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Mr. Joseph Cassmassi  
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SCAQMD  
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Subject: Draft 2007 AQMP

Dear Mr. Cassmassi,

Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) appreciate the opportunity to provide comments on the South Coast Air Quality Management District's (SCAQMD) Draft 2007 Air Quality Management Plan (AQMP). As always, SoCalGas and SDG&E strongly support the efforts of the SCAQMD to develop an AQMP that will lead to the attainment of Clean Air Act standards through cost-effective control measures. The attainment of Clean Air Act standards is important and SoCalGas and SDG&E have demonstrated their continued support of the SCAQMD's plans through participation in your regulatory process, operation of our own facilities in compliance with SCAQMD's existing rules, and support to our customers in the clean and energy efficient operation of their natural gas-fueled equipment.

Sempra Energy, based in San Diego, is a Fortune 500 energy services holding company whose subsidiaries provide electricity, natural gas and value-added products and services. Through its two regulated utility subsidiaries, Southern California Gas Company and San Diego Gas & Electric, Sempra Energy has the largest regulated gas and electric utility customer base in the United States – more than 6 million meters serving 21 million customers.

Our joint comments are provided in the following attachments by control measure. To facilitate further discussion and mutually beneficial coordination, we have included a contact person's name and contact information for each control measure commented upon. The most

effective way to contact us will be through email, but you can always contact me directly (213-244-8851). Comments are provided on the following control measures:

	Control Measure	SoCalGas/SDG&E Contact
Attachment A	LTM-02 – Further Emission Reduction from NOx RECLAIM Facilities (Phase 1)	Noel Muyco <a href="mailto:nmuyco@semprautilities.com">nmuyco@semprautilities.com</a>
Attachment B	CMB-04 – Natural Gas Fuel Specifications	Kevin Shea <a href="mailto:kshea@semprautilities.com">kshea@semprautilities.com</a>
Attachment C	CMB-01 – NOx Reduction from Non-RECLAIM Ovens, Dryers and Furnaces	Noel Muyco <a href="mailto:nmuyco@semprautilities.com">nmuyco@semprautilities.com</a>
Attachment D	MCS-03 – Energy Efficiency and Conservation	Rick Hobbs <a href="mailto:rhobbs@semprautilities.com">rhobbs@semprautilities.com</a>
Attachment E	LTM-04 – Concurrent Reductions from Global Warming Strategies	Lee Wallace <a href="mailto:wallace@semprautilities.com">wallace@semprautilities.com</a>
Attachment F	MCS-01 – Facility Modernization (Non-RECLAIM Sources)	Deanna Haines <a href="mailto:dhaines@semprautilities.com">dhaines@semprautilities.com</a>
Attachment G	LTM-02 – Further Emission Reduction from NOx RECLAIM Facilities (Phase 2)	Noel Muyco <a href="mailto:nmuyco@semprautilities.com">nmuyco@semprautilities.com</a>
Attachment H	CMB-03 – Further NOx Reductions from Space Heaters	Lance DeLaura <a href="mailto:ldelaura@semprautilities.com">ldelaura@semprautilities.com</a>
Attachment I	BCM-03 – Emission Reductions from Wood Burning Fireplaces and Wood Stoves	Lance DeLaura <a href="mailto:ldelaura@semprautilities.com">ldelaura@semprautilities.com</a> 8
Attachment J	BCM-05 – Emission Reductions from Under-Fired Charbroilers	Steve Simons <a href="mailto:ssimons@semprautilities.com">ssimons@semprautilities.com</a>

SoCalGas and SDG&E look forward to further opportunities to provide input for the most comprehensive, feasible and cost-effective AQMP for the South Coast Air Basin.

Sincerely,

*Lee Wallace*

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**Attachment A**

**Control Measure LTM-02 – Further Emission Reduction from NO<sub>x</sub> RECLAIM  
Facilities (Phase 1)**

SoCalGas and SDG&E cannot support Control Measure LTM-02 (Phase I). Further we are concerned that Control Measure LTM-02, as described in the Draft AQMP, lacks important detailed information and support. The comments below reflect the companies' request that the SCAQMD provide appropriate justification for LTM-02, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-133)

*This proposed control measure would obtain further emission reductions of NO<sub>x</sub> from RECLAIM in two phases. Phase I seeks reductions through a shave mechanism of RECLAIM allocations to reduce emissions that might potentially result from the combustion of natural gas with a Wobbe Number greater than 1360 beginning in 2008. Phase II seeks to further reduce NO<sub>x</sub> emissions in the next 10 to 15 years as newer BARCT technology evolves and is phased in. Additional reduction is augmented as a reflection of BACT installation as RECLAIM NSR is triggered. The comments in this Attachment A refer only to Phase I.*

Proposed Method of Control and Emissions Reduction (Page IV-A-134 &135)

*Phase I is seeking to reduce 2.5 tons per day (tpd) of NO<sub>x</sub> through a reduction of RECLAIM allocations.*

**Comment**

SoCalGas and SDG&E object to the proposed RECLAIM Phase I NO<sub>x</sub> reductions of 2.5 tpd. SoCalGas and SDG&E believe it is too early to accurately quantify any potential emissions increases or decreases that would result from burning natural gas with a Wobbe Number greater than 1360. The SCAQMD should base its control measures on objective, scientifically based data, beyond laboratory testing, that are confirmed with field experience. Attempts to impose control measures with incomplete information and inadequate evaluation would result in premature and ill-advised SCAQMD rulemaking.

Moreover, SoCalGas and SDG&E believe that many RECLAIM permitted sources (large and major sources) already have permit limits that effectively allow them to burn natural gas with a Wobbe Number greater than 1360. Operators already are managing changes in gas quality at their permitted sources, including scenarios where the gas quality may exceed 1360 Wobbe number. The companies operating such sources would be unnecessarily penalized and economically disadvantaged by an additional reduction obligation because they are already able to manage such variations in gas quality. We would also like to point out that there are a number of RECLAIM facilities that utilize other (waste, landfill, etc.) gaseous fuel as their primary fuel source and as such, would

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also be disadvantaged by a reduction obligation aimed at perceived (but unproven) emissions increases that may be associated with burning certain types of natural gas.

SCAQMD has not presented sufficient evidence of (1) the population of RECLAIM sources that could potentially receive natural gas with a Wobbe Number greater than 1360 or (2) the PM<sub>2.5</sub> or ozone impacts (whether from potential NO<sub>x</sub> increases or from potential Volatile Organic Compounds (VOC) decreases) that would result from those sources that could receive and would combust natural gas with a Wobbe Number greater than 1360.

Based on published studies and reports of operators, we should expect there to be negligible or no NO<sub>x</sub> emissions difference between combusting natural gas with a Wobbe Number of 1385 BTU/scf (the CPUC's existing gas specification for SoCalGas) and combusting natural gas with a Wobbe Number of 1360 (the SCAQMD's proposed gas specification). This is because, among other things, most commercial and industrial equipment can already tolerate variations in gas Btu values and any potential impact at more sophisticated or process sensitive equipment could be avoided through fine-tuning and systematic corrections of equipment controls. Additionally we can also expect development and application of new and improved emission and combustion control technologies with greater flexibility to use gas with varying specifications.

Interestingly, the published studies also show that combustion of higher Btu gas has directly reduced emissions of Reactive Organic Gases (ROGs) and air toxics emissions. The proposed Control Measure does not address these issues or the impact they have on ozone formation.

The SCAQMD has not provided sufficient information to allow meaningful review of the proposed Control Measure. However, we are concerned that SCAQMD's emissions estimates may be inaccurate because (1) the estimates seem to be based on limited laboratory data that has not been substantiated with real-world experience; and (2) we believe the estimates may fail to reflect realistic regional market penetration of new gas supplies including rich natural gas supplies.

Finally, the proposed Phase I RECLAIM shave appears clearly to fall outside the scope of the SCAQMD's legal authority. Under the California Health & Safety Code, the SCAQMD's authority to impose emission limitations on existing stationary sources is limited to those circumstances in which the Board finds that the proposed emissions reductions are technologically feasible and cost-effective. *See* Health & Safety Code §§ 40440(b)(1) (authorizing the District to require the use of "best available retrofit control technology for existing sources"), 40406 (defining BARCT as the "maximum degree of reduction achievable, taking into account environmental, energy and economic impacts . . ."), and 40703 (requiring the District to make findings of cost-effectiveness). Nowhere in the Health & Safety Code is the SCAQMD authorized to impose emission reduction obligations that go beyond such considerations. Certainly, it is not appropriate for the District to penalize RECLAIM combustion sources for alleged emission increases occurring outside of the RECLAIM program, and over which they have no control.

