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January 8, 2010

Dr. Lawrence Goulder, Chair
Economic and Allocation Advisory Committee
California Air Resources Board
1101 I Street
Sacramento, CA 95814

Dear Dr. Goulder and Members of the Economic and Allocation Advisory Committee:

We are writing to you to request that you correct a flawed finding in your draft January 7, 2010 report, *Allocating Emissions Allowances under California's Cap-and-Trade Program*. On page 40, Section 5.1.4, paragraph 2 of the report, you state:

"Last, for those remaining industries whose costs would rise above those of imports, only a fraction of the total emission from those industries need to be covered via emissions updating to mitigate leakage. After 2014, transportation fuels will come under the cap. This industry will be associated with about 35% of total emissions and allowances used under the program, and it could be vulnerable to leakage if imported fuels are not subject to a border adjustment on their CO₂ content. However, the potential for leakage in gasoline production is limited.⁴⁸

⁴⁸Currently, nearly all gasoline fuel used in California is refined in California, in part because of the special fuel configuration required to meet California's environmental standards. Other potential sources of supply include the Pacific Northwest, which has limited potential, and the Gulf Coast, which does not make California gasoline at this time. International competition from countries such as Singapore and India is possible, but currently they account for less than 0.2% of west coast gasoline supply in the U.S. (See: http://tonto.eia.doe.gov/dnav/pet/pet_cons_psup_dc_r50_mbb1_a.htm and http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_epm0f_im0_mbb1_a.htm.)"

It is simply incorrect to use today's gasoline supply balance as is described in the footnote above to forecast the future supply balance since the future cap and trade scheme is designed to increase carbon costs on these products. The EAAC report itself confirms that California is vulnerable to leakage, as stated in the first paragraph of this section quoted above. With the addition of carbon costs on California sources, non-California sources will have a new incentive to compete within the California market. California supply sources will have additional costs due to AB 32 program that non-California supply sources will not. This includes stationary source requirements as well as when transportation fuels are required to hold allowances. If the non-California sources have additional supply beyond their local market (for example; the Singapore and India refining centers, and the Gulf Coast), leakage will occur when the AB 32 program costs are greater than the transportation cost to supply the California market. The non-California

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supply can compete under the changed conditions due to the future cap-and-trade program, which this very report is commissioned to design.

In addition, we would like to note that even if imported fuels are addressed through border adjustments or allowances, that production of fuels in California will still be trade exposed. Although transportation fuels are not included in the cap in the European Union Emissions Trading Scheme (EU ETS), the EU ETS has recognized that both the refinery and the oil and gas production sectors are listed as trade exposed energy intensive industries (Attachment 1). Trade exposure of energy production appears to be acknowledged by the first paragraph in section 5.1.4 of the EAAC report.

Specifically, it is essential that you define trade exposure, energy intensive production by including broad based criteria in the report. GHG and Energy Intensity criteria should be based on value added. Comparing energy and GHG costs to value added (e.g., margin) is a better approach than comparing to value of shipments (e.g., revenue) as it more accurately captures the impact of GHG costs. This is the approach being used in the EU. Australia is planning to use this approach as well. Energy Intensity should be based on total energy use. Only including purchased fuel and electricity will cut out self-generated power at a refinery. Additionally, fuels – as opposed to stationary sources – will need a different set of metrics as these relate to production, not use of a product. We do not believe at this point fuels should be placed under the cap, and thus have not developed metrics that would help measure trade exposure specifically for fuels. However, a simple comparison of increased costs to transportation of fuel costs strongly indicates that these fuels are trade exposed.

Our November 24, 2009 letter to the EAAC (Attachment 2), shared a detailed description of our challenges in conducting business in California, our experiences reducing CO₂e, making investment decisions based on AB 32 constraints and having to compete in the competitive global marketplace. This letter also showed explicitly that several other markets are poised to import their produced fuels into the California market. We urge the EAAC to revise its opinion on trade exposure of both transportation fuels and refineries and to broadly define trade exposure and energy intensity.

Thank you for this opportunity to request clarification and address our concerns with your January 7, 2010 report.

