed rule.
- Industries which appear to be in decline after regulation. A PRA may help in determining whether District regulations have been a contributing factor to competitive problems the local industry is facing.

The feasibility of a PRA of the economic impacts of an AQMD rule may depend largely on the types of entities the rule affects. Such assessments will require the use of existing data on industry performance, likely both within and outside of the district. This type of data becomes increasingly limited or even non-existent when a rule is very narrowly tailored. For example, it would be more feasible to perform a PRA of economic effects for a rule involving the wood furniture industry (which comprises most of a 2-digit SIC code) than for a rule

involving the dry cleaning industry (which is a 4-digit SIC code). A PRA on the economic impacts of rules which pertain to only a subset of firms within a 4-digit SIC code (such as restaurants using charcoal broiling processes) will be most difficult of all.

## SECTION III.

### Resources

As a public entity, AQMD is concerned about allocating resources in the most effective and efficient manner. Thus, the staff demands and other costs involved in conducting FBAs and PRAs are a consideration in both determining whether the District should enhance its socioeconomic assessment process with these tools and in choosing how many of these assessments to undertake.

#### Facility-based Assessment

Staff resources and other direct costs make up the resource requirements for completing an FBA. There are some economies of scale that AQMD can take advantage of in terms of purchasing data sources once and using them for multiple FBAs. It is also possible that socioeconomic staff are already engaged in a number of the activities required by an FBA, such as site visits, reducing the incremental cost to the District of adding an FBA to the rule assessment process.

**Review of FBA process.** The proposed structure for FBAs was developed from the literature review, interviews with other leading regulatory agencies and interviews with the regulated community. An FBA involves the creation of an industry profile and a firm profile. The firm profile presents financial data for representative firms. The regulatory impact model component of an FBA combines the firm-level financial data with data on the potential cost of a rule to assess percentage impacts on profits, revenues and cash flow. Finally, the impact assessment, which is the fourth step of an FBA, combines information from the industry profile and the regulatory impact model to evaluate the significance of potential impacts at the firm level.

The research tasks needed to complete an FBA are varied. Staff will need to spend time collecting information about the industry both from published sources (many of which are available through the Internet) and by making phone calls to industry contacts. Firm profile information will be collected through secondary sources and/or through working groups with local businesses. Local banks will need to be contacted to understand the financing options available for particular technologies and particular types of businesses. The case studies showed that it also takes time to circulate information within AQMD to ensure that socioeconomic staff, rule-writers and management are all in agreement about key assumptions. The fact that rule language often changes during the drafting process can also add to the time required to complete an FBA, as earlier work has to be revisited and revised. The process of drafting and finalizing the language to be used in the Rule Report also requires several layers of discussion and approval.

**Staff costs for FBA.** The two FBA case studies completed by BBC provide some insight into the staff time needed to complete an FBA. It took BBC a total of 240 staff hours, averaged across both case studies, to complete each FBA. In some ways, this may overstate how long it would take AQMD to complete a typical FBA, as some of the time involved in BBC's case studies involved developing the process, evaluating alternative data sources and communicating with AQMD. The case study report produced by BBC may also have been more detailed than AQMD would typically wish to undertake to document such assessments.

BBC has estimated the number of AQMD staff hours for future FBA efforts across each of the four tasks needed. The complexity, and corresponding required effort, may vary considerably depending on the nature of the rule and the affected industry(ies). Exhibit III-1, below, describes our estimate of the range of required AQMD staff resources and provides information on the time it took BBC (on average) to complete each element of the case studies.

**Exhibit III-1  
Estimated Staff Resources Required to Complete an FBA**

<i>Task</i>	<i>AQMD Staff Hours</i>	<i>BBC Hours for Case Studies</i>
Step 1: Industry Profile	24-60	35
Step 2: Firm Profile	40-120	95
Step 3: Regulatory Impact Model	20-80	55
Step 4: Impact Assessment	16-40	35
Non Technical (site visits, focus groups)	<u>0-60</u>	<u>0</u>
Total	100-360	220

Source: BBC Research & Consulting

The range of staff hours for each task is indicative of the fact that some proposed rules will be easier to analyze than others. For example, if it is necessary to conduct and facilitate working group sessions or other extensive primary data collection with industry representatives to compile a firm profile, then Step 2, Firm Profile, may take considerably longer to complete than in cases where more use can be made of existing data.

