



August 9, 2005

Pierre duVair
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Dear Mr. duVair:

At the April 20, 2005 scoping meeting arranged by the California Climate Action Registry (CCAR) to discuss greenhouse gas accounting and reporting for the natural gas transmission and storage sectors, a review of industry guidance documents being completed for the California Energy Commission (CEC) was discussed. CEC contractors are completing a review of the IPIECA document, *Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions* (IPIECA Document) and API's *Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Gas Industry* (API Compendium). You offered to provide the draft review documents to meeting participants for review and comment. The Interstate Natural Gas Association of America (INGAA), a trade association of the interstate natural gas pipeline industry, offers these comments on the two draft documents: the IPIECA Document review completed by TIAX, LLC and the API Compendium review completed ICF Consulting.

In a related matter, INGAA is currently developing a guideline of GHG emission estimation approaches for gas transmission and storage, and also participating in a review of currently available GHG emission factors. Characterization of both methane and carbon dioxide emissions is important when determining GHG emissions from natural gas systems, and these projects will add insight into the efficacy of current emission estimation methods and provide a reference point for GHG estimation from the transmission and storage sector. This INGAA effort draws upon some of the same information and material used for the API Compendium and the IPIECA Document. In most cases, the methane emission factors for natural gas systems are from a study completed by the U.S. EPA and Gas Research Institute (GRI) in the 1990's. It is important to understand that while this study is becoming dated, it remains the seminal data source for methane emissions from the natural gas industry, and, at best, there are only limited alternatives currently available to supplement or supplant this information. The INGAA projects underway will likely lead to ongoing efforts to improve and enhance GHG emission factors for our sources, and this will require considerable time and effort as GHG emission estimation from more difficult to characterize methane sources matures over time. The document that reviews the methodologies from the API

Compendium fails to acknowledge this very important context when considering methane emission factors.

In general, INGAA believes that the review of the IPIECA Document indicates agreement with California reporting criteria. However, INGAA also believes that the draft review of the API Compendium appears subjective, with criticism not supported by specific data references or adequate information that validates the suppositions. In addition, as discussed above, the review of the API Compendium does not provide proper context on the current status of publicly available emissions data and GHG estimation approaches, nor include the necessary recommendations for resolution – *based on currently available data* – that should be part of a critical review. If recommendations were provided, it is likely that the discussion would resemble a research and data collection plan that is necessary to improve emission factors for difficult to measure sources of methane. Industry is aware of these issues and is undertaking an effort to characterize and prioritize – and then begin to address – important data gaps or GHG emission estimation uncertainties. Additional comments on the two review documents follow.

TIAX LLC Review of the IPIECA Document

The TIAX report focuses on the accounting and reporting of emissions based on a review of the IPIECA Document, and compares the document to CCAR requirements. As noted, the IPIECA Document is not a protocol for a specific program but rather an overarching set of guidelines to use when complying with various reporting protocols from programs that an entity may choose to participate in. As is the case for many reporting protocols in the public domain, the IPIECA Document is largely based on the WBCSD/WRI GHG Protocol with many sections taken directly from that document.

In general, the TIAX review indicates that the IPIECA Document agrees with CCAR requirements. Specific recommendations for changes and improvement are not offered by TIAX, thus INGAA does not have any comments on the reporting practices reviewed.

INGAA does have a comment on the discussion of the natural gas industry provided in Section 2.1. The review document includes a bulleted list of activities, including, “Pipeline transport to and from the processing plant.” It should be noted that the natural gas industry is typically divided into several primary sectors that include: exploration and production, gas processing, natural gas transmission and storage, and distribution. The “pipeline transport” activity identified in Section 2.1 crosses these sectors, and emissions can vary based on typical methane content and equipment type in the different sectors. Transport upstream of the gas processing plant (i.e., field gathering and conveyance to processing) is associated with the upstream exploration and production sector, and transport from the processing plant is in the natural gas transmission sector – until the point that the gas is delivered to a local distribution company or end user. Special consideration must be given to the attributes of each sector when developing the GHG estimate from “pipeline transport”.

ICF Consulting Review of the API Compendium

The ICF Consulting review document is incomplete and deficient in its current form. INGAA believes that the document should include specific recommendations and conclusions, concurrent with documentation and data that support the suppositions and assumptions, before a meaningful review can be completed. The review appears to include subjective judgments as well as discussion that does not provide proper context regarding the current state of the science for GHG estimates from processes such as vented and fugitive emissions. For example, it is well established that GHG estimates from fugitive emission sources include inherent uncertainty due to the fact the leaks are difficult to quantify/measure. While data deficiencies in the evolving field of GHG estimates offer areas for critique, INGAA believes that the review of available methodologies from the API Compendium should equitably consider whether reasonable alternatives are *currently available* and not imply that a better approach is available when data and measurement deficiencies limit current practices. Similarly, limited data sets or emissions factors from larger sources with large uncertainties are the subject of ongoing study and industry review. The generalized review completed by ICF that implies deficiencies without identifying potential solutions is difficult to take seriously and does not seem to address what should be an important objective of any critique – the solution or path forward. It should be noted that INGAA and other industry representatives are currently investigating and prioritizing the current data gaps and the efforts needed to address these gaps.

