June 15, 2007

VIA ELECTRONIC AND U.S. MAIL

Winston Hickox, Chair
Market Advisory Committee
c/o California Environmental Protection Agency
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

Re: Comments on Draft Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California, June 1, 2007

Dear Chair Hickox:

The El Paso Western Pipeline Group ("El Paso") respectfully submits the attached comments on the draft "***Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California"*** **developed by the Market Advisory Committee (MAC)** released for public review on June 1, 2007.

As you know, El Paso transmits, from supply areas in the San Juan, Permian, Anadarko and Rocky Mountain regions, approximately 30% of the natural gas consumed in the state of California. We stand ready to offer the Market Advisory Committee (MAC), the California Public Utility Commission (CPUC), the California Energy Commission (CEC) and the California Air Resources Board (CARB) our data, information, experience, and expertise in this area. Our critically important California stakeholders deserve no less, as they grapple with all the complexity and nuance naturally involved in developing comprehensive implementing regulations under Assembly Bill 32 (AB32).

We hope you find these comments useful in your important work. As you deliberate the contours and content of a world-class cap-and-trade program in California, please feel free to contact Fiji George at (713) 420-7913, or at fiji.george@elpaso.com, with questions or for further information.

Sincerely,

Craig Richardson
Vice President and General Counsel
El Paso Western Pipeline Group

cc: MAC Committee Members
L. Adams, CalEPA
C. Witherspoon, CARB
Michael R. Peevey, CPUC
Jackalyne Pfannenstiel, CEC

Comments on the Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California

SUBMITTED BY:

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SUBMITTED TO:

The Market Advisory Committee (MAC)

June 15, 2007

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1. Introduction:

El Paso Corporation is organized around two core businesses—pipelines and exploration and production. El Paso's Pipeline group operates a network of nearly 43,000 miles of pipeline, comprising over 20% of the interstate gas pipeline infrastructure in the country. El Paso has operations in over thirty (30) states and several federal jurisdictions. El Paso currently helps satisfy, and will continue to meet, California's growing demand for clean-burning natural gas through its extensive network of natural gas pipelines and future natural gas projects.

As an industry leader, El Paso shares the concerns being expressed by public and governmental stakeholders over the issue of greenhouse gases (GHG). El Paso has been actively participating in national and international policy discussions and has instituted internal guiding principles on the issue of global climate change. Our commitment in this regard carries out our core value of Stewardship as we strive always to be good stewards of the Earth.

El Paso Corporation has been a member of the California Climate Action Registry (CCAR) since 2006. In May 2007, El Paso became the first natural gas transmission company to file an emissions inventory covering all applicable GHGs- including methane, N_2O and CO_2. This inventory is currently undergoing certification through an independent third party entity. We expect this process to be completed by the end of June 2007.

El Paso's first internal [2004] GHG inventory was completed in 2005. El Paso's 2005 GHG inventory for the pipeline group successfully underwent a third-party verification process. In addition, El Paso has produced a corporate GHG Inventory Management Plan and a pipeline GHG Inventory Technical Manual, and is in the process of developing a GHG Information Management System (IMS). Later this year, El Paso intends to register its 2006 GHG emission estimates under DOE 1605(b) requirements.

El Paso maintains leadership positions at the Interstate Natural Gas Association of America (INGAA) on greenhouse gas (GHG) issues and in the development of the *INGAA Greenhouse Gas Emissions Estimation Guideline for Natural Gas Transmission and Storage*[1].

El Paso is part of the Natural Gas Protocol Workgroup facilitated by the CCAR and the World Resources Institute (WRI) with the goal to produce a guidance document and protocol for accounting emissions from Natural Gas Transmission and Distribution assets. The protocol and calculation tool(s), which will be developed through a stakeholder workgroup process, will supplement the *California Climate Action Registry's General Reporting Protocol* (GRP)[2] and the World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD) *Greenhouse Gas Protocol - A Corporate Reporting and Accounting Standard (Corporate Standard)*[3].

El Paso's comments on the draft "*Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California"* (report) developed by the Market Advisory Committee (MAC) can be summarized

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[1] http://www.ingaa.org/Documents/Climate%20Change%20&%20Environment/INGAA%20GHG%20Guidelines%20Vol%201_Emission%20Est%20Methods.pdf

[2] http://www.climateregistry.org/docs/PROTOCOLS/GRP%20V2.1.pdf

[3] http://www.ghgprotocol.org/templates/GHG5/layout.asp?type=p&MenuId=ODg4&doOpen=1&ClickMenu=No

as follows:

1. With respect to program coverage, El Paso highlights additional concerns related to expanding the scope as outlined in Option B (*viz.*, upstream coverage of CO_2 from fossil fuel combustion) in the draft report. El Paso supports the MAC's recommendations on the program scope and not including fugitive emissions under the overall cap-and-trade program. El Paso also recommends not including vented emissions of methane in the cap-and-trade program for the same reasons that fugitive emissions should not be included.