Best regards,

A handwritten signature in black ink, appearing to read "Stephen D. Burns". The signature is written in a cursive, flowing style.

Stephen D. Burns

COMMISSION DECISION

of 24 December 2009

determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage

(notified under document C(2009) 10251)

(Text with EEA relevance)

(2010/2/EU)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the functioning of the European Union,

Having regard to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC⁽¹⁾, and in particular Article 10a(13) thereof,

Whereas:

- (1) Directive 2003/87/EC, as amended by Directive 2009/29/EC of the European Parliament and of the Council⁽²⁾, provides that auctioning should be the basic principle for allocation of greenhouse gas emission allowances.
- (2) The Union supports an ambitious international agreement on climate change that aims to limit the global temperature increase to 2 °C. In the event that other developed countries and other major emitters of greenhouse gases do not participate in that international agreement, this could lead to an increase in greenhouse gas emissions in third countries where industry would not be subject to comparable carbon constraints ('carbon leakage') and undermine the environmental integrity and benefit of actions by the Union. To address the risk of carbon leakage, Directive 2003/87/EC provides that, subject to the outcome of the international negotiations, the Union should allocate allowances free of charge at 100 % of the quantity determined in accordance with the measures referred to in Article 10a(1) of Directive 2003/87/EC to sectors or sub-sectors deemed to be exposed to a significant risk of carbon leakage.
- (3) By 31 December 2009 and every five years thereafter, the Commission shall determine a list of the sectors or

subsectors deemed to be exposed to a significant risk of carbon leakage, hereinafter 'list of sectors and subsectors', on the basis of the criteria referred to in paragraphs 14 to 17 of Article 10a of Directive 2003/87/EC.

- (4) According to Article 10a(14) of Directive 2003/87/EC, in order to determine the sectors or subsectors deemed to be exposed to a significant risk of carbon leakage the Commission shall assess, at Union level, the extent to which it is possible for the sector or subsector concerned, at the relevant level of disaggregation, to pass on the direct cost of the required allowances and the indirect costs from higher electricity prices resulting from the implementation of Directive 2003/87/EC into product prices without significant loss of market share to less carbon efficient installations outside the Union. These assessments shall be based on an average carbon price according to the Commission's impact assessment accompanying the package of implementation measures for the Union's objectives on climate change and renewable energy for 2020 and, if available, trade, production and value added data from the three most recent years for each sector or subsector.
- (5) In accordance with Article 10a(15) of Directive 2003/87/EC, a sector or subsector shall be deemed to be exposed to a significant risk of carbon leakage if the sum of direct and indirect additional costs induced by the implementation of that Directive would lead to a substantial increase of production costs, calculated as a proportion of the gross value added, of at least 5 %; and the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Union (annual turnover plus total imports from third countries), is above 10 %. In accordance with Article 10a(16) of Directive 2003/87/EC, a sector or subsector is also deemed to be exposed to a significant risk of carbon leakage if the sum of direct and indirect additional costs induced by the implementation of Directive 2003/87/EC would lead to a particularly high increase of production costs, calculated as a proportion of the gross value added, of at least 30 %, or the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Union (annual turnover plus total imports from third countries), is above 30 %.

⁽¹⁾ OJ L 275, 25.10.2003, p. 32.

⁽²⁾ OJ L 140, 5.6.2009, p. 63.

