

R.13-11-005

Order to Show Cause Against Southern California Gas Company Issued December 2, 2019

Sierra Club Exhibit

Exhibit SC-07

006_Sierra_Club-SCG_01_R.13-11-005

Carney, Kevin P.

From: Williams, Ted <TWilliams@aga.org>
Sent: Tuesday, May 12, 2020 5:57 AM
To: Carney, Kevin P.
Cc: Ranfone, Jim
Subject: [EXTERNAL] FW: Sierra Club webcast
Attachments: AGA Comments on IAQ in California Title 24 Proceeding - RMI -AGA Internal Distribution.pdf

*** EXTERNAL EMAIL - Be cautious of attachments, web links, and requests for information ***

Hi, Kevin,

See the email below and the attachment this email. I had not kept you in the loop on this issue of IAQ and gas ranges because I was focused on working with two groups at SoCal Gas on these issues (Deanna Haines in responding to Rocky Mountain Institute in the CEC Title 24 proceeding and [REDACTED] et. al. in responding to the Sierra Club/UCLA study report, which is likely to become an issue before CARB). I apologize for this oversight on my part if you haven't been in touch with either of these efforts. As I mention below, I wasn't clear to me whether Deanna and [REDACTED] were working together. Anyway, the analysis discussed below and the attachment give you the latest information we've produced for SoCal Gas. I will include you in correspondence to come. ***Please let me know if you do not want to receive that information.***

Ted

Ted A. Williams | Senior Director, Codes and Standards

[American Gas Association](#)

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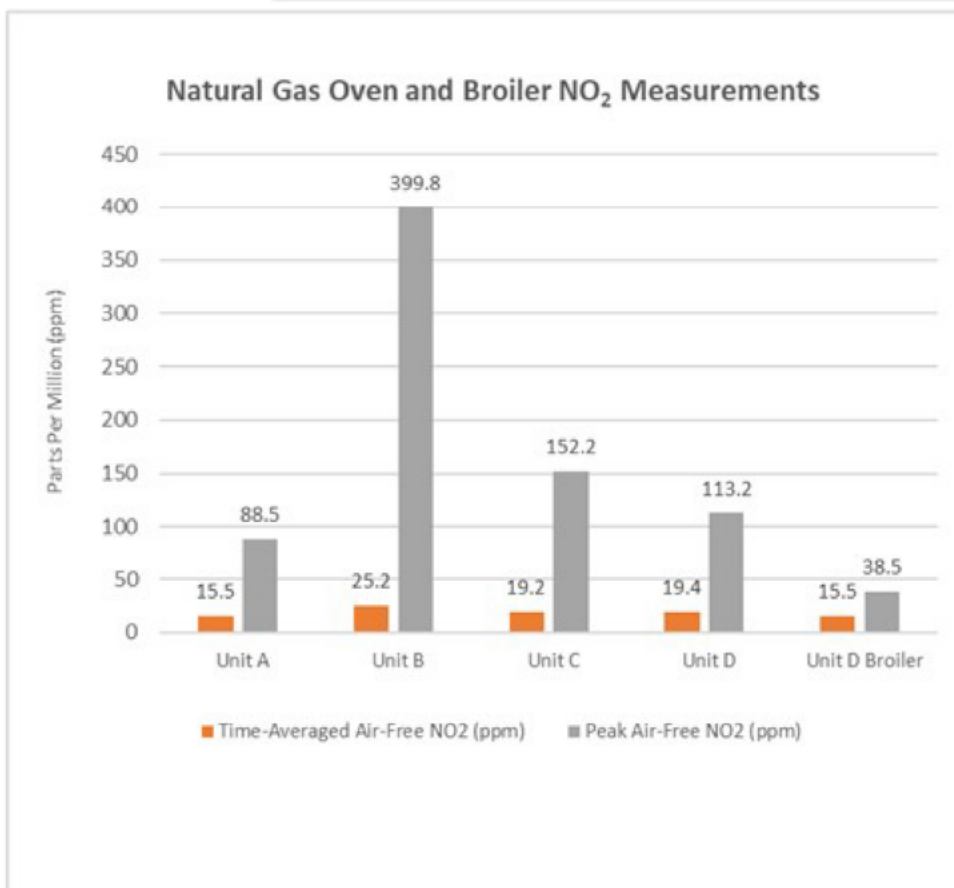
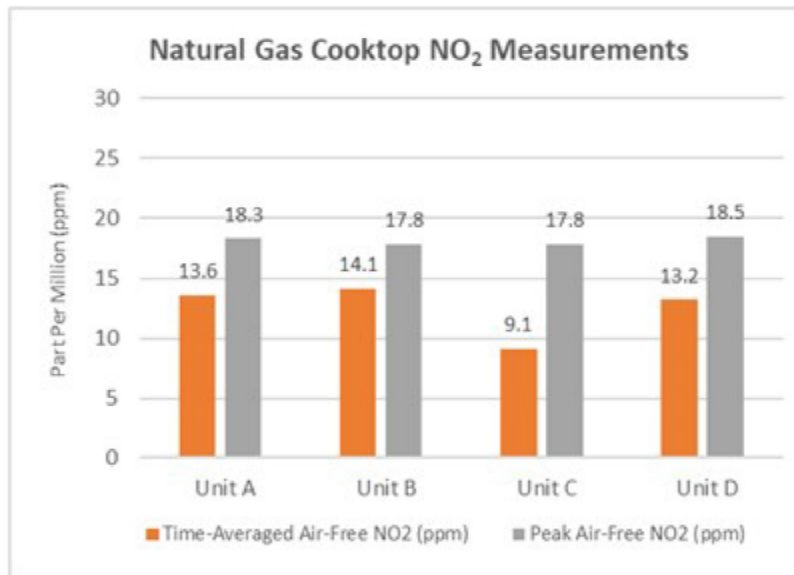
From: Williams, Ted
Sent: Tuesday, May 12, 2020 8:41 AM
To: Debra A. Kaden <DKaden@ramboll.com>; [REDACTED]
Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Linda Dell <ldell@ramboll.com>; Haines, Deanna <DHaines@socalgas.com>
Subject: RE: Sierra Club webcast