2. El Paso supports the MAC's intent to promote early action reductions; however, we recommend the credit be provided in terms of "allowances" or offset credits.

3. El Paso supports the MAC's concept on inclusion of offset provisions into the cap-and-trade program; however; we recommend inclusion of both project-based (*e.g.*, case-by-case) and performance-based offset development methodologies.

2. Comment 1: Program Scope

a. Coverage Options

The draft report highlights two options to address program coverage. Both options cover 83% of California's 2004 emissions profile. Under Option A, the scope of the cap-and-trade program would cover the electric and other energy intensive sectors, and it would eventually be expanded to include the transportation sector. Under Option B, the scope would be upstream coverage of CO_2 from fossil fuel combustion. Option B would establish a cap-and-trade allowance scheme for all seven interstate natural gas pipelines serving California, and require the interstate pipelines to be the point of regulation in administering the allowance mechanisms for all natural gas imports into California.

The majority of the MAC members support Option A. The proponents of Option B highlight the relative administrative efficiency (50 regulated entities versus 490 in Option A) and immediate "ability to achieve comprehensiveness in one step" as the main reason for their support of that Option. However, the draft report does not consider important implementation issues with the Option B choice. These include:

- Limitations on the interstate pipelines' ability to pass through compliance and allowance costs without significant revisions to their rate structure and approval of the Federal Energy Regulatory Commission ("FERC"); and
- Therefore, ineffective transmittal of the carbon price signal through the natural gas economy.

These concerns have been raised several times, including in comments to Senator Jeff Bingaman[4] and Reps. John Dingell[5] by the Interstate Natural Gas Association of America (INGAA). In its response to the basic question on point of regulation and the serious implementation difficulties of imposing this

[4] March 13, 2006, letter from Lisa Beal, See response to Question 2 at http://energy.senate.gov/public/index.cfm?FuseAction=Conferences.Detail&Event_id=4&Month=4&Year=2006

[5] March 19, 2007, letter from Don Santa to Rep. John Dingell, Chairman, House Energy and Commerce Committee. Response to Question 2c. http://energycommerce.house.gov/Climate_Change/Solicited%20Responses/INGAA.031907.resp.pdf

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obligation on interstate pipelines, INGAA has raised several key concerns that the MAC, California Public Utility Commission (CPUC), California Energy Commission (CEP) and the California Air Resources Board (CARB) should consider if they were to proceed with designing a cap-and-trade system under Option B. FERC has already weighed in on this issue in a February 27, 2007 letter to Senator Bingaman.[6] We strongly urge the MAC and others to consider these substantial implementation issues as significant concerns that outweigh the "theoretical" administrative benefit of regulating a smaller number of entities. Besides the serious regulatory challenges highlighted in the INGAA letters to Congressional leaders, the upstream regulatory design will add tremendous compliance and financial burden for the approximately 50 regulated entities for year end allowance reconciliation. In fact, the very advantage of a cap-and-trade regime is its self-executing allocative efficiency over regulatory fiat. Markets actually perform better with more participants, not fewer. In that sense, the pursuit of a finite and reduced number of regulated entities under Option B is a potential *non sequitur* in a market-based, cap-and-trade approach to carbon emissions governance. In addition, Option B (the full upstream concept) will have an inconsistent regulatory design with the Regional Greenhouse Gas Initiative (RGGI) Model rule and the European Union Emissions Trading System (EUETS). There has been very limited experience with an upstream regulatory design and such designs have not found application in major Clean Air Act (CCA) regulatory programs- in fact the Acid Rain, NOx Budget Program and even California's RECLAIM program were all downstream designs. Therefore, it will be inconsistent with MAC's guiding principle related to linkages with other regulatory programs. Yet such linkages may be possible under Option A, at least for the electric and energy intensive sectors.

b. Exclusion for Vented and Fugitive Emissions

Emission estimation methodologies from the oil and gas industry, particularly the transmission and storage sector, are considerably more complex due to methane losses from fugitive and vented emission sources. The current emission factors have a high degree of uncertainty associated with their emissions.[7] Despite its uncertainty, most protocols consider vented emissions as a separate category. The CCAR is currently developing its natural gas transmission and distribution protocol employing best available emissions estimation methodologies. Vented emissions are currently reported as "process emissions" in CCAR, but the MAC should be aware of the uncertainties surrounding emissions from this category as outlined in the table below.