- (6) In order to establish the list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage, the risk of carbon leakage should be assessed, as a starting point, at a 3-digit level (NACE-3 level) or, where appropriate and where the data is available, at a 4-digit level (NACE-4 level). Sectors and subsectors should be included in the list of sectors and subsectors using the most accurate NACE description. Some sectors not found to be exposed to a significant risk of carbon leakage at the NACE 4-level were disaggregated and a number of corresponding sub-sectors, for which certain characteristics led to a significantly different impact from the rest of the sector, were assessed.
- (7) Information necessary for making the determination on the basis of the criteria referred to in paragraphs 14 to 17 of Article 10a of Directive 2003/87/EC was collected, as of December 2008, from Member States, Eurostat, publicly and commercially available sources and industry associations. Information not provided by Member States or any other official sources has been verified. Confidential data processed by Eurostat have also been used.
- (8) The data in the 'Community Independent Transaction Log' (CITL) are considered to be the most accurate, reliable and transparent estimation of CO₂ emissions for sectors, the activities of which were in Annex I to Directive 2003/87/EC, prior to amendment by Directive 2009/29/EC, and have therefore been used as the main source to calculate the direct cost of the allowances for those sectors.
- (9) As regards process emissions of new activities and greenhouse gases included in Annex I to Directive 2003/87/EC, as amended by Directive 2009/29/EC, for some sectors with a substantial number of small installations or installations which were excluded in periods 2005-2007 and 2008-2012 of the emissions trading scheme, or for which no CITL data was available, or where emissions could not be attributed at NACE-4 level, data have been collected from Member States and from the greenhouse gas inventory of the Union for the relevant years. As regards the assessment of electricity consumption used for the calculation of indirect cost from higher electricity prices, no data is available from Eurostat, and the data collected directly from Member States can be considered as the most reliable data available. Regarding the estimation of gross value added, data from the Eurostat Structural Business Statistics have been used as it is considered to be the most accurate source. The data reported by Eurostat in the Comext database on trade between Member States and with third countries are considered as the most reliable data on the total values of exports to third countries and imports from third countries, as well as on the total annual turnover in the Union.
- (10) The assessments were based on the average carbon price according to the impact assessment of the Commission accompanying the package of implementation measures for objectives of the Union on climate change and renewable energy for 2020 ⁽¹⁾. The resulting carbon price from the most relevant scenario including Joint Implementation and Clean Development Mechanism credits is EUR 30 per tonne of CO₂ equivalent.
- (11) In order to assess the direct additional costs induced by the implementation of Directive 2003/87/EC, it is necessary to take into account the amount of allowances that the sector would be required to purchase if not deemed to be exposed to significant risk of carbon leakage. In accordance with Article 10a(11) of that Directive the amount of allowances allocated free of charge to such sectors in 2013 is to be 80 % of the quantity determined in accordance with Article 10a(1) and this amount is to decrease each year by equal amounts resulting in 30 % free allocation in 2020 with a view to reaching 0 % free allocation in 2027. The starting point for the benchmarks determined under Article 10a(1) is the average performance of the 10 % most efficient installations in the sector or subsector in the Union in the years 2007-2008 and they shall take into account the most efficient techniques, substitutes and alternative production processes.
- (12) The benchmarks to be determined in accordance with Article 10a(1) of Directive 2003/87/EC are to be adopted only by the end of 2010. Assessment of direct costs on the basis of those benchmarks can therefore only be taken into account on the occasion of revision of the list of sectors and subsectors. It is thus necessary to estimate the amount of allowances which need to be allocated free of charge in order to determine the list of sectors and subsectors. These estimates have to be made at Union level and for the years 2013 and 2014. The best estimate, for the purposes of this Decision and reflecting the stringent requirements for benchmarks and the application of the linear reduction factor, is that 75 % of allowances for non-exposed sectors will need to be purchased in 2013 and 2014.
- (13) The assessment of indirect cost was based on the Union average emission factor for electricity of 0,465 tonnes of CO₂ per MWh according to the Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables ⁽²⁾ used for the impact assessment of the Commission accompanying the package of implementation measures for objectives of the Union on climate

⁽¹⁾ http://ec.europa.eu/energy/climate_actions/doc/2008_res_ia_en.pdf

⁽²⁾ P. Capros et al., *Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables*, Primes Model — E3MLab/NTUA, June 2008;

http://ec.europa.eu/environment/climat/pdf/climat_action/analysis.pdf

change and renewable energy for 2020. The use of an average Union value is appropriate as it is consistent with the requirement to perform the assessment at Union level and as it reflects the actual emissions linked to the electricity production in the Union.