All,

I apologize for slow response on your request summarized in the email below, but we have related work going that I think may turn out to be extremely important. That work is addressed in my second point raised below:

- We've received requests from other AGA members to provide the initial analysis of the Sierra Club/UCLA study report we did for you. We have marked the document as restricted to internal AGA distribution and have not relaxed that restriction. But if SoCal Gas approves, we would send it to AGA members upon request only. I would include an essential reminder that this is a report that's targeting policy in California, and it is intended to support gas industry activities there. We have separately offered AGA members support on their respective jurisdictional challenges, but this is a separate request and one that I hadn't anticipated. ***Please let me know as soon as you can if you would approve of distribution of that 16-page analysis.***
- We have been digging into test data on NO₂ emissions from natural gas cooking appliances (ranges with ovens and boilers) that was compiled by CSA Group, Cleveland, Ohio (the old AGA Laboratories) at the end of last year. That activity has pulled me off of review of IAQ claims of Sierra Club and UCLA for the immediate time, but I expect to get back to that at the end of this week at the latest. The importance of the data analysis is that, if appliance industry comments are correct, it would directly refute the statements of LBNL and others that [paraphrasing] "if EPA regulated indoor air quality for NO₂, gas ranges would be banned." This statement was first made by LBNL staff in internal (newsletter) press back in 2013 but was immediately picked up in the press at that time and is now reappearing in anti-gas claims. What follows is a summary of what we found from our analysis of the CSA Group data (quoted because it follows what was provided to AGA leadership on Sunday morning):

"Here is the reduced, time-averaged NO₂ results from the CSA Group tests, which involved four natural gas ranges (cooktops and ovens with one unit also having a broiler). Time averaging of the data was needed to produce results that are consistent with NO₂ measurements for compliance with NO₂ requirements in other standards, specifically Z21.11.2, which covers unvented heater testing and a maximum allowable time averaged air-free NO₂ emission limit of 20 ppm (again for averaged measurement data). Please keep in mind that these are emission rate concentrations are not directly comparable to exposure limits, which are in parts per billion (ppb) and are two to three orders of magnitude lower.



Oven peak and time-averaged calculations deviate much more strongly than cooktops because of thermostatic cycling of ovens. The steady-state emission rate for oven burners, set on maximum temperature, is inherently higher than for other burners on the range, but cycling of oven burners and the resulting time averaged emission rates are what’s eventually relevant for kitchen exposures to NO₂. It is also important to note that the peak rates for ovens shown above are atypical of the on-cycle emission rates, which are often lower than 100 ppm. In the future, a box-whisker plot might be more illustrative. However, the relationship of the time-averaged data to peak measurements suggests another important point: it’s unclear what those using test results are focusing on – peak rates, which aren’t particularly relevant to exposures or average rates, which are relevant.”

