

## REDUCING METHANE AND CO<sub>2</sub> FROM NATURAL GAS INDUSTRY ACTIVITIES: PRELIMINARY SCOPE OF WORK

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*“NMED shall conduct a study of voluntary and mandatory mechanisms for reducing greenhouse gas emissions from oil and gas processes by January 1, 2008 and shall submit such study to the Team, the Clean Energy Development Council, and the Governor by said date. Proposed mechanisms shall reduce methane emissions in oil and gas operations by 20% by 2020 and carbon dioxide emission from fuel combustion.”*

(Executive Order 2006-69)

### **OVERVIEW**

The Climate Change Advisory Group (CCAG) recognized that there are a number of ways in which the methane emissions levels can be achieved and cites the Best Management Practices (BMPs) and Partnership Reduction Opportunities (PROs) which can reduce methane leaks in the production, processing, transportation and distribution sectors of natural gas production (CCAG 2006).

In regards to reducing CO<sub>2</sub> emissions the CCAG again recognizes that these reduction could come from a number of areas including (1) installing new efficient compressors, (2) replacing compressor driver engines, (3) optimizing gas flow to improve compressor efficiency, (4) improving performance of compressor cylinder ends, (5) capturing compressor waste heat, and (6) utilizing waste heat recovery boilers (CCAG 2006). Furthermore, the CCAG recommended GHG emissions reductions be achieved through education, financial incentives, mandates and/or standards – coupled with cost and investment recovery mechanisms, if appropriate.

### **RESEARCH COMPONENTS**

In order to ascertain the best incentive mechanisms to achieve the goals set forth by Executive Order 2006-69 and minimize the social impact, a thorough economic assessment is necessary. This proposed research provides a first step in such an assessment. This research plan includes the following tasks:

- 1) Provide an overview of the contributors from each component of the natural gas industry from wellhead to delivery. The sub-sectors include; wellhead, processing, transportation, and delivery.
- 2) Provide an in-depth analysis of the sector (determined from (1)) that either contributes the most emissions or provides the lowest marginal costs of emissions reductions in order to achieve the goals.

- 3) Provide an overview analysis of potential incentive schemes. The incentives assessed will be selected on collaboration with Dominique Gomez, a visiting Fellow in Public Policy as well as incentives from the economic literature.
- 4) Prepare a final report.

1. Overview of the Contributors. The natural gas industry is comprised of several sectors that are independent of each other. The technology and management practices of each are sector specific. This is likely to be a big source of the aforementioned diseconomies. Employing existing information and data an evaluation of the contributing activities and the average contributions will be conducted, as will marginal costs of reduced emissions. (Estimated time to complete 45 hours)

2. Analysis of Single Sector. Based on the results from (1), a single sector analysis will be conducted. The analysis will build on the preliminary work of Doctor Greening. A major concern of this preliminary work was that the employed averages were not accurate representation of many firms operating in New Mexico. In order to disaggregate the average estimates, information from representative industry firms will be necessary. Some of the research effort will be to extract information from industry representatives (contacts made by NMED) that will then be used to estimate the impacts of representative firms. (Estimated time to complete: 90 hours)

3. Incentives. Both voluntary and mandatory emission reductions are being considered. An overview of potential impact of various incentive mechanisms will be outlined. Due to the short timeframe, the incentive analysis will provide direction for additional analysis that will be required in order to design the most effective mechanism for reducing emissions. The complexity of incentive analysis cannot be overstated. Effective policies are likely to take advantage of different incentives at different times for different industry sectors. Program success will depend on how the policies are phased-in at least as much as on the policies themselves. Given the time constraints, this study can provide only a preliminary assessment of incentive mechanisms. (Estimated time to complete: 35 hours)

4. Final Report. A report detailing the above activities, results, assumptions, and associated risks will be prepared for NMED. (Estimated time to complete: 30 hours)

## **CONTACT INFORMATION**

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## **BUDGET**

The scope of work discussed in the preceding paragraphs will be carried out by Professor Janie M. Chermak and Project Assistant, David Dixon. Professor Chermak will oversee the project, provide technical expertise to the effort, and participate in the completion of the final report. Mr. Dixon will gather the data and information (including meetings, as necessary, with industry representatives), analyze the data, and participate in the completion of the final report. An understanding of the research effort is that the results and data acquired can be used in scholarly publications, providing that individual firm data and results are not reported.

Personnel:

David Dixon (Project Assistant):	200 hours at \$18 per hour:	\$3,600
IDC (20%)		\$ 720
<b>TOTAL</b>		<b>\$4,320</b>