(14) According to Article 10a(17) of Directive 2003/87/EC, the list may be supplemented after completion of a qualitative assessment, where the relevant data is available, taking into account the extent to which it is possible for individual installations in the sector or subsector concerned to reduce emission levels or electricity consumption, including, as appropriate, the increase in production costs that the related investment may entail, for instance on the basis of the most efficient techniques; current and projected market characteristics, including when trade exposure or direct and indirect cost increase rates are close to one of the thresholds; and profit margins as a potential indicator of long-run investment or relocation decisions.

(15) A qualitative assessment has been carried out on a number of sectors and subsectors that were not deemed to be exposed to carbon leakage based on the quantitative criteria set out in paragraphs 14 and 15 of Article 10a of Directive 2003/87/EC. The qualitative assessment was mainly applied to sectors not sufficiently represented in the quantitative assessment, and to sectors considered to be borderline cases or for which statistics were absent or of poor quality, and for which Member States or industry representatives had requested a qualitative analysis, based on plausible reasoning and substantiated requests. Following that assessment, some of the sectors analysed should be deemed as exposed to a significant risk of carbon leakage. The additional sectors and subsectors that have been added to the list are specified separately in the third section of the Annex to this Decision.

(16) Other sectors and subsectors, which, under the given time constraints, have not been completely analysed on this occasion or for which data quality and availability was limited, such as for manufacture of bricks and roof tiles, will be reassessed as soon as possible according to Article 10a(13) of the Directive and — subject to the outcome of the analysis — added to the list.

(17) A qualitative assessment has been carried out on the sector of 'Finishing of textiles' (NACE code 1730), primarily due to the fact that no official trade data at Union level is available to assess trade intensity and that all other textile sectors are highly trade intensive. The assessment demonstrated increased international competitive pressure, significant drop in production in the Union over the last years and negative or only very modest profit margins for the years evaluated, which limit the capacity of installations to invest and reduce emissions. Based on the combined impact of those

factors, the sector should be deemed as exposed to a significant risk of carbon leakage.

(18) A qualitative assessment has been carried out on the sector of 'Manufacture of veneer sheets; manufacture of plywood, laminated board, particle board, fibre board and other panels and boards' (NACE code 2020). The assessment demonstrated limited scope to reduce emissions without significant increase in costs, challenging market characteristics, such as high price sensitivity and increasing trend in imports from low cost manufacturing countries, and significant impact of additional costs due to implementation of Directive 2003/87/EC on the profit margins, limiting the capacity of installations to invest and reduce emissions. Based on the combined impact of those factors, the sector should be deemed as exposed to a significant risk of carbon leakage.

(19) A qualitative assessment has been carried out on the sector of 'Manufacture of plastics in primary forms' (NACE code 2416). With respect to current market characteristics, the assessment demonstrated a high level of integration with other parts of the chemical industry, which are deemed to be exposed to a significant risk of carbon leakage; prices set at the world market impeding unilateral price increases, and distortions of the world or Union market due to unfair commercial practices from producers in certain third countries. As regards the projected market characteristics, while already close to the 30 % trade intensity threshold, the sector experiences a strong increase in imports which will continue mainly due to large new investments in the Middle East. Based on the combined impact of those factors, the sector should be deemed as exposed to a significant risk of carbon leakage.

(20) A qualitative assessment has been carried out on the sector of 'Casting of iron' (NACE code 2751), primarily due to the fact that no official trade data at Union level are available to assess trade intensity, as the main casting products are split into different groups in the Eurostat Comext database. The assessment demonstrated limited abatement potential due to partly unavoidable process-related emissions and limited capacity to invest in abatement technologies due to significant impact of additional costs resulting from the implementation of Directive 2003/87/EC on profit margins. With respect to market characteristics, the market concentration is low, while a high level of concentration exists in the client sectors. This implies limited potential for the sector to pass through additional costs. Existing trade data from alternative sources also indicate that the casting production is increasingly traded internationally. Based on the combined impact of those factors, the sector should be deemed as exposed to a significant risk of carbon leakage.