Industry organizations such as API, AGA and INGAA, and the EPA have commissioned a study to review emission factors specifically within the oil and gas sector. With respect to the transmission and storage sector, the uncertainty can be as high as 260% for compressor stations and pipeline venting activities. Table 1 below, based on 1992 activity data for the U.S. inventory as identified in the 1996 Gas Research Institute / Environmental Protection Agency Study (GRI/EPA 1996), summarizes the published emission factors and uncertainties surrounding the emissions. Furthermore, the uncertainty presented does not account for uncertainty associated with the "activity data". The current emission factor improvement study has reviewed approximately 1,700 emission factors, associated uncertainty and the calculation of emissions. Therefore, while industry can report all GHG emissions, MAC should realize these estimates have a high degree of uncertainty and therefore we recommend vented emissions, like fugitive emissions, from natural gas transmission and distribution facilities not be part of the cap-and-trade program.

[6] February 27, 2007. Letter from Joseph Kelliher, Chairman, FERC to Sen. Jeff Bingaman, Chairman, Senate Energy and Natural Resources Committee

[7] http://www.ipieca.org/activities/climate_change/downloads/workshops/jan_07/5%20George.pdf

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Table 1
Transmission & Storage Sector Equipment and Facility Emission Sources with Largest Contributions to Natural Gas Industry GHG Emissions Estimate Uncertainty (GRI/EPA, 1996)

Equipment/ Emissions Source	Source Type	Emission Factor	EF Units	EF Uncert (90% CI)	1992 Emissions Data (scf)	1992 Emissions Uncert (scf)
Compressor Station Venting	Vent	5,300,000	scf/station-yr	262%	1.15E+10	3.02E+10
Pipeline Venting/ Blowdowns	Vent	41,000	scf/mile-yr	236%	1.17E+10	2.75E+10
Transmission Recip Compressor	Fug	5,550,000	scf/comp-yr	65%	3.77E+10	2.45E+10
Pneumatic Devices	Vent	162,197	scf/equip-yr	44%	1.41E+10	6.22E+9
Trans Comp Station non-comp Equip	Fug	3,200,000	scf/station-yr	102%	5.45E+9	5.56E+9
Storage Recip Comp	Fug	7,710,000	scf/comp-yr	48%	1.09E+10	5.16E+9
Storage Comp Station non-comp Equipment	Fug	7,850,000	scf/station-yr	100%	3.73E+9	3.73E+9
M&R Station: Trans Co. Interconnects	Fug	1,450,000	scf/station-yr	80%	3.68E+9	2.953E+9
Trans Cent Comp	Fug	11,100,000	scf/comp-yr	34%	7.53E+9	2.56E+9
M&R Station: Farm Taps & Direct Sales	Fug	11,400	scf/station-yr	80%	8.27E+8	6.62E+8

El Paso has developed its technical manual to estimate GHG emissions from the transmission and distribution sector based on past experiences with the INGAA, CCAR and DoE programs. While this is a proprietary document, El Paso welcomes the opportunity to discuss the content of this document with the AQB and highlight additional differences and similarities in the various existing GHG protocols and voluntary programs.

Summary of El Paso's comments with respect to the Program Scope:

- *There are major regulatory and commercial hurdles that have not been considered by the MAC, under Option B, that outweigh any perceived administrative efficacy derived from fewer regulated entities.*
- *El Paso recommends not including both fugitive and vented methane emissions in any cap-and-trade programs due to substantial uncertainty surrounding emission estimates from these categories.*
- *Vented emissions should **not** be considered as process emissions. Instead, this category should be considered as a separate source category and not be included in the overall cap-and-trade program.*

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3. Comment 2: Early Action Credits

Early Action Credits are typically considered as allowance allocations for entities that achieve early emission reductions (*e.g.*, before the start of the regulatory program or emissions limits). Early Action Credits are a feature of a number of U.S. programs such as the RGGI Model Rule,[8] Acid Rain program, NO_x SIP call and CAIR. They constitute an effective means to promote and reward early action. Depending on program design, Early Action credits may be necessary to avoid penalizing early actors for their positive, pro-environmental efforts. In a cap-and-trade program, the credits are a tradable commodity that can have significant value as a reward to those who take early initiative.