Specific comments include:

1. The review does not provide context regarding the current state of the science for estimate of methane emissions or identify alternative data.

For difficult to measure GHG emissions such as fugitive and vented methane, it is important to understand that the current state of the science for GHG emissions is based on emission factors primarily drawn from the mid-1990's study conducted by the U.S. EPA and GRI. While this data is becoming dated due to improved industry practices, the multi-million dollar study is still the seminal reference for data and methane estimates from natural gas systems. It is also important to note that the GRI study was intended to quantitatively assess the GHG emissions from the natural gas industry for comparison with other energy intensive sectors. The resulting data from a multi-year field measurement program was then used to develop emissions factors for this industry segment, a purpose for which the program was not specifically intended nor designed for. However, this data source has served the industry and GHG emission estimation field well. The ICF review alludes to outdated data, but fails to acknowledge that this data set is unmatched in the literature and continues to be the primary resource for developing methane emission factors from natural gas systems –including recent commercial software efforts undertaken by ICF Consulting. The review fails to acknowledge that the considerable time and expense will be necessary to update this information. INGAA understands that practices have advanced since the GRI/EPA Study that will impact GHG emission estimates, and is addressing this issue through current efforts to define data gaps and develop a plan to systematically address priority emission sources.

INGAA agrees with the general ICF conclusion that the GRI data is becoming dated. However, this is not fairly represented in the ICF review document – or an alternative identified. For example, regarding estimates from pneumatic devices, ICF indicates that

the API Compendium “does not properly account for industry changes growing out of date with the penetration of lower emitting pneumatic device technologies”. This comment is misleading and does not adequately address the ability to account for these emissions reductions and industry progress toward eliminating vented sources through utilizing actual pneumatic device counts at a “higher” (i.e., Tier 3) emissions estimation level. This comment is only valid for lower fidelity emission estimates that will not result in fidelity of estimate contemplated by this program. Thus, the “outdated” data and approaches available do account for this issue within the tiers of emission estimates discussed.

2. The reviewer offers a commercial software product that could be considered a competing interest, which offers an appearance of a conflict of interest.

INGAA is concerned that ICF Consulting, whether purposeful or unintentional, may not offer an objective review of the API Compendium due to ICF’s competitive business offering for GHG emission estimation software. SANGEA, a software product for developing a GHG inventory based on the API Compendium, is available free of charge. In addition, GRI-GHGCalc is available for a nominal fee. ICF Consulting offers a commercial software package for sale called GEMS™ that could be viewed as a competitor to the API freeware or GHGCalc. Notably, the ICF software apparently bases emission estimation approaches for natural gas transmission and storage on the same GRI/EPA dataset that is labeled “outdated”.

With a competing commercial software product, it is difficult not to consider the appearance of a conflict of interest. INGAA is not impugning the ICF review based on competitive business concerns, but even unintentional bias from ICF may occur in the review process based on the company’s familiarity with niche GEMS™ features that they believe separates their product from the competition. INGAA believes that an objective third party without a competitive stake in the review process is a better candidate to complete an objective and fair-minded review of GHG estimation documents.

3. Acceptance criteria should be identified if emissions factors are to be ranked by the reviewer, and the basis for a low ranking should be supported by analysis and alternative public domain, peer reviewed data.

The review document includes claims that are non-quantitative and appear subjective, yet makes specific recommendations about the “acceptance” of emission calculations. It should be noted that, in general, the review accepts combustion emission estimates, which is an emission source more easily addressed due to the availability of relevant operating data and the fact that fuel hydrocarbon is converted to CO₂ during combustion. These emissions are more readily calculated and standardized approaches are available in a number of reporting and accounting protocols. For natural gas systems, fugitive and vented emissions are much more difficult to determine, and use of “emissions factors” is the current standard for GHG emission estimates. The inherent uncertainty associated with estimates based on emission factors is compounded for fugitive and vented emissions due to both the difficulty in measurement and inter-facility variations from the “average” value represented by an emission factor.