- (21) A qualitative assessment has been carried out on the sector of 'Casting of light metals' (NACE code 2753), primarily due to the fact that no official trade data at Union level are available to assess trade intensity, as the main casting products are split into different groups in the Eurostat Comext database. With respect to market characteristics, the assessment demonstrated low market concentration and high dependence on demand from one concentrated client sector. This implies limited potential for the sector to pass through additional costs. Moreover, the sector experienced losses or only very modest margins in the evaluated years, which adversely affects the capacity to investment in abatement technologies, and which could be further exacerbated by the additional costs. Existing trade data from alternative sources also indicate that the casting production is increasingly traded internationally. Based on the combined impact of those factors, the sector should be deemed as exposed to a significant risk of carbon leakage.
- (22) When determining the list of sectors and subsectors, account should be taken, where the relevant data is available, of the extent to which third countries, representing a decisive share of global production in sectors or subsectors deemed to be at risk of carbon leakage, firmly commit to reducing greenhouse gas emissions in those sectors or subsectors to an extent comparable to that of the Union and within the same time frame, and the extent to which the carbon efficiency of installations located in those countries is comparable to that of the Union. At the current stage, only Norway, Iceland and Switzerland have made such commitments, and they do not together represent a decisive share of global production in the sectors or subsectors which are deemed to be at significant risk of carbon leakage. As regards the carbon efficiency, the relevant data necessary for the assessment is not available due to incomparability of statistical definitions and general lack of global data at the required level of disaggregation and sectoral detail. Therefore, the criteria set out in Article 10a(18) of Directive 2003/87/EC had no effect on the list of sectors and subsectors.
- (23) The assessment on which the list of sectors and subsectors is based has covered all NACE-codes from 1010 up to and including 3720, thus covering mining, quarrying and manufacturing sectors. Certain other industrial sectors, falling outside this range of NACE codes, but whose stationary installations are potentially covered by the EU ETS provisions on carbon leakage, will be analysed by the Commission during 2010. If any such industrial sector satisfies the criteria in paragraphs 14 to 17 of Article 10a of Directive 2003/87/EC it will be added to the list in the annual update.
- (24) This list applies for the years 2013-2014, subject to the outcome of the international negotiations.
- (25) Various stakeholders, including Member States, industry associations, environmental non-governmental organisations and academics have been consulted on the list of sectors and subsectors and information on the process was made available on the website of the Commission ⁽¹⁾.
- (26) The measures provided for in this Decision are in accordance with the opinion of the Climate Change Committee,
- HAS ADOPTED THIS DECISION:
- Article 1*
- The sectors and subsectors listed in the Annex shall be deemed to be exposed to a significant risk of carbon leakage.
- Certain other industrial sectors, falling outside range of the assessed NACE codes (from 1010 to including 3720), but potentially covered by the EU ETS provisions on carbon leakage, will be analysed by the Commission during 2010. If any such industrial sector satisfies the criteria in paragraphs 14 to 17 of Article 10a of Directive 2003/87/EC it will be added to the list in the annual update.
- Article 2*
- This Decision is addressed to the Member States.
- Done at Brussels, 24 December 2009.
- For the Commission*
Stavros DIMAS
Member of the Commission

⁽¹⁾ http://ec.europa.eu/environment/climat/emission/carbon_en.htm

ANNEX

Sectors and subsectors which, pursuant to Article 10a(13) of Directive 2003/87/EC, are deemed to be exposed to a significant risk of carbon leakage

1. AT THE NACE-4 LEVEL

1.1. BASED ON THE QUANTITATIVE CRITERIA SET OUT IN PARAGRAPHS 15 AND 16 OF ARTICLE 10a OF DIRECTIVE 2003/87/EC

| NACE Code | Description |
|-----------|---|
| 1010 | Mining and agglomeration of hard coal |
| 1430 | Mining of chemical and fertilizer minerals |
| 1597 | Manufacture of malt |
| 1711 | Preparation and spinning of cotton-type fibres |
| 1810 | Manufacture of leather clothes |
| 2310 | Manufacture of coke oven products |
| 2413 | Manufacture of other inorganic basic chemicals |
| 2414 | Manufacture of other organic basic chemicals |
| 2415 | Manufacture of fertilizers and nitrogen compounds |
| 2417 | Manufacture of synthetic rubber in primary forms |
| 2710 | Manufacture of basic iron and steel and of ferro-alloys |
| 2731 | Cold drawing |
| 2742 | Aluminium production |
| 2744 | Copper production |
| 2745 | Other non-ferrous metal production |
| 2931 | Manufacture of agricultural tractors |