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Because the SCAQMD's proposed Phase I "shave" is explicitly tied to an attempt to offset any emission increases that may occur due to changes in natural gas characteristics and not to the technology and economic factors noted above, it falls outside the bounds of the District's retrofit authority. As the staff recommended and the Board determined during the most recent RECLAIM amendments, the market character of the RECLAIM program does not alter the Health & Safety Code's limitations on the District's authority to impose obligations on existing sources. *See* Health & Safety Code § 39616.

Based on the above comments and concerns, SoCalGas and SDG&E respectfully submit the following questions for the SCAQMD's response:

1. Please provide all reports, analyses, calculations, sensitivity assumptions and general assumptions that SCAQMD staff relied on to establish their proposed maximum Wobbe Number of 1360.
2. Please provide the results of all air quality models that SCAQMD staff relied on to establish the SCAQMD's proposed maximum Wobbe Number of 1360.
3. Please provide all reports, analyses, calculations, sensitivity assumptions and general assumptions supporting SCAQMD's proposed Phase I reductions.
4. How did the SCAQMD determine which RECLAIM sources will receive natural gas with a Wobbe Number greater than 1360? How did SCAQMD treat RECLAIM sources that will not, or may not, regularly or ever receive natural gas with a Wobbe Number greater than 1360?
5. Would a reduction of allocations be applied across the board to all RECLAIM sources?
6. What is the inventory of RECLAIM NO<sub>x</sub> sources that meet NO<sub>x</sub> BACT standards?
7. What is the inventory of RECLAIM sources that have permitted NO<sub>x</sub> emissions limits that give the sources the flexibility to combust natural gas with a Wobbe Number greater than 1360?
8. What is the breakdown of RECLAIM NO<sub>x</sub> source contribution for each of the four county regions within the SCAQMD?
9. What is the breakdown of NO<sub>x</sub> "emissions" from RECLAIM sources within each of the four counties?

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**Attachment B**

**Control Measure CMB-04 – Natural Gas Fuel Specifications**

SoCalGas and SDG&E do not support CMB-04.

Summary Description of Control Measure (Page IV-A-43)

*The purpose of this control measure is to avoid future emission increases, if any, that could potentially result from the combustion of natural gas with a Wobbe Number higher than 1360.*

Proposed Method of Control and Emissions Reduction (Page IV-A-45 &46)

*The control measure proposes to establish a maximum Wobbe Number of 1360 for natural gas supplied to sources within the SCAQMD's jurisdiction.*

**Comment #1: Jurisdictional Concerns**

The CPUC recently established a gas-specification for SoCalGas which reduced the upper range of acceptable gas from approximately 1450 Wobbe number to a maximum of 1385 Wobbe number (CPUC Decision D.06-09-039). SCAQMD is now proposing to undermine that gas specification by adopting its own, contradictory gas specification, with a maximum Wobbe number of 1360. Due to the integrated nature of SCAQMD's gas distribution system, SCAQMD's proposed measure would establish a de facto gas specification for SoCalGas that would contradict and render obsolete CPUC's recent gas specification ruling.

Furthermore, if any other of the nine local air pollution control districts in our service territory adopted a different criteria for gas quality specifications, the system would be unable to operate, and stay in compliance at all times. This is because, among other things, SoCalGas operates an integrated "demand/pull" gas distribution system. Gas flows to the various portions of the distribution system as a result of demand from the customers, and not solely as a result of back pressure. Therefore gas flow cannot be limited to boundaries of individual air pollution control districts; the SoCalGas system is a fully integrated operation that cannot be compartmentalized.

State law gives the CPUC jurisdiction to establish natural gas specifications within the state. SoCalGas and SDG&E question SCAQMD's jurisdiction to adopt a gas specification that contradicts the gas specification established for SoCalGas by the CPUC.

**Comment #2: Cost Savings to Customers**

Our gas customers will potentially realize hundreds of millions of dollars a year in gas cost savings annually from additional supplies of natural gas such as new interstate supplies, new California supplies and new supplies of imported LNG. The SCAQMD's proposal to prohibit supply or combustion of natural gas with a Wobbe number greater than 1360 would prohibit 20% of existing supplies from the Rocky Mountains basin

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through Kern River Pipeline, 10 to 15% of existing supplies from California gas production and 90% of the LNG supply from the Pacific region, from entering California.

The California Energy Commission (CEC), in its *Integrated Energy Policy Report 2005*, p. 133, stated the following about LNG prices:

“The cost to deliver natural gas to the West Coast via an LNG project could be well below the market prices that California pays at its borders. This potential new supply source close to or in California could have a dramatic effect on the market prices in California. For example, if West Coast LNG supplies drop \$0.50 per mm Btu, then Californians would save over \$1 billion annually on their natural gas bills. This magnitude of potential savings drives California’s interest in LNG.”

### **Comment #3: Real World Experience**

Our customers as well as gas customers in other countries have decades of experience with the use of higher value Btu gas. The SCAQMD has not provided an analysis of this real world experience, or determined the lessons that can be learned from others who have already gone through the experience of adjusting to the use of gas with different gas quality specifications, e.g. a higher Wobbe number.

### **Comment #4: Modification of Baseline Inventory**

The SCAQMD used the *2006 California Gas Report* to construct the baseline inventory. The *2006 California Gas Report* does not separately identify how much of the gas supply will have a Wobbe Number greater than 1360 nor where such gas will be used in California. In order to calculate the impact of the use of such gas in southern California, it is necessary to make certain assumptions about the quantity of such gas in the system, how it will be delivered, and where it will be used. It is unclear in the proposed Control Measure how the SCAQMD modified the baseline inventory to quantify the amount of such gas and where consumption would occur in the South Coast Air Basin.

### **Comment #5: Attainment of Standards Would Not Be Jeopardized**

SoCalGas and SDG&E testing, decades of experience with high Btu gas in our service territories, and world-wide experience shows that gas fired equipment can tolerate changes in gas Btu content with little to no emissions increases and some equipment actually shows emissions decreases. This information suggests a high probability that any impact on air quality from gas supplies with a maximum Wobbe Number of 1385 verses a maximum Wobbe Number of 1360 is speculative and, if any such impact does ultimately occur, that it could likely be mitigated or eliminated through re-tuning and adjustment of equipment and/or the development of improved emissions control and combustion technologies. Studies and reports validate and support SoCalGas’ and SDG&E’s position on existing equipment and forward-looking solutions. Such mitigation measures would be far more cost-effective in the long run than SCAQMD’s

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proposal to severely limit existing and potential new natural gas supplies. There is no need to limit the cost savings gas customers could realize from the availability of new gas supplies, when emission increases are speculative and when any minor increases that could result – if any -- could be effectively addressed through proven mitigation techniques.

Key Studies and Reports:

Power Turbine Performance During Heat Content Surge.

William Walters. Presentation to Gas Quality Technical Stakeholders. September 20, 2005.

Final Report – Gas Quality and Liquefied Natural Gas Research Study.

Southern California Gas Company. April 2005.

Low NOx Boilers Expanded Testing.

Southern California Gas Company. October 2006.

Gas Quality and LNG Research Study – Phase 2 Rich Burn Engine.

Southern California Gas Company. April 2006.

Equipment Studies 2003-2006. Southern California Gas Company.

“LNG Interchangeability Issues in Power Generation”

Presentation at Technology Institute’s International Conference: Global LNG Interchangeability Challenges, Opportunities, Strategies. Bruce Rising, Siemens Power Generation Inc. September 11-12, 2006.

Impact of Changing Fuel Gas Wobbe Number on GE Gas Turbine Operations.

Memorandum from William H. Jayne, General Electric, to Lee Stewart, Southern California Gas Company. December 19, 2005.

As the SCAQMD moves forward in developing this control measure, SoCalGas and SDG&E request consideration and clarification of the following critical questions:

1. Please explain the basis for SCAQMD’s determination that it has jurisdiction to adopt a gas specification that contradicts and renders obsolete a gas specification that the CPUC has established pursuant to state law.
2. Please provide SCAQMD’s calculations and assumptions on the impact that CMB-04 would have on natural gas supply and prices in the region and the state.
3. Please provide all analysis SCAQMD conducted or considered regarding real world experience using natural gas with a Wobbe Number greater than 1360.



