



American Gas Association

December 16, 2006

Mr. Joseph Cassmassi
Planning and Rules Manager,
Planning, Rule Development and Area Source
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments of the American Gas Association on Draft SCAQMD 2007 Air Quality Management Plan

Dear Mr. Cassmassi:

The American Gas Association, founded in 1918, represents 197 local energy utility companies that deliver natural gas to more than 56 million homes, businesses and industries throughout the United States. AGA's members account for roughly 83% of all natural gas delivered by the nation's local natural gas distribution companies. AGA is an advocate for local natural gas utility companies and provides a broad range of programs and services for member natural gas pipelines, marketers, gatherers, international gas companies and industry associates. Natural gas meets nearly one-fourth of the United States' energy needs.

AGA's membership includes major natural gas utility companies within the SCAQMD. In addition to representing the interest of these companies and their customers, the end use consumers of natural gas, AGA actively provides review and comments on major national issues as they might emerge from state regulatory actions. The State of California, in its leadership role on many environmental issues, provides pioneering approaches at control of atmospheric emissions that may ultimately be considered by other states and the Federal Government. As a result, AGA sees its role in addressing proposals in the State of California as serving the interests of its member utilities and their customers and, at the same time, addressing proposals for control strategies that might be proposed elsewhere in the U. S.

AGA commends the SCAQMD on its creative, multifaceted proposed approach to managing atmospheric emissions, which are a very significant health and welfare issue to the citizens of the District. While past efforts have demonstrated success, continued efforts are needed to sustain progress on air emissions in the district. However, AGA has a number of concerns on the proposed management plan. These concerns are discussed below for the draft Air Quality Management Plan (referred to below as "the Plan") and represent the substance of these comments:

General Comments:

The scopes of SCAQMD's source categories are overly broad and inadequately documented, leading to overly generalized characterizations of emissions reduction po-

tential. Use of broad definitions of combustion equipment, such as within the RECLAIM facility category and the diversity of combustion equipment within each application, are not broken out in the discussion of control strategies so that the technical feasibility and challenges of pollutant control, particularly NOx, can be readily understood. Sources are treated in the Plan as equivalent with respect to emissions reduction potential, which is not justified based on differences in design, make and model, and installation variables. *It is therefore likely that feasible approaches to reducing emissions will produce unequal results and impose disproportionate burdens for implementers.*

SCAQMD's definition of 'cost effectiveness' is incomplete and, therefore, misleading. The Plan emphasizes use of discounted cash flows (DCF) and cost per unit pollutant for reductions as the basis for characterizing cost effectiveness. However, this approach is not applied to evaluating alternatives or benchmarks for what is 'effective' in reducing pollutants. A cost per ton for pollutant reduction, as it might be listed in the Plan, is rather meaningless as a result. In addition, cost effectiveness as applied in federal government evaluations of combustion equipment efficiency take into account economic impacts of increased cost to control for market externalities such as air pollutant control. These impacts include direct cost impacts to consumers, manufacturers, and utilities as well as socioeconomic impacts such as employment and market transformations such as fuel switching in combustion equipment applications. SCAQMD should adopt a broader approach to consider these potential impacts since pollutant control with only a raw cost estimate, regardless of how it is discounted, provides little information.

SCAQMD has not completed its required prioritization of sources and cost effectiveness and, therefore, is not proposing control strategies that conform to procedure or realistic priorities. In concert with an expanded use of cost effectiveness criteria, SCAQMD needs to complete its assessment of cost effectiveness of measures (available and proposed) and prepare a list of measures ranked based on cost effectiveness. This is required under H&SC 40922(a) according to the Plan. In addition, these requirements compel SCAQMD to assess public acceptability, enforceability, and economic equity and efficiency and apply these variables in the prioritization process. SCAQMD states in the Plan that these criteria and the resulting prioritization will be provided in the document. However, there can be no assurance that the control strategies proposed in the draft version are consistent with what the prioritization process will ultimately rank as the highest priorities. In a number of respects, the proposals do not seem to follow obvious approaches for setting priorities. SCAQMD needs to conduct the required prioritization process first and provide its results in a transparent, fully documented process.

SCAQMD's ability to force technology development through rulemaking requires very prudent application to avoid unintended consequences. In the Plan, SCAQMD defines its potential role as an agent of forcing technology development within control strategies through its ability on the California Clean Air Act to implement "any other feasible control," or in other words, "any of the feasible controls that can be implemented or for which implementation can begin, within 10 years of adoption date of the most recent air quality plan [H&SC 40920.5(c)]." [page 1-22] However, the key in applying such measures with a control strategy is whether measures are "feasible." The Plan provides no standard for technical feasibility other than a definition that it is "the likelihood that the technology for a control measure will be available as anticipated." [page 7-4] It needs to be emphasized that a control strategy based on a technology that has not been applied *in within an existing product, either commercially or within a final production prototype,* and design certified for safety and performance does not meet commonly accepted criteria for technical feasibility. Control strategy options should begin with more standard

definitions of technology such as best available control technology (BACT), currently the most stringent national basis for air pollutant control and progressing toward measures based on reasonably available control technology (RACT).