1.2. BASED ON THE QUANTITATIVE CRITERIA SET OUT IN PARAGRAPH 15 OF ARTICLE 10a OF DIRECTIVE 2003/87/EC

| NACE Code | Description |
|-----------|--|
| 1562 | Manufacture of starches and starch products |
| 1583 | Manufacture of sugar |
| 1595 | Manufacture of other non-distilled fermented beverages |
| 1592 | Production of ethyl alcohol from fermented materials |
| 2112 | Manufacture of paper and paperboard |
| 2320 | Manufacture of refined petroleum products |
| 2611 | Manufacture of flat glass |
| 2613 | Manufacture of hollow glass |
| 2630 | Manufacture of ceramic tiles and flags |
| 2721 | Manufacture of cast iron tubes |
| 2743 | Lead, zinc and tin production |

1.3. BASED ON THE QUANTITATIVE CRITERIA SET OUT IN POINT (a) OF ARTICLE 10a(16) OF DIRECTIVE 2003/87/EC

| NACE Code | Description |
|-----------|-----------------------|
| 2651 | Manufacture of cement |
| 2652 | Manufacture of lime |

1.4. BASED ON THE QUANTITATIVE CRITERIA SET OUT IN POINT (b) OF ARTICLE 10a(16) OF DIRECTIVE 2003/87/EC

| NACE Code | Description |
|-----------|--|
| 1110 | Extraction of crude petroleum and natural gas |
| 1310 | Mining of iron ores |
| 1320 | Mining of non-ferrous metal ores, except uranium and thorium ores |
| 1411 | Quarrying of ornamental and building stone |
| 1422 | Mining of clays and kaolin |
| 1450 | Other mining and quarrying n.e.c. |
| 1520 | Processing and preserving of fish and fish products |
| 1541 | Manufacture of crude oils and fats |
| 1591 | Manufacture of distilled potable alcoholic beverages |
| 1593 | Manufacture of wines |
| 1712 | Preparation and spinning of woollen-type fibres |
| 1713 | Preparation and spinning of worsted-type fibres |
| 1714 | Preparation and spinning of flax-type fibres |
| 1715 | Throwing and preparation of silk, including from noils, and throwing and texturing of synthetic or artificial filament yarns |
| 1716 | Manufacture of sewing threads |
| 1717 | Preparation and spinning of other textile fibres |
| 1721 | Cotton-type weaving |
| 1722 | Woollen-type weaving |
| 1723 | Worsted-type weaving |
| 1724 | Silk-type weaving |
| 1725 | Other textile weaving |
| 1740 | Manufacture of made-up textile articles, except apparel |
| 1751 | Manufacture of carpets and rugs |
| 1752 | Manufacture of cordage, rope, twine and netting |
| 1753 | Manufacture of non-wovens and articles made from non-wovens, except apparel |
| 1754 | Manufacture of other textiles n.e.c. |
| 1760 | Manufacture of knitted and crocheted fabrics |
| 1771 | Manufacture of knitted and crocheted hosiery |
| 1772 | Manufacture of knitted and crocheted pullovers, cardigans and similar articles |
| 1821 | Manufacture of workwear |
| 1822 | Manufacture of other outerwear |
| 1823 | Manufacture of underwear |
| 1824 | Manufacture of other wearing apparel and accessories n.e.c. |