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4. Please provide SCAQMD's assumptions regarding the quantity of rich gas that will be supplied within the Air Basin and where consumption in the Air Basin will occur. How did SCAQMD modify the baseline inventory to account for these assumptions?
5. Please provide all reports, analyses, calculations, sensitivity assumptions and general assumptions that SCAQMD staff relied on to establish their proposed maximum Wobbe Number of 1360. Please provide the results of all air quality models that SCAQMD staff relied on to establish the SCAQMD's proposed maximum Wobbe Number of 1360.
6. Please provide all reports, analyses, calculations, sensitivity assumptions and general assumptions supporting SCAQMD's proposed maximum Wobbe Number of 1360.
7. CMB-04 states that natural gas derived from LNG supplies could achieve the proposed control measure if a high-methane LNG, such as 99+%, is supplied. Please identify existing LNG supplies that are 99+% methane and the availability of such supplies to California. Provide a detailed cost analysis for delivering a 99+% methane LNG versus an LNG supply that meets a 1385 Wobbe Number.
8. CMB-04 indicates the objective could be met by removing more complex hydrocarbons or adding inert gases such as nitrogen. Please provide a cost analysis for removing complex hydrocarbons and/or adding inert gases. For hydrocarbon extraction facilities and nitrogen injection facilities required at an LNG receiving terminal, please provide estimates of all potential emissions resulting from the processes. If there are projects in the South Coast Air Basin that have proposed to utilize either of these processes, please provide specific emissions estimates and identify sources of potential emission offsets.
9. Please provide the cost estimates and emission impacts from California gas producers in the South Coast Air Basin adding facilities for removing hydrocarbons or adding nitrogen to meet the proposed maximum Wobbe Number of 1360 proposed in this control measure.
10. Please provide the cost estimates and emission impacts from California gas producers in Ventura, Santa Barbara and San Joaquin Valley adding facilities for removing hydrocarbons or adding nitrogen to meet the maximum Wobbe Number of 1360 proposed in this control measure.
11. Please provide the cost and emission impacts for Rocky Mountain gas producers for removing hydrocarbons or adding nitrogen to meet a 1360 Wobbe Number.
12. Please provide the economic impact analysis for California of Rocky Mountain gas supplies lost to markets outside of southern California because of the cost to meet a 1360 Wobbe Number.
13. Please provide a health and safety impact analysis utilizing 2001 California energy requirements, 2001 Hydro conditions and weather without the availability of Rocky Mountain gas supplies.

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**Attachment C**

**Control Measure CMB-01 – NO<sub>x</sub> Reduction from Non-RECLAIM Ovens, Dryers  
and Furnaces**

SoCalGas and SDG&E are concerned that Control Measure CMB-01, as described in the Draft AQMP, lacks the detailed information necessary. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-33)

*This proposed control measure would obtain further emission reductions of NO<sub>x</sub> from non-RECLAIM ovens, dryers, furnaces, kilns, afterburners, and incinerators with no source specific (BARCT) NO<sub>x</sub> rules. SCAQMD believes further NO<sub>x</sub> reductions can be achieved if these specific sources employ the latest advancement in burner technologies.*

Proposed Method of Control and Emissions Reduction (Page IV-A-33 &34)

*The SCAQMD proposes to force these specific sources to employ the latest Low NO<sub>x</sub> burners. The SCAQMD is proposing to adopt source specific rules and may incorporate more stringent control requirements such as BACT as it subsequently seeks to adopt a Facility Modernization (MCS-01) control measure. In addition, as part of its rulemaking process, the SCAQMD may adopt emissions limits for new pieces of equipment that do not require a permit through an equipment certification program.*

**Comment**

SoCalGas and SDG&E do not support the proposed Control Measure referenced as CMB-01 – NO<sub>x</sub> Reductions from Non-RECLAIM Ovens, Dryers, and Furnaces. SoCalGas and SDG&E strongly urge the SCAQMD to develop a detailed technology-derived assessment of the technological and economic issues. When developing this assessment, SCAQMD should work with an industry-wide working group including, but not limited to, equipment manufacturers, end-users, affected industry trade associations, and corresponding air pollution control equipment vendors.

As with any previously adopted technology forcing rule such as Rule 1146.2, the SCAQMD must consider the cost effectiveness of any control measure it adopts. See, e.g., H&S Code Sections 40440, 40703, 40922. Most, if not all, non-RECLAIM sources operate under strict and modest profit margins and will face severe economic hardships if they are required to implement more stringent control requirements. Consistent with the SCAQMD's approach to Rule 1146.2, it is imperative that SCAQMD work with appropriate stakeholders to establish an "operational useful life" or "end of life cycle" that maximizes the operational flexibility and capital investment made by the impacted businesses. In effect, the prospect of companies shutting down and/or relocating their respective operations outside of SCAQMD jurisdiction would be a disservice to the economic viability of the region.

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Furthermore, the SCAQMD should explore and implement all available and potential incentive mechanisms to assist small businesses in their efforts to satisfy this control measure. One suggestion would be to incorporate and apply the mechanisms being considered for the modernization control measures of energy efficiency rebates and discounts as well as state and federal tax incentives, and low interest loans. For example, equipment being replaced in advance of reaching its “useful life” might qualify for an early replacement rebate based on the remaining expected useful life horizon. Inclusion of such incentive programs is key to the success between maintaining the balance of environmental and economic viability of businesses in the region.

The SCAQMD should adopt an “exemption clause” for specific pieces of equipment that clearly have no current technological or viable emissions control options.

Finally, as the SCAQMD moves forward in developing this control measure, SoCalGas and SDG&E respectfully request response to the following questions:

1. Has the SCAQMD performed a review and assessment of currently available Low NOx burners for each specific class of ovens, dryers, and furnaces taking into account each specific and appropriate application and process. Please make this available.
2. Has the SCAQMD ascertained the cost differential between standard units and those already employing Low NOx burners, and will it be made available?
3. Has the SCAQMD assessed the certification and related standards (including Safety Standards) for each specific class of equipment, and will it be made available?
4. Will you give manufacturers time to address the proposed future BARCT for equipment that is subject to certification requirements.
5. Has the SCAQMD prepared a comprehensive cost-effectiveness evaluation for affected industries and small businesses, and will it be made available?
6. Will the SCAQMD factor a “loss of use” into the cost-effectiveness calculation for equipment forced to be replaced when it has 10 or more years of remaining useful life?
7. In lieu of the “loss of use” factor, will the SCAQMD consider an expanded equipment replacement time horizon of 10 to 15 years?
8. Will the SCAQMD provide a breakdown of the number of pieces of equipment in each equipment category referenced in Figure 1 of the control measure , and will it be made available?

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**Attachment D**

**Control Measure MCS-03 – Energy Efficiency and Conservation**

SoCalGas and SDG&E fully support Control Measure MCS-03, as described in the Draft AQMP. The comments below reflect the companies' request that the SCAQMD consider the two proposals previously provided by SoCalGas.

Summary Description of Control Measure (Page IV-A-77)

*This proposed control measure would obtain further emission reductions through the promotion of cleaner sources of energy, reductions in energy demand and support of state and federal energy efficiency and conservation initiatives and programs.*

Proposed Method of Control and Emissions Reduction (Page IV-A-80 &81)

*The proposed method of control is to provide incentives for businesses or residents to use energy efficient equipment in the SCAQMD and increase the effectiveness of existing energy conservation programs. The SCAQMD is proposing to develop and implement specific energy efficiency and conservation programs above and beyond the state and federal mandated programs to achieve further emission reductions.*

**Comments**

SoCalGas and SDG&E are aggressively pursuing energy efficiency opportunities in their service areas to meet the energy savings goals outlined by the CPUC. As this effort is being pursued, SoCalGas and SDG&E have uncovered opportunities for savings that are not within the scope of our portfolios, but offer the opportunity for not only energy savings, but also significant emissions reductions. Unfortunately, from an energy efficiency program perspective, pursuit of those savings is not cost-effective. However, pursuing these opportunities, even if they are not cost effective on their own, may be possible by using other resources, or by joining our efforts together.

To that end, SoCalGas provided the SCAQMD with two proposals for programs that the SCAQMD could implement to achieve savings through early retirement/replacement of smaller commercial boilers and residential water heaters. In addition to providing the program concepts, on a moving forward basis, SoCalGas and SDG&E plan to fully support successful implementation of the programs including assistance with customer outreach and other related activities.