The MAC has identified the benefits of early action by companies in the draft report and supports early actions. The MAC has stated that such early actions should not be reawarded by offset credits or allowances. Instead, the Committee prefers "direct financial incentives" to avoid "additionality" issues concerning issuances of offset credits. The MAC's concerns on additionality are understandable. However, with respect to natural gas transmission, much of the early actions have taken place with respect to fugitive and vented methane emissions through the EPA's Natural Gas STAR program. Established in 1993, the Natural Gas STAR program is a voluntary partnership between the U.S. Environmental Protection Agency and the oil and natural gas industry designed to cost-effectively reduce methane emissions from oil and natural gas operations. El Paso has been a member of the STAR program since 1993. As the primary component of natural gas, methane is also a valuable clean energy source, and reducing emissions to the atmosphere also adds to domestic natural gas supply. El Paso has deployed technologies and practices to reduce methane emissions and improve operational efficiency since 1993. Based on EPA's Natural Gas Guidelines for estimation of reductions, as of 2005, El Paso Pipeline companies have reported over 55 Bcf[9] of natural gas reductions, which equates to approximately 20 million tonnes of $CO_{2e.}$ El Paso has been recognized by the EPA many times for superior performance in this voluntary program. In fact, as of 2005, El Paso was the best performing company in the Transmission and Distribution sector accounting for about 34% of the total natural gas reductions realized since program inception. Besides EPA's STAR program, El Paso companies have various internal programs focused on efficiency improvement and also advanced natural gas leak detection and monitoring. These programs include improving operational efficiency and identification and reduction of fugitive emissions at our pipeline facilities.

It is unclear to El Paso what sort of direct financial incentive is envisioned by the MAC. However, such early action that meets the attributes of the offset credits outlined in the MAC report will immensely aid the cap-and-trade programs by providing low cost emission credits to the market. The MAC should develop a flexible mechanism whereby both performance-based standards and case-by-case early action evaluation can be performed and such early actors are rewarded with emission allowances as opposed to "automatic rewards" through adjustments on the emissions cap or other incentives.

Further, not providing early action credits as allowances will create inconsistencies with other regulatory programs like the RGGI, the Clean Development Mechanism (Kyoto Protocol), EU ETS, etc.

[8] Subpart XX5.3(c), Early reduction CO^2 allowances.

[9] Bcf = billion cubic feet. Source for methane reductions: EPA Natural Gas Star, 2005 Reporting Summary & Benchmarking Report. Also, includes ANR Pipeline Company which was owned and operated by El Paso as of December 31, 2005.

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Summary of El Paso's comments with respect to Early Action Credits:

- *El Paso recommends issuance of allowances for early action credits for the natural gas transmission and distribution sectors.*
- *Fugitive and vented emissions of natural gas transmission companies represent a small fraction of California's overall 2004 GHG emissions.*
- *El Paso and other natural gas transmission companies have already deployed technologies over the past several years to mitigate and reduce fugitive and vented emissions.*
- *Not providing allowances for early actions will create inconsistencies with programs such as RGGI..*

4. Comment 2: Emission Offsets

The MAC has recommended inclusion of emission offsets without any geographic or quantitative limitations to ensure that GHG emissions are reduced in the most cost-effective manner. MAC also recommends a performance-based standards approach rather than a case-by-case review and cites the RGGI[10] program as an example where performance-based standards are employed. The main advantage cited by the MAC is the reduction of transactional (administrative) costs and improved certainty for both project investment and environmental performance. While the stated advantages of a performance-based standards approach are true, the MAC should be flexible in recommending both performance-based standards and case-by-case review. The fundamental flaw in the assumption that performance-based standards are always superior is that not all sectors have performance-based standards developed. This includes the natural gas sector, where El Paso believes, as outlined below, that very high quality offsets can be developed that are superior to "performance-based" offsets that are automatically rewarded for certain sectors. Secondly, it is incorrect to assume that all five approved offset categories in the RGGI program have performance-based standards built into the offset determination. In fact, El Paso has commented in favor of developing performance-based offsets from the natural gas sector into the RGGI program.[11] The draft RGGI model rule released by the Interstate RGGI Staff Working Group published for public comment on March 23, 2006, had included offsets from natural gas transmission sector. El Paso has led an industry and multi-stakeholder effort (including CCAR, RGGI and US EPA) to develop performance-based standards for the natural gas transmission and distribution sector from experiences documented in the EPA's Natural Gas STAR program. While this initiative has commenced, the task is extremely time-consuming due to a variety of reasons, including administrative and confidentiality issues.