I shared this information and the graphs with technical representatives from the Association of Home Appliance Manufacturers (AHAM) yesterday, and their response was that they understood that **researchers are using peak concentrations for NO2, not time-averaged concentrations**, for their conclusions about fitness of gas ranges. If this is true, it would collapse like a house of cards the exposure arguments being presented by LBNL and others. I am exploring with AHAM for evidence of this response and have done a quick review of the LBNL 2009 report, which compiled emission factors for gas products. There, I found a suggestion that LBNL may have at least conflated peak concentrations with time-averaged concentrations in their emission factors and in later occupant exposure estimates. Of course, time-averaged emissions are a much more reliable basis for emission factors and subsequent exposures. In fact, the certification of other unvented combustion appliances and NO2 emission limits In Standard Z21.11.2 (the only standard that has an NO2 limit for residential gas products and a test methods for measure and document NO2 emissions) are based upon time-averaged calculations. Furthermore, CSA Group followed the Standard's procedures for these products in their data development.

We are developing an expanded gas range testing program with AHAM to look at more appliances and additional gases. The CSA Group should not be treated as the last word on NO2 emissions for this products. We also will be trying to nail down whether or not or to what extent peak concentration emission measurements are being used in studies that are cited criticizing gas cooking appliances. But for now, I wanted you to be aware of the work we took on last week and through the weekend.

I apologize for the length of the second bullet point here, but I believed it required a discussion that could stand on its own.

I am also copying Deanna Haines of SoCal Gas on this email, so she is aware of our interaction. I hadn't made efforts to include her up to this point as she and her team prepared comments to CEC on the Title 24 proceeding. There, Rocky Mountain Institute (RMI) has made arguments similar, but not identical, to the Sierra Club/UCLA study report.

Ted

Ted A. Williams | Senior Director, Codes and Standards

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From: Williams, Ted

Sent: Wednesday, May 6, 2020 10:02 AM

To: Debra A. Kaden <DKaden@ramboll.com>; [REDACTED]

Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Linda Dell <ldell@ramboll.com>

Subject: RE: Sierra Club webcast

Thanks, Debra, for such a quick (and early your time) response. As far as the RMI report, I can table that effort especially since their webinar is today, and other AGA staff will be monitoring it. My recommendation is that AGA develop its public response without getting into the details of the technical arguments, and if it wants to get into the details, it first compare what is presented in the new report and webinar to what it presented to CEC. A first way of responding might be to simply identify inconsistencies or changing arguments, which is pretty simple to do.

I think it will be very helpful to have Linda's contributions to the review effort on the Sierra Club/UCLA study report. Based on your summary of her orientation, I think we can present some similar analysis, although I don't claim to be an epidemiologist and am not credentialed as one.

After I clear the decks today on the upcoming AHAM appliance testing program initiation (our conference call with AHAM on the program is tomorrow, Thursday, at 9:00 am. EDT), I will go forward at looking at the NO₂ related citations. I will suggest that in parallel to reviewing the usage of the citations and their appropriateness, we take a look at the EPA "criteria document" coverage of the citations in development of the NAAQS for NO₂ and if not covered in that document, the substantive issue coverage in the document. Because the EPA CASAC process is very thorough and well understood and documented, the criteria document provides a good benchmark for comparison to UCLA claims. I don't think that any original work since CASAC completed its work would pose any major problems in developing responses.

Ted

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From: Debra A. Kaden <DKaden@ramboll.com>

Sent: Wednesday, May 6, 2020 9:43 AM

To: Williams, Ted <TWilliams@aga.org>; [REDACTED]

Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Linda Dell <ldell@ramboll.com>

Subject: RE: Sierra Club webcast

Ted:

Thank you. Allison alerted us to this Rocky Mountain Institute study yesterday and we will also be looking at it per her request. Our understanding is that the comments on the UCLA Study Report are of higher priority, but yes, you are correct that there will likely be similar themes.

For the citations in the UCLA Study Report, I am specifically interested in the NO₂ concentrations in studies. Some of the outdoor air studies may talk about NO_x, however, and if so that would be useful too.