The cumulative load savings derived from the energy efficiency programs since 1990 and the programs authorized by the CPUC in D.04-09-060 are summarized in the table below. The data have been adjusted to reflect the energy savings for the four counties in the SCAQMD. The column titled "cumulative savings both programs" separates the estimated historical load impacts for 1990-2005 and the program's forecasted goals for the period spanning 2006-2013. The cumulative savings illustrate the continued effect of yearly energy reductions for those measures installed under SoCalGas' and SDG&E's

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energy efficiency programs and the low income Direct Assistance Program. The credits are taken for measures that are installed as a result of these programs and only apply for the stipulated lives of the installed measures. Until 2006, the energy efficiency programs that generate the basis for this calculation have applied exclusively to the residential and small commercial and industrial (core) markets. Beyond 2006, the energy efficiency program savings include core segments and the large commercial and industrial (noncore) contributions. The historical data show that the greatest success on load savings has been achieved by the small commercial and industrial market segments.

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Estimates for the 4 Counties in the SCAQMD						CO (lbs)	Nox (all uncontrolled) High End Estimate (lbs)	Nox (all controlled) Conservative Estimate (lbs)	Nox (Likely Average in lbs)	CO2 ( lbs)	Lead (lbs)	N2O Uncontrolled (lbs)	N2O Contolled Low Nox Burner (lbs)
						Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf
Prog Yr	Cummulative Savings (Without LIEE) (M Therms)	Cummulative Savings LIEE (M therms)	Cummulative Savings Both Programs (M therms)	Cummulative Savings Both Programs (MMcf)	Emission Factor (Lbs./MMcf)	84	100	35	75	120,000	0.0005	2.20	0.64
1990	3,000	3,599	6,599	647		54,349	64,701	22,645	48,526	77,641,002	0.3235	1,423	414
1991	6,726	7,148	13,875	1,360		114,262	136,026	47,609	102,019	163,231,073	0.6801	2,993	871
1992	10,133	10,505	20,638	2,023		169,957	202,330	70,815	151,747	242,795,873	1.0116	4,451	1,295
1993	13,203	14,784	27,987	2,744		230,480	274,381	96,033	205,786	329,257,567	1.3719	6,036	1,756
1994	14,935	16,031	30,966	3,036		255,013	303,587	106,255	227,690	364,304,344	1.5179	6,679	1,943
1995	16,349	17,370	33,719	3,306		277,685	330,577	115,702	247,933	396,692,767	1.6529	7,273	2,116
1996	17,602	18,183	35,784	3,508		294,695	350,828	122,790	263,121	420,993,473	1.7541	7,718	2,245
1997	18,907	19,016	37,923	3,718		312,308	371,796	130,129	278,847	446,154,932	1.8590	8,180	2,379
1998	19,934	19,846	39,780	3,900		327,603	390,003	136,501	292,502	468,003,826	1.9500	8,580	2,496
1999	20,780	20,327	41,107	4,030		338,530	403,012	141,054	302,259	483,613,991	2.0151	8,866	2,579
2000	21,754	20,714	42,468	4,163		349,733	416,349	145,722	312,262	499,618,461	2.0817	9,160	2,665
2001	22,597	21,354	43,950	4,309		361,944	430,886	150,810	323,164	517,062,791	2.1544	9,479	2,758
2002	23,180	22,163	45,343	4,445		373,415	444,541	155,589	333,406	533,449,708	2.2227	9,780	2,845
2003	24,034	23,265	47,299	4,637		389,522	463,716	162,301	347,787	556,459,779	2.3186	10,202	2,968
2004	24,840	24,131	48,971	4,801		403,288	480,104	168,037	360,078	576,125,167	2.4005	10,562	3,073
2005	25,646	24,896	50,542	4,955		416,230	495,512	173,429	371,634	594,614,555	2.4776	10,901	3,171
2006	36,195	25,484	61,678	6,047		507,941	604,691	211,642	453,518	725,629,364	3.0235	13,303	3,870
2007	48,202	26,091	74,293	7,284		611,826	728,364	254,927	546,273	874,036,878	3.6418	16,024	4,662
2008	62,151	26,717	88,868	8,713		731,853	871,253	304,939	653,440	1,045,503,642	4.3563	19,168	5,576
2009	78,426	27,363	105,790	10,372		871,209	1,037,154	363,004	777,865	1,244,584,626	5.1858	22,817	6,638
2010	95,265	28,030	123,295	12,088		1,015,372	1,208,776	423,072	906,582	1,450,531,387	6.0439	26,593	7,736
2011	112,057	28,719	140,775	13,801		1,159,326	1,380,150	483,052	1,035,112	1,656,179,769	6.9007	30,363	8,833
2012	130,921	29,429	160,350	15,721		1,320,530	1,572,060	550,221	1,179,045	1,886,471,888	7.8603	34,585	10,061
2013	151,194	30,162	181,356	17,780		1,493,521	1,778,001	622,300	1,333,501	2,133,601,568	8.8900	39,116	11,379
Cummulative Achieved 1990-2005	25,646	24,896	50,542	4,955		416,230	495,512	173,429	371,634	594,614,555	2	10,901	3,171
Cummulative Planned 2006-2013	125,548	5,266	130,814	12,825		1,077,291	1,282,489	448,871	961,867	1,538,987,012	6	28,215	8,208
Cummulative Grand Total 1990-2013	151,194	30,162	181,356	17,780		1,493,521	1,778,001	622,300	1,333,501	2,133,601,568	9	39,116	11,379

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						PM (Total in lbs)	PM (Condesable in lbs)	PM (Filterable in lbs)	SO2 (in lbs)	TOC (in lbs)	Methane (in lbs)	VOC (in lbs)
Estimates for the 4 Counties in the SCAQMD						Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf	Lbs./MMcf
Prog Yr	Cummulative Savings (Without LIEE) (M Therms)	Cummulative Savings LIEE (M therms)	Cummulative Savings Both Programs (M therms)	Cummulative Savings Both Programs (MMcf)	Emission Factor (Lbs./MMcf)	7.60	5.70	1.90	0.60	11	2.30	5.50
1990	3,000	3,599	6,599	647		4,917	3,688	1,229	388	7,117	1,488	3,559
1991	6,726	7,148	13,875	1,360		10,338	7,753	2,584	816	14,963	3,129	7,481
1992	10,133	10,505	20,638	2,023		15,377	11,533	3,844	1,214	22,256	4,654	11,128
1993	13,203	14,784	27,987	2,744		20,853	15,640	5,213	1,646	30,182	6,311	15,091
1994	14,935	16,031	30,966	3,036		23,073	17,304	5,768	1,822	33,395	6,982	16,697
1995	16,349	17,370	33,719	3,306		25,124	18,843	6,281	1,983	36,364	7,603	18,182
1996	17,602	18,183	35,784	3,508		26,663	19,997	6,666	2,105	38,591	8,069	19,296
1997	18,907	19,016	37,923	3,718		28,256	21,192	7,064	2,231	40,898	8,551	20,449
1998	19,934	19,846	39,780	3,900		29,640	22,230	7,410	2,340	42,900	8,970	21,450
1999	20,780	20,327	41,107	4,030		30,629	22,972	7,657	2,418	44,331	9,269	22,166
2000	21,754	20,714	42,468	4,163		31,643	23,732	7,911	2,498	45,798	9,576	22,899
2001	22,597	21,354	43,950	4,309		32,747	24,560	8,187	2,585	47,397	9,910	23,699
2002	23,180	22,163	45,343	4,445		33,785	25,339	8,446	2,667	48,900	10,224	24,450
2003	24,034	23,265	47,299	4,637		35,242	26,432	8,811	2,782	51,009	10,665	25,504
2004	24,840	24,131	48,971	4,801		36,488	27,366	9,122	2,881	52,811	11,042	26,406
2005	25,646	24,896	50,542	4,955		37,659	28,244	9,415	2,973	54,506	11,397	27,253
2006	36,195	25,484	61,678	6,047		45,957	34,467	11,489	3,628	66,516	13,908	33,258
2007	48,202	26,091	74,293	7,284		55,356	41,517	13,839	4,370	80,120	16,752	40,060
2008	62,151	26,717	88,868	8,713		66,215	49,661	16,554	5,228	95,838	20,039	47,919
2009	78,426	27,363	105,790	10,372		78,824	59,118	19,706	6,223	114,087	23,855	57,043
2010	95,265	28,030	123,295	12,088		91,867	68,900	22,967	7,253	132,965	27,802	66,483
2011	112,057	28,719	140,775	13,801		104,891	78,669	26,223	8,281	151,816	31,743	75,908
2012	130,921	29,429	160,350	15,721		119,477	89,607	29,869	9,432	172,927	36,157	86,463
2013	151,194	30,162	181,356	17,780		135,128	101,346	33,782	10,668	195,580	40,894	97,790
Cummulative Achived 1990-2005	25,646	24,896	50,542	4,955		37,659	28,244	9,415	2,973	54,506	11,397	27,253
Cummulative Planned 2006-2013	125,548	5,266	130,814	12,825		97,469	73,102	24,367	7,695	141,074	29,497	70,537
Cummulative Grand Total 1990-2013	151,194	30,162	181,356	17,780		135,128	101,346	33,782	10,668	195,580	40,894	97,790