El Paso respectfully brings to the MAC's attention the baseline methodology AM0023 developed and approved by the Clean Development Mechanism (CDM) Executive Board on July 8, 2005. This methodology focuses on "Leak reduction from natural gas pipeline compressor or gate stations". El Paso has developed and advocated the attached "policy neutral" protocol document[12] for case-by-case offset consideration from natural gas transmission and storage facilities as a valid offset category. The El Paso case-by-case offset proposal calls for the use of advanced techniques to identify and measure emissions at compressor stations. Essentially, the emissions leaks are re-screened and repaired during each monitoring period to ensure repairs are maintained. All information is available for verification. As identified in the mathematical equation in the proposal, the difference in pre- and post-project emission rates are summed from all sources to determine total emission reductions. We believe our proposal has the following attributes:

[10] Page 98, Trading Program Design, draft Report, June 1, 2007
[11] http://rggi.org/docs/rggi_el_paso_comments_may_19.pdf
[12] Attachment A

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- The methodology is very straightforward and based on actual measurements;
- It is conservative because it assumes that the "emission rate" will remain constant after baseline, when emission rates usually get worse;
- It requires re-screening every year, which is labor-intensive; and
- It ensures that emission reductions are easily determined to be real and verifiable.

El Paso strongly believes that, in relation to most other offset categories (including the five adopted by RGGI), our proposal is superior and the CARB can be assured that offsets are real and verifiable. Superior measurement, monitoring and verification technologies are being proposed based on established expertise through our participation in EPA's Natural Gas Star Program. Additionally, an err-on-the-side-of-caution, conservative bias in measuring reductions is being adopted to account for measurement uncertainty.

We are sympathetic to the MAC's concerns on potential administrative constraints and to adopting a CDM-like, project-by-project evaluation of additionality. While we understand the need to simplify the offset rules by using a performance-based standard approach, we believe this process is extremely time-consuming. It could, therefore, artificially limit the number of high-quality offset projects, resulting in an arbitrary constraint on choices and access for facilities affected by the cap-and-trade regulations. We acknowledge that CARB (or regional regulatory offices) may have staffing constraints (including potential technical limitations) to do full-fledged "audits" of projects. But clear project definition, project documentation, an independent, third-party verification regime covering projects and claimed reductions are all critical features of a robust and reliable program. Such verification process will review the assertions by the project sponsor, especially those related to baseline emission levels and additionality. There are highly credible third-party verifiers, that – once approved by California – would maintain the integrity of the program.

In our review of the offset section in the RGGI model rule, Subpart XX-10, we believe that RGGI's approved offset protocol for landfill gas projects[13] provides a precedent for looking beyond the performance-based standard approach. As long as particular landfills are not subject to New Source Performance Standard (NSPS), these facilities are eligible to generate offsets, no matter how profitable such a project may be or the technology employed and its "market penetration". The baseline emissions are consistent with the El Paso proposal discussed above on determining baseline emissions. That essentially equates the emission rate prior to the installation of the emission control device and the reductions are essentially based on a 98% "assumed" destruction efficiency of methane control device. While this methodology employs an "assumed" destruction efficiency, the methodologies put forth under the El Paso proposal call for advanced monitoring of the post-project leak rate followed by independent third party verification through approved verifiers.

Regarding El Paso's revisions to the AM0023 methodology, as long as a protocol has a very strict but transparent definition of what is and what is not business-as-usual, it would be possible for project sponsors to clearly delineate what types of offset activities would be eligible.

With respect to fugitive and vented emissions release, most natural gas companies employ standard operating practices to ensure that the natural gas delivered into their systems is delivered to the customer in the most efficient manner consistent with tariff and other state, federal or local regulations. We strongly believe that the El Paso proposal employing the modified AM0023 methodology and offsets in the natural gas sector can meet the additionality concerns without a performance-based standard and without burying the regulators in unverifiable documentation. We also believe that this approach will significantly increase the universe of potential high-quality offset projects, continuing to put California on the cutting edge of cost-effective ways to

[13] Subpart XX10.5(a)

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address greenhouse gas issues.

It should be noted that a case-by-case offset approach is quite similar to a case-by-case Best Available Control Technology evaluation under the Clean Air Act. In due course, as developers register their case-by-case offsets into a registry or database (similar to the RBLC[14] database) that will form the basis of eventual development of performance-based standards for this industry.

Therefore, in conclusion, we highly recommend that the MAC incorporate the flexibility to consider both a case-by-case and performance-based standards approach in determining GHG offsets. Such flexibility will enable the natural gas transmission and distribution sector to contribute immediately to high quality GHG offsets. And, as and more of these projects are registered into a registry or database, performance-based standards can be developed by CARB or another regulatory entity.