I also wanted to take this opportunity to introduce you to another member of this team from Ramboll, Linda Dell. Linda is an epidemiologist so will be more versed in many of the studies that these groups will cite, and likely inappropriately interpret. I've cc'd her on this email.

Regards,

Debbie

Debra A. Kaden, PhD, ATS
Principal Consultant

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M [REDACTED]
dkaden@ramboll.com

*I am working from home for the foreseeable future. I am online and available at 617-946-6110 if you need to speak to me. Be well, and wash your hands!

From: Williams, Ted <TWilliams@aga.org>
Sent: Wednesday, May 6, 2020 8:34 AM
To: [REDACTED]
Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Debra A. Kaden <DKaden@ramboll.com>
Subject: RE: Sierra Club webcast

Hi, Allison,

The study report cites a number of studies associating NO₂ concentrations with health effects but not for 'NO_x,' per se. To be clear, is the Ramboll team interested in NO_x or NO₂ studies?

Just so you are aware, yesterday's release of the following information by RMI, I've been tasked to implement several activities. First, here's the information, which I think will be of concern to the team:

"Out this morning [Tuesday], Rocky Mountain Institute published a new report, *Health Effects of Gas Stove Pollution*. <https://rmi.org/insight/gas-stoves-pollution-health>

Here is an accompanying blog: <https://rmi.org/indoor-air-pollution-the-link-between-climate-and-health/>

The media release:

http://www.prweb.com/releases/gas_stoves_causing_unhealthy_air_indoors_increasing_risks_to_respiratory_health/prweb17093612.htm

According to the release, the report includes a series of recommendations including:

- The Consumer Product Safety Commission should open a docket to develop a strategy for protecting residents who currently have gas stoves.
- Manufacturers be required to certify that their appliances will not expose residents to harmful levels of NO₂ and CO pollution.
- At the state and local level, air regulators should adopt a health-based indoor air quality standard that protects the most sensitive populations, including children, the elderly and those with existing respiratory ailments.
- State funds, including for schools and low-income housing, should not be used to purchase or install indoor appliances that expose occupants to harmful levels of gas stove pollution."

I have responded that I expect much of the new RMI report to repeat points raised in its comments to CEC on the Title 24 proceeding and the analysis of those comments I transmitted last week to Deanna Haines through her contractor, Natural Resources Strategies. Let me know if you want to see that analysis (if I haven't sent it to you already, and I will coordinate doing so through Deanna.

The bottom line out of this for me today, Wednesday, is that I am to expedite setting up a cooking appliance testing program with the Association of Home Appliance Manufactures (AHAM) for NO₂, CO, particulates, and formaldehyde emissions, (which was already in the planning stage), establish contact with the Federal Interagency Committee on Indoor Air Quality (CIAQ) through its chairperson at U. S. EPA, and establish informal contact with the U. S. Consumer Product Safety Commission (CPSC) to gage its response to these attacks from RMI. All of this should wind down tomorrow, Thursday, after a planned conference call with AHAM on the testing program. At that time, I can start up on the citations you are interested in.

For now, please let me know if I will be looking at NO_x or NO₂ studies in the Sierra Club/UCLA study report.

Ted

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From: [REDACTED]
Sent: Tuesday, May 5, 2020 5:38 PM
To: Williams, Ted <TWilliams@aga.org>
Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Debra A. Kaden <DKaden@ramboll.com>
Subject: RE: Sierra Club webcast

Ted- I spoke to the Ramboll team this morning. We think your review of the citations would be complementary to the work they are doing in reviewing the health impacts. They asked that if you note any studies that cite to the concentrations of NO_x that are being attributed to the health effects, it would be helpful to share those notes immediately.

From: Williams, Ted <TWilliams@aga.org>
Sent: Monday, May 4, 2020 6:35 AM
To: [REDACTED]
Cc: Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Debra A. Kaden <DKaden@ramboll.com>
Subject: [EXTERNAL] RE: Sierra Club webcast

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[REDACTED]

By my count, 210 citations in the UCLA/Sierra Club study report relate to IAQ claims associated with gas appliances, most going after cooking appliances and some presenting mitigative arguments that can work against Sierra Club advocacy. I began Friday to classify and "rate" the citations according to criticality of the claims. I would next proceed

with a review of the citations, starting with those that are used in the most strident claims. Is this something that is of use to your team?