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The first step in this evaluation required making an appropriate conversion from MMcf to lbs for all identified pollutants linked to stationary combustion sources. Emissions from natural gas fired appliances include nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM). The emissions factors for each of the identified pollutants are included in the tables and were obtained from the EPA.<sup>1</sup>

The greatest emissions reductions are observed for CO and NO<sub>x</sub>. There are three estimates for NO<sub>x</sub> reduction because the data we based the calculations on were not initially segmented by equipment type(s). We believe that the equipment inventory in the data pool is neither entirely comprised of uncontrolled units nor entirely controlled units but some combination of the two. We calculated what the NO<sub>x</sub> reductions would be under each of the two extreme scenarios in order to generate a range for what the worst and best case scenarios could be. The column labeled “NO<sub>x</sub> Likely Average” evaluates emissions in a world where the appliances are equipped with a 40 mg (NO<sub>x</sub>)/joule rating, which is the current standard. We believe the emissions reductions achieved in response to the implemented energy efficiency programs have shown great promise in reducing smog and other pollutants. SoCalGas and SDG&E believe that with continued public outreach, a bigger impact on emissions reductions can be achieved through the energy efficiency program measures.

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<sup>1</sup> *Emission Factor Documentation for AP-42 Section 1.4—Natural Gas Combustion*, Technical Support Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC, 1998.



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**Attachment E**

**Control Measure LTM-04 – Concurrent Reductions from Global Warming  
Strategies**

SoCalGas and SDG&E support in concept Control Measure LTM-04, but have a number of questions about how the proposal would be implemented

Summary Description of Control Measure (Page IV-A-139)

*The Climate Action Team's (CAT) report, published in March 2006, recommends 46 specific emission reduction control strategies for greenhouse gas (GHG). Many of the strategies also reduce ozone, criteria and toxic pollutants. There are 11 control measures that were adopted by various state agencies and are underway. These measures were estimated to provide approximately 22 million tons CO<sub>2</sub> equivalent in emission reductions in 2010, and 68 million tons CO<sub>2</sub> equivalent in emission reductions in 2020, "or about half of the CO<sub>2</sub> emission reductions needed to reach the Governor's goals." Two other key strategies in the state are the Energy Efficiency Programs and the Renewable Portfolio Standard which contributed about 16 and 11 millions tons CO<sub>2</sub> equivalent reductions in 2020.*

Proposed Method of Control and Emissions Reduction (Page IV-A-145 &146)

*This measure proposes to quantify the concurrent criteria pollutant (including precursor) emission reductions associated with Statewide GHG programs targeted at stationary and mobile sources in the South Coast Air Basin working with various state agencies.*

**Comments**

SoCalGas and SDG&E support the intent of the SCAQMD's Proposed Control Measure. However the SCAQMD has assumed for the purpose of this draft plan, a 15% across the board reduction in criteria pollutant emissions from all fuel combustion source categories. The Measure has an initial estimate of 40 tpd of NO<sub>x</sub> emission reductions in 2020 and 27 tpd of VOC emission reductions in 2020. We have several questions about these estimates.

**Comment 1: Verifying the Inventory**

As the description of the Proposed Control Measure notes, a significant portion (but less than half) of the 174 million tons of CO<sub>2</sub> emission reductions currently estimated to be needed to reach the Governor's goals have been adopted. The baseline inventory for the 2007 AQMP already has been reduced to account for such proposed GHG emission control measures as the Energy Efficiency Programs and the current version of the Renewable Portfolio Standard.

1. Does your estimate of 40 tpd of NO<sub>x</sub> emission reductions in 2020 in this Proposed Control Measure exclude concurrent criteria pollutant emission reductions associated with these programs?

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2. Does the AQMP baseline inventory account for the other programs already adopted by state agencies, e.g., the regulations recently adopted by California Air Resources Board (CARB) (pursuant to AB 1493, Pavley) to reduce CO<sub>2</sub> emissions from passenger vehicles sold in California?

**Comment 2: Plan Synchronization**

CARB has reviewed the CAT report, and done a preliminary prioritization of the most cost effective CO<sub>2</sub> emission reductions measures. The following table shows their most recent thinking:

Source	% of 2020 Target
Electric sector	31
Passenger vehicles	20
Forestry management	20
HFC (refrigerants)	5
Waste management (methane)	5
Building, appliance efficiency	5

This leaves only 14% from “Other” sectors, which would include direct combustion from such things as heavy-duty trucks and stationary combustion sources outside of the Electric sector.

Considering the above chart, it seems that the 2007 AQMP and the preliminary AB 32 plan by CARB are not “synchronized.” In other words, the criteria pollutant emissions (including precursor emissions) reductions required to reach attainment of PM<sub>2.5</sub> and the eight hour ozone standards, may not correspond to the list of projects that the CAT has identified as cost-effective. If this is true, then CAT and the SCAQMD may be envisioning different sets of projects that will yield different emissions reductions. This could be a less efficient path to achieving all of the air quality objectives that the two agencies are trying to meet, i.e., the PM<sub>2.5</sub> standards, the eight hour ozone standards, and the AB 32 reduction of 174 million tons of CO<sub>2</sub>.

An example will illustrate the divergence. In the 2007 AQMP inventory, the NO<sub>x</sub> emissions from electric generation account for less than 3.5 tpd of NO<sub>x</sub> out of a total of 74 tpd of NO<sub>x</sub> for all stationary and area sources (2020 planning inventory of 7/12/06), or less than 5% of the total. However, the CAT is estimating that 31% of the CO<sub>2</sub> emission

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reductions currently estimated to be needed to reach the Governor's goals could be achieved cost-effectively from the Electric sector.

If the CARB plan under AB 32 follows the path outlined in the chart above, concurrent NO<sub>x</sub> emission reductions from direct combustion (mobile and stationary) outside of the electric generation sector would be a smaller portion of their plan than is anticipated in the AQMP. We urge the SCAQMD and CARB to compare and contrast these air quality plans to determine what must be done to achieve attainment of the federal National Ambient Air Quality Standards (NAAQS) and the AB 32 requirements. In the best case, there would be one path of concurrent emissions reductions that would include control measures that are both cost effective and most efficient at achieving all three air quality objectives.

**Comment 3: Geographic Diversity**

With regard to the above chart from CARB, we wish to note that emissions reductions from each sector will not be confined to the South Coast Air Basin, but may occur throughout the state, or even outside of the state. For example, many of the CO<sub>2</sub> emission reductions in the Electric sector will be attributed to electricity generated outside of the South Coast Air Basin.

**Comment 4: Market Mechanisms and Surplus Requirements**

AB 32 Section 38562 (d)(2), says that for market based compliance mechanisms, "...the [greenhouse gas] reduction [must be] in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur."

It is important that SCAQMD draft its rules in a manner that does not undercut regulated sources' ability to obtain GHG credit under AB 32. Since we believe that market mechanisms offer a proven way to achieve low cost air quality compliance, we urge the SCAQMD to coordinate this AQMP with the CARB's plan for AB 32. Ideally, there would be one path of concurrent emissions reductions that would be both cost effective and most efficient at achieving all three air quality objectives, i.e., the PM<sub>2.5</sub> standards, the eight hour ozone standards, and the AB 32 reduction of 174 million tons of CO<sub>2</sub>.