Summary of El Paso's comments with respect to Emission Offsets:

- *El Paso recommends incorporation of both case-by-case and performance-based standards emission offsets.*
- *El Paso supports development of performance-based offset standards and has led industry and stakeholder efforts in this area.*
- *The quality of the GHG offsets must be the primary criterion for deciding between performance-based and case-by-case offset standards.*
- *The CDM board has approved AM0023 to quantify GHG offsets from natural gas facilities. El Paso has developed a policy-neutral technical protocol that incorporates the technical attributes of AM0023.*
- *Inclusion of El Paso's case-by-case offset protocol for natural gas transmission and distribution facilities will ensure the availability of high quality GHG offsets to California's cap-and-trade program.*
- *Experience gained through case-by-case offset development will form the cornerstone for future performance-based offset standards.*

[14] RCLC – RACT/ BACT/ LAER Clearinghouse

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5. Summary of Comments

Summary of El Paso's comments with respect to the Program Scope:

- *There are major regulatory and commercial hurdles that have not been considered by the MAC, under Option B, that outweigh any perceived administrative efficacy derived from fewer regulated entities.*
- *El Paso recommends not including both fugitive and vented methane emissions in any cap-and-trade programs due to substantial uncertainty surrounding emission estimates from these categories.*
- *Vented emissions should **not** be considered as process emissions. Instead, this category should be considered as a separate source category and not be included in the overall cap-and-trade program.*

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Summary of El Paso's comments with respect to Early Action Credits:

- *El Paso recommends issuance of allowances for early action credits for the natural gas transmission and distribution sectors.*
- *Fugitive and vented emissions of natural gas transmission companies represent a small fraction of California's overall 2004 GHG emissions.*
- *El Paso and other natural gas transmission companies have already deployed technologies over the past several years to mitigate and reduce fugitive and vented emissions.*
- *Not providing allowances for early actions will create inconsistencies with programs such as RGGI.*

Summary of El Paso's comments with respect to Emission Offsets:

- *El Paso recommends incorporation of both case-by-case and performance-based standards emission offsets.*
- *El Paso supports development of performance-based offset standards and has led industry and stakeholder efforts in this area.*
- *The quality of the GHG offsets must be the primary criterion for deciding between performance-based and case-by-case offset standards.*
- *The CDM board has approved AM0023 to quantify GHG offsets from natural gas facilities. El Paso has developed a policy-neutral technical protocol that incorporates the technical attributes of AM0023.*
- *Inclusion of El Paso's case-by-case offset protocol for natural gas transmission and distribution facilities will ensure the availability of high quality GHG offsets to California's cap-and-trade program.*
- *Experience gained through case-by-case offset development will form the cornerstone for future performance-based offset standards.*

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ATTACHMENT A

EL PASO'S PROPOSAL ON CASE-BY-CASE OFFSET DETERMINATION FROM NATURAL GAS TRANSMISSION AND STORAGE FACILITIES

CO_2 EQUIVALENT (CO_{2e}) EMISSIONS OFFSET PROJECT STANDARDS

Emissions Reductions from Natural Gas Pipelines or Storage facilities. Offset projects that mitigate or reduce emissions at facilities of gas pipelines and thus avoid emissions of CO_{2e} to the atmosphere may qualify for the award of CO_{2e} emissions offset allowances under this Subpart, provided they meet the requirements of this subdivision.

(1) Eligibility. Eligible offset projects shall occur in natural gas pipeline and storage facilities. Eligible offsets shall include activities to detect emission releases using techniques and technologies outlined below or approved by the Administrator, as well as actions to measure emission rates, mitigate identified emissions and undertake re-screening of emissions to ensure mitigation efforts have been maintained at or below the approved Protocol filed by the project sponsor, owner or operator. Eligible offsets will include those that can be described by the project owner in its Protocol as beyond the typical or required emissions management practices that have already been taking place before the offset project started.

Equipment where emissions detection, mitigation and/or reduction shall occur can include, but is not limited to, the following: unit valves on blown down compressors, blow down valves on pressurized compressors, rod packings on pressurized compressors, pressure relief valves, power gas vents for compressor unloaders, engine crankcase vents, pipeline blowdowns, replacement of pipeline or equipment components.