From a scheduling standpoint, 100 staff hours does not translate into ten, ten-hour days in terms of the necessary schedule to complete an FBA. Conducting research with trade associations, interacting with rule writers and other stakeholders and going through the internal AQMD review process will entail some “waiting time.” In general, BBC believes that an FBA will typically take anywhere from one to three months to complete, depending on the complexity of the FBA process and external and internal response times.

Non-technical aspects of FBA, such as working groups with the industry to identify trends or participation by the socioeconomic staff in site visits, are an important part of FBA. It may be possible to work with the rule writing staff to accomplish some of these tasks while the rule language is still being developed. To the extent that socioeconomic staff already participate in site visits and other stakeholder information, the time necessary to continue participation may not represent an additional resource requirement.

**Direct costs.** The major direct costs associated with almost every FBA would be data expenses; however, these can likely be spread across many different analyses. Furthermore, AQMD may already purchase several data sets that can be used for FBA.

In preparing the case studies, (see **Facility-based Assessment Case Studies Proposed Rule 1137 and Proposed Amended Rule 1421**), BBC relied heavily on data produced by government agencies, which was free of charge, with the exception of the **U.S. Industry and Trade Outlook** that cost \$75 per year. We also used Risk Management Association's **Annual Statement Studies** at the national and regional levels, which costs \$250 per year and covers many industries. This would likely be an annual purchase for AQMD. In preparing the case study for PR 1137, AQMD provided BBC with data from an InfoUSA product. The annual cost of InfoUSA's American Business Disc is \$2,500. It appears that AQMD is already purchasing InfoUSA data, however, so there are no additional costs to using the information for an FBA. In order to research articles and trade journals for the case study industries, BBC used both Lexis-Nexis and Gale Research's InfoTrac OneFile. Both sources are expensive, but may be available at little or no cost through a local university library.

If AQMD decides to conduct focus groups with industry representatives, a professional facilitator will be necessary. Typically, focus group facilitators prepare a guide, provide refreshments, handle meeting logistics such as securing a location and recruit participants. Often, incentive payments are used to encourage participation. Once the focus group is over, the moderator will provide a written report to AQMD. Total costs for a professional focus group are approximately \$6,000 per group.

### Post-rule Assessment

Anticipating the resources required for AQMD to perform PRAs is complicated both by the fact that no PRA case studies were performed on AQMD rules during this assignment and by the varied dimensions of potential PRAs. Exhibit III-2, from **Anticipated Guidelines and Methodology for Post-rule Assessments**, depicts the study team's view of the relative difficulty of performing each type of PRA on the various types of rules AQMD may promulgate.

**Exhibit III-1.**  
Relative Feasibility of Post-rule Assessment by Type of Air Quality Rule

		TYPE OF POST-RULE ASSESSMENT	
		Compliance Cost	Economic Impact
TYPE OF RULE	Industrial (Business) Process	Harder	Easier
	Consumer Products	Easier	Harder
	Market-Based	Easier	Harder

Essentially, the tasks that are likely to be required to perform either type of PRA include:

1. Gathering data and analyzing existing conditions;
2. Gathering and analyzing additional data in order to estimate baseline conditions in the absence of the rule;

3. Assessing the effects of the rule based on comparison of actual conditions to the estimated baseline; and
4. Interacting with stakeholders, developing documentation and reports.

For reasons discussed in ***Anticipated Guidelines and Methodology for Post-rule Assessments***, BBC anticipates that the first step may often be more demanding for PRAs focused on compliance costs, while the second step may be more demand for PRAs focused on economic impacts.

A preliminary estimate of the potential staff resources required to perform each type of PRA is provided in Exhibit III-3.

**Exhibit III-3**  
**Preliminary Estimate of AQMD Staff Resources Required to Complete a PRA**

<i>Task</i>	<i>Compliance Cost PRA</i>	<i>Economic Impact PRA</i>
Step 1: Analyze Existing Conditions	40-160	40-100
Step 2: Develop Baseline	20-100	60-120
Step 3: Assess Rule Effects	20-60	20-60
Step 4: Stakeholder Interaction, Reporting and Documentation	<u>40-80</u>	<u>40-80</u>
Total	120-400	160-360

Source: BBC Research & Consulting