In addition, the requirements that CARB will impose pursuant to AB32 will be state-only requirements, and will not be federally enforceable. SCAQMD should take care to draft its rules in a manner that maintains this federal/state distinction and should not create a situation where it turns AB32 measures into federally-enforceable State Implementation Plan requirements.

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**Attachment F**

**Control Measure MCS-01 – Facility Modernization (Non-RECLAIM Sources)**

SoCalGas and SDG&E are concerned that Control Measure MCS-01, as described in the Draft AQMP, lacks important information. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-65)

*This control measure would obtain emission reductions of NO<sub>x</sub>, VOC and PM<sub>2.5</sub> by requiring that facilities modernize or replace existing equipment at the end of its pre-specified "useful life."*

Proposed Method of Control and Emissions Reduction (Page IV-A-69 &70)

*This measure proposes to develop a list of useful equipment life by equipment category and equipment operators would be expected to achieve BACT or equivalent emission limits at the end of a piece of equipment's pre-determined "useful life."*

**Issue #1: Today's BACT**

Proposed measure MCS-01, Facility Modernization, would require retrofitting or replacement of existing equipment "with today's BACT" at the end of a pre-determined life span. The Draft AQMP states that "[t]oday's BACT is likely to be less stringent than the future BACT that would ordinarily be applied for equipment replacement at a future date." See Draft AQMP at IV-A-67. The Draft AQMP does not provide any other definition or description of "today's BACT" for purposes of this requirement.

**Comment #1**

SoCalGas and SDG&E agree that any technology required pursuant to the Facility Modernization rule should be currently available technology that is identifiable today, as opposed to a moving target that cannot be determined until some later date. This structure is important because, among other things, it gives industry the certainty it requires for future financial planning and gives SCAQMD the certainty it requires for accurate air quality forecasting. We are concerned, however, that SCAQMD's proposal to define the applicable technology as "today's BACT" is confusing because BACT is a pre-existing term that defines technology requirements according to an evolving standard. We are similarly concerned that SCAQMD's discussion of the proposed rule in the context of new source review is confusing because the new source review program includes several elements that are not applicable to the Facility Modernization requirement. Therefore, SoCalGas and SDG&E recommend that SCAQMD develop a Facility Modernization Rule outside the context of new source review – as an entirely new rule that applies in addition to other existing rules. For example, the rule could reference a new technology requirement (e.g., Reasonable End of Life Technology

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("RELT")) defined to mean a technology relevant at a particular period in time. Moreover, instead of characterizing the rule as part of the new source review program, SoCalGas and SDG&E suggest that SCAQMD characterize the rule as an "other measure" necessary to attain the ozone and PM<sub>2.5</sub> standards by the applicable attainment deadlines. See Draft AQMP at 1-16, Table 1-4, for a list of provisions appropriate for inclusion in a nonattainment plan.

**Issue #2: Useful Equipment Life**

Proposed Method of Control (Page IV-A-68)

*The SCAQMD, as part of rulemaking will develop a list of useful equipment life by equipment category.*

*During the rulemaking process for this control measure, a more detailed analysis will be performed to establish appropriate useful lives for various equipment categories and size ranges.*

**Comment #2**

The SCAQMD's efforts to establish "*appropriate useful lives for various equipment categories*" is intended to accelerate the replacement of aging equipment that does not effectively meet the latest Air Quality objectives. However, great care and diligence must be taken to define useful lives in a manner that is fair, appropriate and protective of the economy and companies with marginal profits. As such, the SCAQMD is urged to avoid a "one size fits all" approach. Some of the factors that we believe must be thoroughly examined and taken into consideration are the following:

Economic flexibility of a business or business sector:

Useful life should be defined according to real operational experiences (i.e., when a particular type of equipment is actually retired in practice) as opposed to hypothetical retirement dates established by manufacturers or without regard to actual operational practices. For many businesses, a purely operational "useful life" is determined by the availability of replacement parts, good maintenance practices, equipment reliability, and the ability to maintain compliance with existing permit conditions and emissions limits. If permitted emissions limits are being met and the equipment functions as expected there is no need for a replacement. These and other "real world" examples of circumstances under which equipment is actually retired in practice for a particular business segment should be closely examined in order to determine the appropriate useful life.

In addition, the analysis should reflect the possibility that companies may have to shut down or relocate their operations if they cannot replace critical equipment at a pre-determined "end of life" cycle. This would act to protect smaller, financially limited operations from being forced to shut down or relocate.

The SCAQMD should also explore implementing possible exemption mechanisms or replacement options for smaller businesses or businesses that have limited resources for

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capital improvements. Incorporating such provisions would help to retain such businesses in the Air Basin and contribute to a diverse business infrastructure.

### Identification of similar equipment types and processes

“Appropriate useful life” should be defined for specific equipment types on a detailed level. A category such as “external combustion” may be too crude as it may include boilers, heaters, furnaces, melting pots, crucibles, etc.

The defined useful lives should also account for differences in sizes, throughputs and operating environments of otherwise similar equipment as these variables may affect actual operating life.

### **Issue #3: Tax Incentives for Modernization/Early Replacement**

*As part of its efforts to implement this control measure and to promote facility modernization, the SCAQMD will forge partnerships with local businesses, trade organizations, environmental groups, and other stakeholders, and pursue state and federal tax incentives. Early replacement of equipment significantly prior to specified useful life may qualify for the tax incentives or potential credit generation.*

### **Comment #3**

SoCalGas and SDG&E support the forging of partnerships to identify and pursue opportunities for state and federal tax incentives to modernize equipment, especially in the event of “early replacement”. Further, we believe that focused efforts in this area are greatly needed for other incentive mechanisms (such as manufacturer rebates or discounts) to stimulate equipment and facility modernizations. Again, as with establishing a clear basis for the “useful life” definition (above), the SCAQMD needs to be equally alert to define what it considers “replacement... significantly prior to specified useful life...”(Emphasis added).

One concern we have relates to the viability of an incentive program for replacements “significantly prior” to a specified end of useful life. If it is determined that a great number of the affected facilities are already near or at the “end of useful life” then such an incentive mechanism would have minimal effect in the regulated universe. Even so, the few who are in a position to benefit by such incentives may not be financially able to consider another replacement process on the heels of a relatively recent replacement effort. Unfortunately, exclusion would exist based largely on the timing of the rule adoption.

### **Issue #4: Impact on RECLAIM Facilities**

*This control measure would affect a wide variety of permitted equipment and processes. Consequently, the rules and regulations impacting the affected sources are extensive and are summarized briefly.*

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*Regulation XX (RECLAIM) specifies requirements for facilities participating in the market incentive program, which is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx.*

**Comment #4:**

It is currently unclear exactly how extensively the Facility Modernization measures will affect RECLAIM sources. Clearly, NOx emissions from RECLAIM sources will remain subject to facility-wide emissions criteria under the RECLAIM Program. However, requirements to provide retrofits or replacements for other pollutants is unclear.

SoCalGas and SDG&E request that the SCAQMD provide information regarding the expected impacts, the associated cost-effectiveness and that the SCAQMD provide the following additional information:

1. The proposed Modernization Requirement (MSC-01) requires retrofitting or replacement of existing equipment with modern technology at the end of a pre-determined life span. Please confirm the pollutants for which control technology must be installed at the end of useful life. Specifically, does the requirement solely apply to NOx control technology, or will control technologies for other pollutants also be required at the end of useful life? Does the answer change if the NOx control technology a facility is required to install increases the facility's emissions of another pollutant (e.g., installation of certain NOx control technologies increase CO emissions)?
2. Our understanding is that the DC Circuit recently vacated the pollution control exemption from federal new source review and prevention of significant deterioration programs. In light of this development and the limited exemptions from SCAQMD's own new source review rules, will installation of technology pursuant to the Facility Modernization rule trigger federal or state new source review requirements? If so, has SCAQMD factored new source review costs and associated permitting delays into its cost-effectiveness analysis?
3. Please provide your cost-effectiveness calculations and assumptions for Control Measure MSC-01.

**Comment #5:**

Another concern relates to the permitting time required for a replacement project. Depending on the complexity of the equipment or process to be replaced, the planning, design and permitting phase can take several years. The increased workload on SCAQMD engineers due to numerous new applications to permit replacement equipment can exacerbate an ongoing backlog problem at the SCAQMD. As such, a strategy must be in place in advance so that the permit staff can address and track such time-sensitive projects. Also, clear guidance on what constitutes "early replacement" is critical and must

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be communicated to potential applicants. It should be clear what role the application date, permit issuance date, actual equipment installation date, source test approval date, etc., play in qualifying for and obtaining such early installation incentives. A facility should not be “penalized” while waiting for the SCAQMD to act on a permit application.