| NACE Code | Description |
|-----------|---|
| 1830 | Dressing and dyeing of fur; manufacture of articles of fur |
| 1910 | Tanning and dressing of leather |
| 1920 | Manufacture of luggage, handbags and the like, saddlery and harness |
| 1930 | Manufacture of footwear |
| 2010 | Sawmilling and planing of wood; impregnation of wood |
| 2052 | Manufacture of articles of cork, straw and plaiting materials |
| 2111 | Manufacture of pulp |
| 2124 | Manufacture of wallpaper |
| 2215 | Other publishing |
| 2330 | Processing of nuclear fuel |
| 2412 | Manufacture of dyes and pigments |
| 2420 | Manufacture of pesticides and other agro-chemical products |
| 2441 | Manufacture of basic pharmaceutical products |
| 2442 | Manufacture of pharmaceutical preparations |
| 2452 | Manufacture of perfumes and toilet preparations |
| 2463 | Manufacture of essential oils |
| 2464 | Manufacture of photographic chemical material |
| 2465 | Manufacture of prepared unrecorded media |
| 2466 | Manufacture of other chemical products n.e.c. |
| 2470 | Manufacture of man-made fibres |
| 2511 | Manufacture of rubber tyres and tubes |
| 2615 | Manufacture and processing of other glass, including technical glassware |
| 2621 | Manufacture of ceramic household and ornamental articles |
| 2622 | Manufacture of ceramic sanitary fixtures |
| 2623 | Manufacture of ceramic insulators and insulating fittings |
| 2624 | Manufacture of other technical ceramic products |
| 2625 | Manufacture of other ceramic products |
| 2626 | Manufacture of refractory ceramic products |
| 2681 | Production of abrasive products |
| 2722 | Manufacture of steel tubes |
| 2741 | Precious metals production |
| 2861 | Manufacture of cutlery |
| 2862 | Manufacture of tools |
| 2874 | Manufacture of fasteners, screw machine products, chain and springs |
| 2875 | Manufacture of other fabricated metal products n.e.c. |
| 2911 | Manufacture of engines and turbines, except aircraft, vehicle and cycle engines |
| 2912 | Manufacture of pumps and compressors |
| 2913 | Manufacture of taps and valves |
| 2914 | Manufacture of bearings, gears, gearing and driving elements |
| 2921 | Manufacture of furnaces and furnace burners |
| 2923 | Manufacture of non-domestic cooling and ventilation equipment |
| 2924 | Manufacture of other general purpose machinery n.e.c. |

| NACE Code | Description |
|-----------|--|
| 2932 | Manufacture of other agricultural and forestry machinery |
| 2941 | Manufacture of portable hand held power tools |
| 2942 | Manufacture of other metalworking machine tools |
| 2943 | Manufacture of other machine tools n.e.c. |
| 2951 | Manufacture of machinery for metallurgy |
| 2952 | Manufacture of machinery for mining, quarrying and construction |
| 2953 | Manufacture of machinery for food, beverage and tobacco processing |
| 2954 | Manufacture of machinery for textile, apparel and leather production |
| 2955 | Manufacture of machinery for paper and paperboard production |
| 2956 | Manufacture of other special purpose machinery n.e.c. |
| 2960 | Manufacture of weapons and ammunition |
| 2971 | Manufacture of electric domestic appliances |
| 3001 | Manufacture of office machinery |
| 3002 | Manufacture of computers and other information processing equipment |
| 3110 | Manufacture of electric motors, generators and transformers |
| 3120 | Manufacture of electricity distribution and control apparatus |
| 3130 | Manufacture of insulated wire and cable |
| 3140 | Manufacture of accumulators, primary cells and primary batteries |
| 3150 | Manufacture of lighting equipment and electric lamps |
| 3162 | Manufacture of other electrical equipment n.e.c. |
| 3210 | Manufacture of electronic valves and tubes and other electronic components |
| 3220 | Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy |
| 3230 | Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods |
| 3310 | Manufacture of medical and surgical equipment and orthopaedic appliances |
| 3320 | Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment |
| 3340 | Manufacture of optical instruments and photographic equipment |
| 3350 | Manufacture of watches and clocks |
| 3511 | Building and repairing of ships |
| 3512 | Building and repairing of pleasure and sporting boats |
| 3530 | Manufacture of aircraft and spacecraft |
| 3541 | Manufacture of motorcycles |
| 3542 | Manufacture of bicycles |
| 3543 | Manufacture of invalid carriages |
| 3550 | Manufacture of other transport equipment n.e.c. |
| 3621 | Striking of coins |
| 3622 | Manufacture of jewellery and related articles n.e.c. |
| 3630 | Manufacture of musical instruments |
| 3640 | Manufacture of sports goods |
| 3650 | Manufacture of games and toys |

| NACE Code | Description |
|-----------|------------------------------------|
| 3661 | Manufacture of imitation jewellery |
| 3662 | Manufacture of brooms and brushes |
| 3663 | Other manufacturing n.e.c. |

