Comment 1 for Planned Air Pollution Research for 2012-2013 (researchplan2012) - Non-Reg.

First Name: Harvey
Last Name: Eder
Email Address: harveyederpspc@yahoo.com
Affiliation: Public Solar Power Coalition

Subject: CARB Policy on Natural Dirty
Comment:

A Memo from the Civil Society Institute:
1
Howarth, Santoro, and Ingraffea key points (1/20/12):
1) Very urgent need to get methane emissions under control globally, a point made by Jim Hansen and colleagues in 2007, but made much more urgently by a 2011 report from the UN and a 2012 paper in Science by Shindell and colleagues of the NASA Goddard Space Institute. Even if society were to take strong measures to control carbon dioxide immediately, the planet would rise in average temperature by 1.5 to 2 degrees within the next 15 to 35 years. This temperature rise puts the planet at great risk of reaching a tipping point, and moving into a new and very different climate system, with run-away global warming. Melting of permafrost that releases yet more methane is just one potential tipping point, among many.
2) Methane is an incredibly powerful greenhouse gas, and is already a significant driver of observed global warming, second only to carbon dioxide in its influence. Per mass, methane is far greater in its global warming potential, but there is far less methane than carbon dioxide in the air. And the methane does not stay in the atmosphere as long, with a residence time that is some 10-fold less than for carbon dioxide. This means that over the time period of centuries ahead, carbon dioxide will have more impact than methane (except for the consequences of methane in moving us into an alternate climate system more quickly!). But at shorter time scales (the integrated 20-year period following emission), methane is over 100
UNEP/ WMO (2011) and Shindell et al. (2012)
Without control of methane and BC, critical thresholds of 1.5o to 2o warming predicted in 15 to 35 years (even with aggressive CO2 control!!)
A Memo from the Civil Society Institute:
2
times more effective as a greenhouse gas contributing than global warming than is carbon dioxide, according to the most recent science.
3) The most recent reports from the US EPA, as synthesized in the Howarth, Santoro, and Ingraffea (2012) paper, show that methane contributes 44% of the entire greenhouse gas inventory of the US, when viewed through the lens of this 20-year period following emission. Even when viewed over the integrated 100-year period, methane makes up 19% of the greenhouse gas inventory of the US, including carbon dioxide and all other greenhouse gases, from all industries and human activities. And the natural gas industry is by far the largest source of this methane from the US.

4) The emission of methane from natural gas activities includes both purposeful venting of gas and accidental leakage. The exact magnitude remains somewhat uncertain, but despite industry assertions, most estimates for both conventional natural gas and shale gas fall in a reasonably narrow range. The majority of studies give estimates similar to the latest estimates from the US EPA (which are far higher than the EPA was estimating as recently as 2010, but are now increased due to better data than was available back in 1996 when EPA last took a close look at methane emissions from the oil and gas industry). Any of these emission estimates are cause for great alarm, and the lowest numbers are clearly biased or in error, as shown in the Howarth, Santoro, and Ingraffea (2012) paper.
Latest information from U.S. national greenhouse gas
(Howarth et al. (2012), using EPA reports from 2011)
A Memo from the Civil Society Institute:
3
Table 1. Comparison of published estimates for full life-cycle methane emissions from conventional gas and shale gas, expressedper unit of Lower Heating Value (gCMJ-1). Studies are listed by chronology of publication date.Conventional gasShale gasHayhoeet al. (2002)0.57*Jamarilloet al. (2007)0.15*Howarth et al. (2011)0.26 -0.96 0.55 -1.2EPA (2011a)0.380.60 +Jiang et al. (2011)*0.30Fulton et al. (2011)0.38 ++*Hultman et al. (2011)0.350.57Skoneet al. (2011)0.270.37Burnham et al. (2011)0.390.29Cathleset al. (2012)0.14 -0.360.14 -0.36See Electronic Supplemental Materials for details on conversions. * Estimatesnot providedin thesereports.+Includes emissions from coal-bed methane, and therefore may under-estimate shale gas emissions.++ Based on average for all gas production in the US, not just conventional gas, and so somewhat over-estimates conventional gas emissions.
(Howarth et al. 2012)
5) Most of the recent studies on methane emissions from the natural gas industry indicate that shale gas emits between 40% to 60% more methane than does conventional natural gas. As conventional gas reserves are depleted, and society turns increasingly to shale gas as a replacement, methane emissions will increase.
A Memo from the Civil Society Institute:
4
For the US, if Dept. of Energy predictions for gas supply sources hold true, the increased use of shale gas by 2035 will increase the contribution of methane from the natural gas industry from 17% to 24% of the entire greenhouse gas inventory of the country – all gases, from all sources – when viewed through the 20-year lens.
6) Technical solutions for reducing (although not eliminating) methane emissions from shale gas exist. For the methane venting that occurs during the flowback period of a few weeks after a well is fracked, gas can be captured and sold to market, if a pipeline is in place and if the drilling company has invested in the equipment to separate gas from frack liquid wastes. So far, most companies have not followed this route, and at the current price of natural gas, this would be a net cost for almost all wells fracked. Only strong regulation will lead to this path.
7) Much of the leakage of methane to the atmosphere from the natural gas industry comes from storage facilities, long-range transmission pipelines, and local distribution pipes through urban areas. Fixing these leaks may be extremely costly. Half of the transmission pipelines in the US are more than 50 years old, and in many cities, the local distribution pipes are older yet. In cities such as Boston and Philadelphia, these locals systems often pre-date the Great Depression of the 1930s, and are based on unwelded cast iron pipe placed end-to-end with sealant that

probably gave out before World War II. Does it really make sense to spend vast sums of capital to re-build this crumbling natural gas system? Or should society instead invest in technologies for the 21st Century, such as smart grids

Attachment: "

Original File Name:

Date and Time Comment Was Submitted: 2012-06-26 18:38:00

No Duplicates.

There are no comments posted to Planned Air Pollution Research for 2012-2013 (researchplan2012) that were presented during the Board Hearing at this time.