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**Attachment G**

**Control Measure LTM-02 – Further Emission Reduction from NOx RECLAIM  
Facilities (Phase 2)**

SoCalGas and SDG&E are concerned that Control Measure LTM-02, as described in the Draft AQMP, lacks important information. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-133)

*This proposed control measure would obtain further emission reductions of NOx from RECLAIM in two phases. Phase I will seek reductions through a shave mechanism of RECLAIM allocations due to potential emissions increases of burning natural gas with a Wobbe Number greater than 1360 Btu/scf beginning in 2008. Phase II is expected to further reduce NOx emissions in the next 10 to 15 years as newer BARCT technology evolves and phased in as the required emissions control. Additional reduction is augmented as a reflection of BACT installation as RECLAIM NSR is triggered.*

Proposed Method of Control and Emissions Reduction (Page IV-A-134 &135)

*Phase II is estimated to reduce NOx emissions between 3 to 5 tpd with the development of new BARCT and BACT standards.*

**Comment**

Please see SoCalGas' prior comments regarding Phase I of this proposal. SoCalGas' comments in this section address Phase II of the proposal.

SoCalGas and SDG&E do not support the SCAQMD's Control Measure LTM-02 Phase II seeking an additional 3 to 5 tpd of NOx reductions. The projected emissions are unsubstantiated and presently have no valid data or study. SoCalGas and SDG&E contend that before any reductions can be accurately quantified, the SCAQMD must perform a comprehensive BARCT and BACT equivalency assessment and related impact study. This study should be conducted with input from all affected stakeholders, including a broad cross section of affected industries, end-users, industry trade groups, technology trade groups, vendors, and suppliers. For a reasonable and accurate assessment approach, key evaluation criteria should include:

- Methodology of BARCT/BACT determination
- Cost-effectiveness evaluation
- Method of applying reductions (program wide or industry specific)
- Timing of reductions
- Socioeconomic impact

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Careful consideration must also be taken in establishing and committing to the proposed Phase II reductions as we could anticipate a more accelerated advancement in mobile source emissions control technology reductions which may offset the overall required reductions from stationary sources to meet our Ozone attainment goals in 2021.

In addition, as in previous RECLAIM BARCT equivalency analyses, great care and diligence must be considered to avoid a “one size fits all” approach as technological advancements become more sophisticated and process specific. The SCAQMD must further consider and identify equipment classes in a more detailed and finite level, taking into account economic and financial impacts as well as industry-specific operating environments. This approach is important as it gives industry the certainty it requires for effective business and financial planning and reflects upon the SCAQMD’s certainty for accurate air quality emissions projections.

As anticipated future BARCT technologies evolve over the next 10 to 15 years, SoCalGas and SDG&E would support fostering partnerships with the SCAQMD and affected industries to help identify and develop additional opportunities to seek cost-effective equipment modifications and/or replacement.

Finally, SoCalGas and SDG&E are submitting the following questions and requests for information for SCAQMD response:

1. Please provide detailed calculations and assumptions supporting the proposed Phase II NO<sub>x</sub> reductions value.
2. Will the BARCT/BACT equivalency analysis incorporate a “useful life expectancy” in the equation? If so, what is it and what is the basis?
3. What is the breakdown of RECLAIM NO<sub>x</sub> equipment already at BARCT and/or BACT standards?
4. What is the breakdown of current RECLAIM NO<sub>x</sub> sources without BARCT and/or BACT standards?
5. In performing the BARCT/BACT equivalency analysis, what is the anticipated cost-effectiveness threshold and what is the basis for this number?
6. How will the SCAQMD seek the proposed Phase II reductions: system-wide versus industry specific?

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**Attachment H**

**Control Measure CMB-03 – Further NO<sub>x</sub> Reductions from Space Heaters**

SoCalGas and SDG&E are concerned that Control Measure CMB-03, as described in the Draft AQMP, lacks important information. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-40)

*This proposed control measure would obtain further emission reductions of NO<sub>x</sub> from low NO<sub>x</sub> burners on space heaters.*

Proposed Method of Control and Emissions Reduction (Page IV-A-40 &41)

*This proposed control measure would likely require the use of power premix burners in space heaters and the promotion of heat pump usage.*

**Comments**

SoCalGas and SDG&E support the development of and use of clean natural gas-fired technologies for the improvement of the environment in Southern California. However, the implementation of a control measure should be technically feasible without a negative impact to the consumer or unfair advantage to any one entity. Therefore, SoCalGas and SDG&E seek further clarification to the assumptions made in CMB-03.

1. As the use of a furnace is seasonal, emissions occur during the winter months only and not during the hot summer months when ozone exceedances are worse, has the SCAQMD considered the effectiveness of emissions reductions throughout the year for this control measure? What months of the year are included in the Summer Planning Inventory? What assumptions were used in developing the NO<sub>x</sub> inventory for the summer?
2. Has the SCAQMD considered the additional costs to the consumer for newer technology associated with low NO<sub>x</sub> fan-type furnaces? Will this result in fewer appliance choices for the consumer? Please provide data on your estimate of \$10,000 per ton NO<sub>x</sub> reduction?
3. The SCAQMD states that most single-family homes and many multiunit residences have natural gas-fired fan-type furnaces. Can the SCAQMD provide estimates of the quantity of homes with natural gas-fired fan-type furnaces?
4. The SCAQMD states that NO<sub>x</sub> emissions from natural gas-fired fan-type furnaces can be controlled with low NO<sub>x</sub> burners. Can the SCAQMD provide information on any currently available technology to support this statement?
5. The SCAQMD proposes the use of premix burners (power and atmospheric). Can the SCAQMD provide the range of furnace inputs of the power and premix burners? Are there current technology or burners that can support this statement? Has the SCAQMD developed preliminary estimates for costs and time associated with

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- developing and testing of premix burner technology for fan-type furnaces? Has the SCAQMD considered the additional electric energy use of the premix burner?
6. The SCAQMD is proposing the use of electric heat pumps as an alternative control strategy for space heating. Has the SCAQMD considered the impact of electric heat pump to:
    - a. The electric grid?
    - b. The emissions associated with electric generation?
    - c. The effectiveness of heat pumps to provide space heating throughout the SCAQMD?
  7. The SCAQMD states that an emissions reduction of 50% to 75% is possible. Is it possible for existing fan-type furnaces of similar size and heat exchanger configurations or will a new design of a furnace be required? If a new design will be required, has the SCAQMD estimated the costs and time associated with developing and testing this technology as ultimately these costs are going to be borne by the consumer?
  8. Can existing test protocols be utilized for testing and certification or will new protocols be required?
  9. Please provide SCAQMD's cost effectiveness and emissions reduction calculations and assumptions.

SoCalGas and SDG&E have identified inconsistencies between the SCAQMD NO<sub>x</sub> projection and our own NO<sub>x</sub> calculations.

On Page IV-A-40 of the Draft 2007 AQMP in the summary table of the NO<sub>x</sub> emissions projections and the NO<sub>x</sub> reductions anticipated from CMB-03. The table below shows the projection:

NO<sub>x</sub> Emissions (tons/day)

	<u>2002</u>	<u>2014</u>	<u>2020</u>
Annual Average	9.7	10.5	11.0
Summer Planning Inventory	3.4	3.6	3.8

SoCalGas and SDG&E have calculated the following projection:

Annual Average	Burner Technology	<u>2005</u>	<u>2014</u>
Residential	40 ng (NO <sub>x</sub> )/J	9.28	10.16
Residential	14 ng (NO <sub>x</sub> )/J	2.38	2.61
Commercial	40 ng (NO <sub>x</sub> )/J	1.69	1.90
Commercial	14 ng (NO <sub>x</sub> )/J	0.43	0.49
Summer Planning Inventory			
Residential	40 ng (NO <sub>x</sub> )/J	2.06	2.25
Residential	14 ng (NO <sub>x</sub> )/J	0.53	0.58
Commercial	40 ng (NO <sub>x</sub> )/J	0.38	0.42

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Commercial	14 $\mu\text{g (NO}_x\text{)}/\text{J}$	0.10	0.11
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The charts above illustrate how emissions are projected to grow if the technology were to remain fixed at the current level of 40  $\mu\text{g (NO}_x\text{)}/\text{J}$ . Residential and commercial space heating load is expected to grow in the future but if new technology is acquired by 2011 which would require a 14  $\mu\text{g (NO}_x\text{)}/\text{J}$  technology, the emissions reductions would be reduced by more than 75%. These numbers reveal larger NO<sub>x</sub> savings resulting from the new technology than what is calculated by the SCAQMD.