SCAQMD must balance control strategies with critical pollution control needs. With respect to ozone control, it is not sufficient to state that "the sheer magnitude of the emissions reduction needed..." [page 4-5] justify controls of all types on all sources. Progress within the District as measured by Reasonable Further Progress (RFP) criteria shown in the Plan show that greater progress has been made on NO_x as an ozone precursor than on volatile organic compounds (VOC). According to the Plan, further control of NO_x under RFP is not required until year 2020, whereas increased VOC control is required by year 2008. This suggests that, for NO_x control, control strategies should be designed for full implementation to meet year 2020 needs, and the most aggressive approaches applied to VOC emissions. It is not apparent in the Plan that this is proposed.

Natural gas end use, particularly in the residential sector, represent a minor contributor to total NO_x and to ozone generally based on the SCAQMD report. Since mobile sources account for 92% of NO_x emissions, and residential combustion appliances account for at most 2.4%, it is unclear how residential combustion appliances would achieve a high priority ranking for control strategies.

CMB-03 Further Reductions from Space Heaters [NO_x].

SCAQMD has not demonstrated technical feasibility of its proposed NO_x limit for its control strategy. The Plan discussion of low NO_x technology provides no evidence that furnace exist that can meet the proposed 14 ng/J limit on NO_x production. As a result, no justification can be made for such products as representing BACT or RACT as part of a control strategy. Clearly, SCAQMD intends to use this limit to force development of such technology, but product development and certification by year 2012 are, at best, speculative. The ramifications of pushing for unreasonable NO_x limits in a control strategy for combustion appliances are potentially onerous. In November, the State of Texas Commission of Environmental Quality determined that its directive for a 10 ng/J limit on residential natural gas water heaters be withdrawn and that all state implementation plan (SIP) provisions using this limit to meet NO_x reduction targets changed to delete this control and emission reduction credit. To date, SCAQMD has an identical requirement for natural gas residential water heaters, but has been unable to encourage market penetration of natural gas water heaters meeting that limit. Instead, SCAQMD has been accepting mitigation fees on natural gas water heaters sold in the District. It is unclear how sustainable air quality planning can be when a plan assumes installation of low emissions equipment that does not exist in the marketplace. Clearly, such provisions should not be included in the California SIP.

SCAQMD's alternative proposal of consumer switching to heat pumps is inappropriate and revealing. Suggesting this alternative is a tacit admission that low NO_x furnace technology may not be available by year 2012. However, AGA questions the appropriateness of this alternative, which is based on market transformation, and the potential discrimination it suggests against nationally listed products. If, in fact, the low NO_x technology does not reach the market by year 2012, this approach might become the *de facto* control strategy and result in a virtual ban on natural gas furnaces. Also, this alternative is likely to impose its own externalities by requiring consumers to incur

additional costs in modifying venting systems for other common-vented combustion equipment and increases in electricity generation and emissions for electric heating

SCAQMD has not demonstrated cost effectiveness of its options for control strategy and appears to have excluded consideration of the impacts of fuel switching. As discussed above, DCF estimates do not provide a complete description of cost effectiveness. In addition, the basis of the \$10,000 per ton of NO_x reduced as a result of the imposition of the 14 ng/J limit is not documented. Curiously, the Plan estimates the cost of reducing NO_x emissions to the 20 ng/J level is \$12,500 per ton, which is a higher cost. These cost estimates suggest an inconsistency in the cost methodology. AGA has obtained information that the costs of burner technology and redesign of furnaces for the California market may add between \$600 and \$800 per residential furnace. AGA is very concerned that such incremental costs to address the California market will drive fuel switching and push consumers away from natural gas furnaces to other products particularly electric heating, which on a basis of efficiency over the full fuel cycle will consume more energy and produce more emissions. SCAQMD presumes that switching will occur to heat pump technology, but it is unclear that this assumption will hold, specifically in the retrofit market. Estimates of cross elasticities for heating equipment are available. Lawrence Berkeley National Laboratory, analyzing the potential cost impacts on fuel switching from changes in cost of furnaces and boilers for the U. S. Department of Energy (DOE), estimates that a 10% increase in the price of residential gas furnace would result in a decrease in market share for gas furnaces by between 3.4% and 3.7%.¹ While the elasticities used for these estimates are for new housing, similar effects would be expected in the replacement market because of the potential high premium on first cost and the limited barrier to fuel switching from natural gas to electricity.