If ICF is going to attempt to categorize an approach as “acceptable”, “conditionally acceptable”, or “unacceptable”, there should be a measurable criteria used as the basis for

this judgment. In addition, this ranking must consider the alternative that is available to enhance or replace “conditionally acceptable” or “unacceptable” methods. This must be based on identified information resources and data currently available in the public domain. In some cases, it appears that judgments are provided when there is no current better alternative available, or the alternative to an available emission factor is a site-specific detailed measurement/determination which is typically labeled as an inaccessible approach in Appendix A of the ICF draft report. For example, methane estimates from pneumatic devices are based on a standard emission factor approach, and the available alternative is to rely on actual site-specific component counts – which one could infer as an “inaccessible” approach.

4. Judgments appear to be made subjectively and claims by the reviewer should be supported with public domain data and analysis.

Information regarding emission factors that appears to be anecdotal or an opinion is inappropriately stated as fact without background or justification. In a number of instances, emission factors are labeled as erroneous without support data or analysis that justifies the basis for the claim, or context regarding the relative impact of the perceived problem. In some cases, these issues may simply be author “pet peeves” based on familiarity with a specific and narrow topic. If so, this tends to amplify the issue (e.g., stating that an estimate is low by orders of magnitude) without identifying the alternative solution (if available), data that supports the claim, context of the “error”, or the materiality of the emission/error.

For example, criticism is offered on dehydration process emission factors and facility level fugitive emission factors from the GRI/EPA Study. While it is possible that errors exist, GHG emissions measurement and data reduction for the GRI/EPA Study was completed by rival contractors that were intimately familiar with the emission source and measurement methods, and the resulting documents were peer reviewed. In cases where these factors are questioned, specific analysis and support data should be provided that justifies the claim, and unless obvious, this analysis should be similarly peer reviewed. This analysis should also identify the reasonable alternative approach available, and include an assessment of the breadth of any data resource that points to an alternative conclusion, and the context of the error (i.e., materiality) within the overall inventory.

5. The review does not present the proper context regarding the availability of methane emissions data and should offer specific alternatives for approaches deemed questionable. Assessments of the representativeness of emission factors should be supported by factual data, and alternative data and emission factors should be identified.

The review includes judgments regarding the representativeness of emission factors compared to California systems. However, it appears that the basis of California differences are the opinion of the author. If not, the basis for such determinations should be made (e.g., a local air district regulation that requires leak detection and repair programs to reduce fugitives). In general, INGAA believes that differences are more likely due to the status of current operations and practices on a nationwide basis relative to the norm when the data was collected. INGAA agrees that data from the GRI/EPA Study is becoming dated – but alternative public domain emission factors are not readily available – and these issues are beginning to be addressed. For example, an EPA project

has completed data collection of fugitive emissions from facilities with a directed inspection and maintenance (DI&M) program. Similarly, companies in the U.S. and Canada have or are acquiring data on fugitive emissions and DI&M, and it is likely that updated and possible operationally-segregated emission factors will become available for fugitive emissions. However, these improvements are not available at this time, and the API Compendium is simply reflecting the current best available public domain approaches.

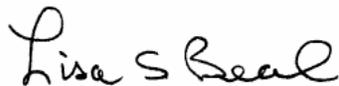
Another example is illustrated in the comment that recent MMS GOADS data shows average platform emissions substantially higher than GRI. However, ICF fails to provide supporting documentation as to whether the differences have resulted from measured values, unidentified or characterized sources, increased datasets, or activity data discrepancies. Further, this comment fails to provide an order of magnitude estimate for the difference. Such generalizations are not even qualitative, can be misleading, and offer little to guide the reader to a meaningful conclusion.

6. Emissions sources absent from the Compendium.

The relative contribution or anticipated contribution of the identified sources (e.g. firefighting equipment and welding and cutting) to the overall inventory should be included with this section. Further, these sources may have been purposefully omitted from the guideline as de minimus sources. Although the sources listed in the table appear to be legitimate, the inclusion of such sources appears to be inconsequential to the total emissions from oil and gas operations and adds unnecessarily to the burden of preparing an inventory. Alternatively, the sources may be readily characterized as combustion sources using standard methods that are available.

INGAA agrees with the API Compendium assertion that estimation guidelines such as the Compendium are living documents that will continue to evolve as the GHG emission estimation field matures. The nature of this process is not addressed in the ICF review document. It is important to understand the constraints of current methods based on available data and the ongoing maturation of this field of endeavor. We appreciate your consideration of these comments, and look forward to a continued effort to provide the CEC and CCAR with improved methodologies for estimating GHGs from natural gas systems. If you have any questions, please contact me at 202-216-5935.

Sincerely,



Lisa Beal
Director, Environment and Construction Policy
Interstate Natural Gas Association of America