SoCalGas and SDG&E seek to better understand the manner in which the published numbers were derived. Please provide information on the following:

1. How does the SCAQMD define the summer season?
2. What is the source of the current and forecasted space heating load?
3. What relevant emissions factors were utilized in converting the space heating load in therms into an emissions inventory in NO<sub>x</sub> tons/day?
4. Were the published numbers exclusive of commercial space heating load? If not, what are the relevant splits between the residential and commercial sectors?
5. Were any other adjustments applied to the NO<sub>x</sub> calculations which may be relevant for this end use?

We strongly encourage the SCAQMD to meet with furnace manufacturers, furnace distributors, installing contractors, local utility companies, consumer groups and other key stakeholders to develop realistic objectives and a timeline for this control measure.

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**Attachment I**

**Control Measure BCM-03 –Emission Reductions from Wood Burning Fireplaces  
and Wood Stoves**

SoCalGas and SDG&E are concerned that Control Measure BCM-03, as described in the Draft AQMP, lacks important information. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-53)

*This proposed control measure would obtain further emission reductions from wood burning fireplaces and wood stoves.*

Proposed Method of Control and Emissions Reduction (Page IV-A-56)

*This proposed control measure will implement a number of control strategies that would limit or prohibit the use of wood burning appliances.*

**Comments**

SoCalGas and SDG&E support the overall SCAQMD goals of reducing particulates emission from wood burning fireplaces and wood stoves. However, SoCalGas and SDG&E also wish to ensure that implementation of the control measure recognizes, and proactively minimizes, the impacts on its residential and business customers.

Accordingly, SoCalGas and SDG&E seek further clarification on the following questions and requests for information:

1. The AQMP states Fireplace Inserts and wood stoves are much more efficient than conventional fireplaces. Please provide comparative efficiency ratings for the devices.
2. The AQMP states: "majority of particulate emissions from residential wood burning are less than 2.5 micrometers". Please provide a complete breakdown of emissions from incomplete wood burning, including polycyclic organic matter.
3. Please provide details of the estimated number of wood burning households and the amount of wood burned per household by county, which constitutes the basis for the emissions inventory presented in the control measure summary?
4. The AQMP states, "new device technology and non-conventional fuels (natural gas, manufactured logs, etc.) can increase combustion efficiency and thus reduce emissions" and accordingly proposes EPA certification standards (or more stringent standards) on all wood combustion devices. This is somewhat open-ended and may be redundant. What higher standards are being considered, and has the SCAQMD considered the financial impact on residential customers? How does the SCAQMD propose to develop and implement such standards?
5. When does the SCAQMD expect to conclude a re-evaluation of the emissions inventory and feasibility study? Will the results be made available to interested stakeholders?

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6. How does the SCAQMD define “uncontrolled” fireplaces?
7. The AQMP proposes to prohibit the sale, installation, and transfer of non-EPA-certified wood burning appliances. Has the SCAQMD considered the impact on home sales and the real estate brokerage community as well as customers interested in selling their homes? How will the SCAQMD monitor the installation of uncertified wood burning appliances and what would be the estimated cost for this activity?
8. The AQMP proposes to require proper operation of EPA-certified wood burning appliances. Please elaborate on how this will be implemented how proper appliance function will be ensured, and the estimated costs.
9. The AQMP proposal relies exclusively on targeting manufacturers and dealers of wood burning fireplaces, and not any voluntary measures. The suggested alternative fuels (natural gas, propane, etc.) may not be available or feasible in certain locations, which might render installation of less polluting devices impossible. These areas may have to be exempt from the rulings. In areas where natural gas and propane may not be readily available, what is the estimated cost to consumers to convert to an alternative fuel source?
10. While the control measures may be welcomed by some of the medically disadvantaged customers (e.g., asthmatics) it may place undue burden on SoCalGas’ and SDG&E’s limited income or fixed income customers, with other medical conditions. Please provide the cost implications for the communication efforts or the impact on these customers.
11. SoCalGas and SDG&E have observed (from the programs being implemented in other territories in the north) initial adverse reactions from real estate professionals, homebuilders, and low income / medically disadvantaged customer segments. Please provide the identified appropriate educational strategies and the estimated costs to implement them.
12. In general, the variety of fireplaces available and the array of fuel options are very wide and could be very confusing. Consequently, customer education of the control measures and consumer benefits could be a very daunting task. Please provide the estimated education and outreach costs.

In summary, the SCAQMD should take the time necessary to fully understand the customer impact in general and the impacts on specific customer segments, and develop appropriate strategies for managing the implementation aspects. As part of this assessment, SCAQMD should provide complete data for the incremental cost effectiveness and estimated emissions reductions calculations. Finally, we believe that the SCAQMD should work closely with the Hearth, Patio, and Barbecue Association and the local utilities to ensure success.

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**Attachment J**

**Control Measure BCM-05 – Emission Reductions from Under-fired Charbroilers**

SoCalGas and SDG&E are concerned that Control Measure BCM-05, as described in the Draft AQMP, lacks important information. The comments below reflect the companies' request that the SCAQMD add appropriate justification, including the basis of assumptions and a more thorough explanation of the factors involved.

Summary Description of Control Measure (Page IV-A-62)

*This proposed control measure would obtain further emission reductions from restaurant operations using under-fired charbroilers.*

Proposed Method of Control and Emissions Reduction (Page IV-A-63)

*This proposed control measure would implement in two phases: Phase I would examine the feasibility of charbroilers controls; Phase II would implement any feasible controls.*

**Comments**

SoCalGas and SDG&E want to ensure that the impact of this control measure on the restaurant industry is minimized. The SCAQMD must ensure that any hood capture systems developed to control particulate emissions from under-fired charbroilers meet existing safety standards, are reliable and are affordable. Additionally, the cost effectiveness analysis must demonstrate that the cost of control is reasonable. Our specific comments follow.

1. **Phase 1 Feasibility Study:** SoCalGas and SDG&E support the proposed plan to conduct an initial Feasibility Study to identify cost-effective particulate controls for use with under-fired charbroilers. This is particularly appropriate when considering the long history of efforts devoted to finding effective control strategies. Since 1991, SCAQMD has worked with the restaurant industry and with equipment vendors to develop and validate a multitude of control equipment. Unfortunately, none of the tested new products demonstrated a high degree of particulate reduction at a reasonable cost, resulting in the SCAQMD Board adopting a "finding of infeasibility" in December 2004.

SoCalGas and SDG&E recommend that this Feasibility Study be conducted by an independent third party that is familiar with the existing testing protocols and is knowledgeable about under-fired charbroiler / restaurant operations.

2. **Technology issues:** As the SCAQMD is well aware, having assessed various control systems for over 16 years, developing a system that effectively removes particulate emissions over an extended period of time in a commercial cooking environment is extremely difficult. Cost considerations, for both first cost and for periodic maintenance, are critical issues for a restaurant owner, many of whom are small businesses. Other unique technical challenges include a need for direct access to the front of the under-fired charbroiler to manage the cooking process and the need for the cooked meats to maintain a charbroiled taste and appearance. Many restaurants base their culinary reputations on charbroiled foods. The Feasibility Study needs to consider all these technical issues, in addition to



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emission reduction capabilities.

3. **Market impacts:** SoCalGas and SDG&E estimate that over 3,500 food service operations in the SCAQMD use under-fired charbroilers. Operations range from large fast food chains like El Pollo Loco and Carl's Jr. to many smaller independent restaurants. If regulations are developed for under-fired charbroilers, we recommend that the SCAQMD continue to exempt smaller operators. (The existing Rule 1138, for chain driven charbroilers, exempts operators who cook less than 875 pounds of meat per week.)

In summary, the SCAQMD should take the time necessary to fully understand the technology and product issues, related costs, and assess impacts on various food service operations. As part of this assessment, SCAQMD should provide complete data for the incremental cost effectiveness and estimated emissions reductions calculations. Finally, we believe that the SCAQMD should work closely with the California Restaurant Association and with key food service operators in Phase 1 and, if justified, during Phase 2 product assessments.