SCAQMD has not accounted for safety certification issues and other issues of product uncertainty. Even if conceptual designs for the new low NO_x furnaces meeting the 14 ng/J limit are developed, safety certification to the current Z21.47 design certification standard is not assured, certainly by the year 2012 deadline. These may create significant barriers, both in technology and in schedule in meeting the 14 ng/J requirement.

SCAQMD has not included seasonal dependence of space heating in its consideration of potential impact of NO_x control through this product class. The contribution of a 14 ng/J NO_x limit can only be evaluated for the summer months when high temperatures associated with ozone formation are relevant. However, this is also the season when the furnace is not running to provide space heating. As a result, any NO_x reduction can only be assumed for the winter months. Based on the 2005 planning emission inventory data in the Plan, the total NO_x production due to 'residential fuel combustion' during the winter months is approximately 2.9% of total anthropogenic source emissions or 31 tons per day. This compares to 1.9% of total anthropogenic emissions or 19 tons per day during the summer months, presumably none of which is from natural gas furnaces because no heating was in use. If one were to assume that all 12 tons per day were due to furnace use, the control strategy could only account for between 8% and 20% of 'residential fuel combustion' emissions based on reduction targets shown in Table 4-2A, or between 0.09% and 0.30% of total winter NO_x emissions.

¹ Lawrence Berkeley National Laboratory, Residential Furnaces and Boilers NOPR Technical Support Document, Chapter 9. Shipments, September 2006.

CMB-04 Natural Gas Fuel Specification [NOx].

SCAQMD has "not determined" emissions reductions potential and control costs from this measure. The status of this 'control strategy' is clearly shown in the Plan. [page IV-A-43] As such, the proposal does not meet obvious criteria as a control strategy. This provision should be removed from the report.

SCAQMD cannot demonstrate that the PUC required revision of Rule 30 to include a maximum Wobbe number of 1,385 is not sufficient for NOx reductions. For SCAQMD to evaluate gas quality impacts on emissions, it might be expected that it first consider the Rule 30 revisions to see what impact they would have on emissions. Since SCAQMD has not assessed data on emissions response to gas composition changes, it is not in a position to make a judgment concerning the new specifications. It cannot, therefore, rule out a potential for an imbedded emission reduction from the Rule 30 changes, which propose lower Wobbe gases than have been permitted previously in the local gas distribution system.

SCAQMD's proposal for a 1,360 maximum Wobbe limit is inconsistent with historical gas ranges as characterized by SCAQMD. As shown in the table on page IV-A-43, the SCAQMD proposal places significantly lower limits on allowable Wobbe gas than what has been used locally. Based on simplistic assumption that lower Wobbe gases will decrease NOx production, SCAQMD is proposing a limit that may produce a number of unintended consequences. For example, combustion equipment adjusted to use historically higher Wobbe gases are not likely to perform as efficiently either from a firing rate or operability perspective. This may require extensive readjustment of combustion equipment, which in some cases may lead to overfiring where it is not performed competently and even an increase in NOx production.

SCAQMD's characterization of LNG available for import and options to addressing high Wobbe LNGs are inaccurate and unrealistic. The world LNG market and exporters are not likely tailor an export product that meets a 1,360 Wobbe maximum, which would represent the product as delivered, not as it leaves the export terminal (requiring even lower Wobbe numbers in production to account for product weathering. From AGA's interaction with LNG producers, it is understood that they can meet the CPUC requirement of 1,385 but that they would not provide assurances of lower Wobbe gases. Likewise, limits exist on other options (e.g., siting of import terminal facilities for stripping out heavy hydrocarbon fractions and technical limits on nitrogen ballasting) so that the world market is unlikely to meet this limit.

SCAQMD's approach of regulating gases in excess of the revised Rule 30 ignore other conventional approaches to controlling end use equipment response to new gas supplies. The use of Wobbe limits as a control strategy neglects other means of meeting performance requirements, including emissions control, for combustion applications that have been used traditionally in other areas of the country. In Utah and Colorado, combustion equipment has been adjusted historically to account for known changes in gas supply. While these programs have been associated with maintaining basic operability of the appliance, similar approaches can be used to accommodate emissions performance and to target emissions reductions. Using gas quality specifications to control emissions is a rather blunt instrument to address emissions issues, especially when the emissions response of combustion equipment to gas supply changes is not well characterized and where appliance population issues (e.g., diversity in types, ages, and ad-

justment status) are not included in the analysis. It is likely that appliance population issues will have a much greater impact on air quality implications than gas supply itself.

This concludes the comments of AGA. We would look forward to discussing further any of the comments and issues they raise. AGA appreciates the great challenges faced by SCAQMD in air quality management and stands prepared to provide more information as needed.

Sincerely,



Ted A. Williams
Director, Codes, Standards &
Technical Support

cc: J. Ranfone, AGA