Protocol: The offset project sponsor, owner or operator shall submit a Protocol to the Administrator for approval of the details outlined in Sections (3)-(5) to ensure that the offset project meets the eligibility requirements of paragraph (1) of this subdivision. The project sponsor shall submit a monitoring and verification plan as part of the Protocol application that includes a quality assurance and quality control program associated with equipment used to identify and measure emissions releases from components in natural gas pipeline and storage facilities. The monitoring and verification plan shall also include provisions for ensuring that measuring and monitoring equipment is maintained, operated, and calibrated based on manufacturer recommendations, as well as provisions for the retention of maintenance records for audit purposes.

The monitoring and verification plan shall be certified by an independent verifier accredited pursuant to subpart 242.10.6-7.

(2) Offset project description: A project narrative shall include the following information:.

(i) Description of the gas transmission or storage company suitable in detail to specify the service territory served by the entity.
(ii) Owner and operator of the gas transmission or storage entity.
(iii) Location of the gas pipeline or storage facilities which will undergo the emissions reduction management.
(iv) Description of the technologies used to detect the emissions and measure the emission rates, as well as the types of measures that will likely be used to eliminate the emissions.

(3) Emissions baseline determination. The emissions baseline shall represent the actual direct emissions of CH4 (in tons of CO_{2e}) from the components identified in the project protocol, as represented by the sum of released CH4 measured using the techniques and formulas described and calculated in accordance with this paragraph. For each emissions release, the project owner will: note the date of emissions release detection; note the date of emission release mitigation; note the exact location of the emissions release; measure the emissions release flow rate (volume per time), as described further below; note the measurement method.

(i) Emissions Identification. Project participants may use the following advanced tools to detect the

emissions at the natural gas transmission facilities:

a) **Electronic Screening** using small hand-held gas detectors or "sniffing" devices to detect accessible emissions. Electronic gas detectors are equipped with catalytic oxidation and thermal conductivity sensors designed to detect the presence of specific gases. Electronic gas detectors can be used on larger openings that cannot be screened by soaping.

b) **Organic Vapor Analyzers (OVAs)** and **Toxic Vapor Analyzers (TVAs)** are portable hydrocarbon detectors that can also be used to identify emissions. An OVA is a flame ionization detector (FID), which measures the concentration of organic vapors over a range of 9 to 10,000 parts per million (ppm). TVAs and OVAs measure the concentration of methane in the area around an emission source.

c) **Acoustic Emission Detection** using portable acoustic screening devices designed to detect the acoustic signal that results when pressurized gas escapes through an orifice. As gas moves from a high-pressure to a low-pressure environment across an emission opening, the turbulent flow produces an acoustic signal, which is detected by a hand-held sensor or probe, and read as intensity increments on a meter. Although acoustic detectors do not measure emission rates, they provide a relative indication of emission size – a high intensity or "loud" signal corresponds to a greater emission rate.

d) **Other technology that provides equivalent or higher detection capabilities.**

(ii) Emissions Measurement. The following technologies can be used to measure emission flow rates:

a) **Bagging techniques** are commonly used to measure flow rates from equipment emission releases. The emitting component, emission opening or emission release source is enclosed in a "bag" or tent. An inert carrier gas such as nitrogen is conveyed through the bag at a known flow rate. Once the carrier gas attains equilibrium, a gas sample is collected from the bag and the methane concentration of the sample is measured. The emission flow rate from the component is calculated from the purge flow rate through the enclosure and the concentration of methane in the outlet stream as follows:

$F_{CH4,i} = F_{purge,i} \times w_{CH4,i}$

where:

$F_{CH4,i}$ = the emission flow rate of methane for emission source i from the emitting component (m^3/h),
$F_{purge,i}$ = the purge flow rate of the clean air or nitrogen at emission source i (m^3/h), and
$w_{CH4,i}$ = the measured concentration of methane in the exit flow (volume percent).

b) **High volume or hi-flow samplers** capture all emissions from an emitting component or emissions release source to accurately quantify emission flow rates. Emissions, plus a large volume sample of the air around the emitting component, are pulled into the instrument through a vacuum sampling hose. High volume samplers are equipped with dual hydrocarbon detectors that measure the concentration of hydrocarbon gas in the captured sample, as well as the ambient hydrocarbon gas concentration. Sample measurements are corrected for the ambient hydrocarbon concentration, and the emissions rate is calculated by multiplying the flow rate of the measured sample by the difference between the ambient gas concentration and the gas concentration in the measured sample. Methane emissions are obtained by calibrating the hydrocarbon detectors to a range of concentrations of methane-in-air. High volume samplers are equipped with special attachments designed to ensure complete emissions capture and to prevent interference from other nearby emissions sources. The hydrocarbon sensors are used to measure the exit concentration in the air stream of the system. The sampler essentially makes rapid vacuum enclosure measurements. The emission flow rate of methane is calculated as follows:

$F_{CH4,i} = F_{sampler,i} \times (C_{sample,i} - C_{back,i})$

where:

$F_{CH4,i}$ = the emission flow rate of methane for emission source i from the emitting component (m^3/h),
$F_{sampler,i}$ = the sample flow rate of the sampler for emission source i (m^3/h),
$C_{sample,i}$ = the concentration of methane in the sample flow from emission source i (volume percent), and
$C_{back,i}$ = the concentration of methane in the background near the component (volume percent).

c) **Rotameters** and other flow meters are used to measure extremely large emission releases that would overwhelm other instruments. Flow meters typically channel gas flow from an emissions source through a calibrated tube. The flow lifts a "float bob" within the tube, indicating the emission rate. Rotameters and other flow metering devices can supplement measurements made using bagging or high volume samplers. The emission flow rate of methane is calculated as follows:

$$F_{CH4,i} = 3600 \times w_{CH4,gas} \times k \times A \times \sqrt{g \times h}$$

where:

$F_{CH4,i}$	=	the emission flow rate of methane for emission source i from the emitting component (m^3/h).
w_{CH4}	=	the concentration of methane in the natural gas (volume percent).
K	=	a constant of the measurement equipment.
A	=	the annular area between the float and the tube

		wall (m^2)
G	=	the acceleration of gravity (9.81 m/s^2)
H	=	the pressure drop across the float (as height in m).

d. **Other technology that provides equivalent or higher measurement capabilities.**

(4) Calculation of emission reductions: Emission reductions are calculated as follows:

$$ER_v = ConvFactor * \Sigma [(F_{CH4,i,x} - F_{CH4,i,y}) * T_{i,y} * (1-UR_i)] * GWP_{CH4}$$

where:

ER_y	=	the methane emission reductions of the project activity during the period y (tCO_2 equivalents)
ConvFactor	=	the factor to convert m^3 CH_4 into t CH_4. At standard temperature and pressure (0 degree Celsius and 1,013 bar) this factor amounts to 0.0007168 t CH_4/m^3 CH_4.
i	=	all emissions eligible towards accounting of emissions reductions, taking into account the guidance described above.
$F_{CH4,I,x}$	=	the emission flow rate of methane for emission source i from the emitting component (m^3CH_4/h) in the baseline year x.
$F_{CH4,I,y}$	=	the emission flow rate of methane for emission source i from the emitting component (m^3CH_4/h) in the project year y. Note: if emissions are completely mitigated, this variable will be zero. If the emission source partially re-opens, there may be some emission reduction, but if any emitting is still occurring, it must be accounted for.
UR_i	=	the uncertainty range for the measurement method applied to emission source i, determined, where possible, at a 95% confidence interval, consulting the guidance provided in chapter 6 of the 2000 IPCC Good Practice Guidance. If emission measurement equipment manufacturers report an uncertainty range without specifying a confidence interval, a confidence interval of 95% may be assumed.
$T_{i,y}$	=	the time (in hours) the relevant component for emission source i has been operating during the monitoring period y, taking into account the guidance described above (e.g. regarding deductions for broken emission sources).
GWP_{CH4}	=	the global warming potential for methane (tCO_2e/tCH_4).

In calculating emission reductions, the basic underlying assumption is that an emission source, which has been detected and mitigated due to the project activity, would have continued to emit with the flow rate measured

prior to the mitigation project, until the equipment concerned would have been replaced. If an emissions mitigation ceases to function, it is conservatively assumed that that the emission resumed at the same flow rate the day after the last inspection, or in case of the first inspection, the day after the mitigation has taken place. Thus, emissions sources where the mitigation efforts failed are excluded from emission reductions from the day after the last inspection. Emission reductions from a specific emission source shall be included in the calculations until the equipment concerned is replaced for a non-emission related reason (i.e. it breaks down).

(5) Monitoring requirements. As part of monitoring, project participants should regularly monitor each emission included in the database. During these inspections, the same tools as described above should be used to detect any emitting from the mitigated emission sources. The following information should be collected:

a) Date of monitoring;
b) an assessment whether the relevant equipment has been replaced after the mitigation of the emission source;
c) the number of hours the relevant equipment was operating (not turned off) since the last monitoring inspection;
d) an assessment whether the mitigation of the emission source functions appropriately.

If the mitigation of the emission source does not function appropriately, i.e. an emission source at the same location is detected, project participants should note the date of emission source mitigation. All information should be added to a database and be included in monitoring reports.