The activity is going to take some time. I wouldn't envision completing my review before the end of the week at the earliest.

Ted

Ted A. Williams | Senior Director, Codes and Standards

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The American Gas Association represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to nearly 69 million customers throughout the nation.

From: Williams, Ted

Sent: Tuesday, April 28, 2020 3:17 PM

To: [REDACTED]; Julia Lester <JLester@ramboll.com>; Yi Tian <ytian@ramboll.com>; Debra A. Kaden <DKaden@ramboll.com>

Subject: RE: Sierra Club webcast

All,

I'll add some points from my attendance on the webinar on IAQ and combustion:

- An initial claim was made for associating emissions (particulates and NO₂) to increase susceptibility to COVID-19 infection. This is a play for emotions and appears to neglect sources and concentrations. I have two of the most recent literature citations on this relationship and when combined with exposures associated with various sources, this relationship can be put into a more reasonable technical perspective.
- My 5-minute review focused on page 42 of the Report (linked through the press release) and citations of the National Fuel Gas Code and a paper from Francisco, et. al., of University of Illinois. The quote from the report wrongly claims that unvented combustion heaters are prohibited (they are in California, but that doesn't justify the error) and the Francisco paper as illustrating that combustion is never "complete." In fact, the Francisco paper addresses methane emissions from combustion slip and leakage, the former dominated by unburned natural gas released during the ignition cycle, not unburned methane from combustion. Regardless, "incomplete combustion" of fuel gas is not an emission of IAQ concern. My general point is that if my brief review identified these problems in two separate cases, there is a high likelihood of others.
- While gas cooking was the principal focus of emission sources, the presentation strayed into backdrafting of vented appliances (water heaters and furnaces). This issue has rather solidly been addressed in work by Bohac and Brand for Building America. Also, the presenter acknowledged that the team had no information on backdrafting frequencies (and as freely acknowledged, it developed no data in the course of the project).

- Cooking emissions for CO, NO₂, and NO_x were presented as peaks. I didn't see any time-integrated concentrations presented, even for a one-hour comparison to short-term health standards. I'll need to look into this in more detail, but the peak-to-one hour mean relationships presented by M. Moore, et. al., in support of their kitchen range hood development activities at Braun-Newton and other sources provide sufficient information to describe what might serve as a one-hour integrated average, which puts UCLA claims in a much clearer light.
- Cooking process emissions were not addressed in the analysis, even though they are, by far, the greatest source of particulates generated in kitchens according to numerous sources. Here, hood types and capture effectiveness is the key issue, regardless of the cooking fuel. Should cooking processes of certain types be restricted for the sake of IAQ?
- Costs of electrification alternatives were not addressed in the analysis. This would need to include appliance and circuitry costs, the latter which might be very high for "disadvantaged" Californians living in apartments where more than the outlet would need to change.
- The analysis was clearly objective driven: to build a case for electrification based on IAQ claims and literature. Is this an example of public university resources for sale? Who funded this study? The contract background materials, including the original scope of work, ought to be researched.
- As Allison points out, this is clearly a literature review, but I would argue it's more in that it "cherry picks" the literature. Since the team did not original testing (such as to quantify source emission rates), the object of further review ought to be the primary sources. We are already doing that on the RMI claims in its comments within the CEC 2022 proceeding. There, one of the key sources, the 2009 LBNL study on emissions from gas appliances operated on imported LNG compositions, we've found to have important uncertainties, at least. In response, AGA is working with the Association of Home Appliance Manufacturers (AHAM) to develop a residential cooking appliance emission source factors for CO, particulates, formaldehyde, and NO₂ (the latter to supplement data we have already gathered in 2019 for four cooktop and oven ranges under highly controlled conditions. We expect to bid this additional testing competitively, and we are working with AHAM and others to develop a bidders list.

Ted

Ted A. Williams | Senior Director, Codes and Standards

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From: [REDACTED]

Sent: Tuesday, April 28, 2020 2:23 PM

To: Julia Lester <JLester@ramboll.com>; Williams, Ted <TWilliams@aga.org>; Yi Tian <ytian@ramboll.com>; Debra A.

Kaden <DKaden@ramboll.com>

Subject: FW: Sierra Club webcast

Here are the initial thoughts that I shared with a few people on our Communications team.

From: [REDACTED]

Sent: Tuesday, April 28, 2020 11:12 AM

To: Gilbride, Chris <CGilbride@socalgas.com>; [REDACTED]; [REDACTED]; Avila, Joseph S <JAvila1@socalgas.com>; [REDACTED]; Haines, Deanna <DHaines@socalgas.com>; Carrasco, Andy <ACarrasco@socalgas.com>; [REDACTED]; [REDACTED]; [REDACTED]

Cc: Mara Elana Burstein <mara@naturalresourcestrategies.com>

Subject: RE: Sierra Club webcast

A few initial thoughts from the webinar.

- The report is primarily a literature survey. Ted Williams from AGA has already noticed some incorrect application of the relevant literature. I will follow-up with him.
- The health benefits are based on reduction in Particulate Matter associated with natural gas appliances. They looked at both direct PM and indirect PM (from NOx). They based their analysis on the CARB statewide inventory. NG fuel combustion is a small part of the direct PM and NOx inventories. So, we will need to look at how they calculated their results.
- They assumed the replacement would be with all renewable electricity. They disregard the increased emissions from NG power plants, which would offset some of the PM and NOx emissions reduction.
 - o They emphasized the impact on EJ communities. The reality is they would actually increase emissions in some EJ communities by pushing building electrification right now. We don't have 100% renewable electricity. CA will continue to use NG power plants for the foreseeable future. UCLA noted that 40% of power plants are in EJ communities. So, their rush to electrify punishes EJ communities.
- The IAQ discussion was similar to what we've seen before. They focused on cooking appliances. They noted other appliances are typically vented to outside. So, those results are reflected in the outdoor AQ assessment.
- Regarding cooking, they provided test results that showed NO2 levels higher than CA NO2 standards when the appliance is operated for 1 hour. I've seen similar results in other studies. However, those other studies note that episodic NO2 are short-term and do not provide a significant health risk. I'll try to find citations on this point. UCLA did note proper ventilation is key. They also claimed only 35% of homes use proper ventilation of stoves. I'll need to track down the citation.
- Sierra Club also shared a few slides on their advocacy opportunities with a focus on Rules and incentives.
- Bottom line, they have isolated on NG emissions without providing the context of our larger emissions challenges. Transportation remains the biggest source of NOx emissions and the biggest challenge for PM. SCAQMD and SJVAPCD have both prioritized clean transportation as the critical factor in improving local air quality. Sierra Club would like to see regulators provide incentives for building electrification. But, we can achieve much greater emissions reductions by focusing incentive dollars (which come from either taxpayers or NG and electric ratepayers) on the transportation sector.

I've attached screen captures of the slides, including the Sierra Club advocacy piece. I've also attached a detailed summary of the webinar prepared by one of our consultants. More to come.

From: [REDACTED]

Sent: Tuesday, April 28, 2020 10:37 AM

To: [REDACTED]; [REDACTED]; Avila, Joseph S <JAvila1@socalgas.com>; [REDACTED]; Haines, [REDACTED]

Deanna <DHaines@socalgas.com>; Carrasco, Andy <ACarrasco@socalgas.com>

Subject: RE: Sierra Club webcast

Here's the link to their letter.

Welcome! All participants are muted. If you have questions, please send them on the chat privately to Rachel Connolly. All chats will go directly to the moderator and hosts. There will be time for Q&A after the presentations.

The report is available here: <https://coeh.ph.ucla.edu/effects-residential-gas-appliances-indoor-and-outdoor-air-quality-and-public-health-california>.

A summary blog is available here: <https://www.sierraclub.org/articles/2020/04/new-study-shows-air-pollution-gas-appliances-endangers-our-health-and-how-going>.

Please sign this letter calling for policymakers to protect Californians from the public health risks from gas appliances: https://addup.sierraclub.org/campaigns/protect-public-health-by-cutting-air-pollution-from-gas?_ga=2.109598725.1055387242.1588008551-1539616622.1559753852

From: [REDACTED]
Sent: Tuesday, April 28, 2020 9:38 AM
To: [REDACTED]; Avila, Joseph S <JAvila1@socalgas.com>; [REDACTED]; Haines, Deanna <DHaines@socalgas.com>; Carrasco, Andy <ACarrasco@socalgas.com>
Subject: Sierra Club webcast

Sammy Roth and Hochschild are on the webinar. They're expecting around 200 participants.

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