2. BEYOND NACE-4 LEVEL BASED ON THE QUANTITATIVE CRITERIA SET OUT IN PARAGRAPHS 15 AND 16 OF ARTICLE 10a OF DIRECTIVE 2003/87/EC

| Prodcom Code | Description |
|--------------|---|
| 15331427 | Concentrated tomato puree and paste |
| 155120 | Milk and cream in solid forms |
| 155153 | Casein |
| 155154 | Lactose and lactose syrup |
| 15891333 | Dry bakers' yeast |
| 24111150 | Hydrogen (including the production of hydrogen in combination with syngas). |
| 24111160 | Nitrogen |
| 24111170 | Oxygen |
| 243021 | Prepared pigments, opacifiers and colours, vitrifiable enamels and glazes, engobes, liquid lustres and the like; glass frit |
| 24621030 | Gelatin and its derivatives; isinglass (excluding casein glues and bone glues) |
| 261411 | Slivers, rovings, yarn and chopped strands, of glass fibre |
| 26821400 | Artificial graphite, colloidal, semi-colloidal graphite and preparations |
| 26821620 | Exfoliated vermiculite, expanded clays, foamed slag and similar expanded mineral materials and mixtures thereof |

3. AT NACE-4 LEVEL BASED ON THE QUALITATIVE CRITERIA SET OUT IN PARAGRAPH 17 OF ARTICLE 10a OF DIRECTIVE 2003/87/EC

| NACE Code | Description |
|-----------|---|
| 1730 | Finishing of textiles |
| 2020 | Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards |
| 2416 | Manufacture of plastics in primary forms |
| 2751 | Casting of iron |
| 2753 | Casting of light metals |



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November 24, 2009

Dr. Lawrence Goulder, Chair
Economic and Allocation Advisory Committee
California Air Resources Board
1101 I Street
Sacramento, CA 95814

Dear Dr. Goulder and members of the Economic and Allocation Advisory Committee:

Chevron shares the concerns of governments and the public about climate change, and understands the desire of California to continue to address this challenge. In addition to energy efficiency and conservation measures, Chevron supports the reduction in greenhouse gas (GHG or CO₂e) emissions through a balanced framework based on transparency, broad and equitable treatment of participating sectors, cost containment and avoidance of duplicative regulation.

There are two essential points we would like to convey:

1. Leakage of economic activity and associated increases in GHGs is a likely result from a CA-only or Western States-only Cap and Trade Program, and can be remedied only by equitable and fair allocations to trade exposed industries and by access to offsets. These two policies will act to contain costs and to equalize rather than concentrate operational cost impacts on certain industries in California.
2. California has led the nation in reducing emissions and in energy efficiency through incentives, grants and regulations. Companies who have not only followed California's policy and legal requirements but who have also led their industries in these areas must be treated fairly and must not be punished for their early actions. CARB has stated that they believe that these early actions are already rewarded through the need to acquire fewer greenhouse gas allowances. However, as you will read about below, companies who have made investments and taken early actions face much higher marginal abatement costs for making additional required reductions. Consequently, companies who lead their industry sector by example are punished with higher compliance costs. The only solution to this equity issue is to allocate allowances based on benchmarking as is being done in the European Union (EU) for the refining sector.¹

¹ See attachment *Petroleum Refinery Benchmarking Concepts, Cap and Trade Allocations and Benchmarking Workshop*, Toronto, Ontario, Sept 17, 2009

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With over 130 years' history in the state, Chevron is part of the fabric of California and has a stake in the state's economic strength. As the state's largest company, Chevron's business indirectly supports nearly 60,000 jobs in addition to those held by our 10,000 employees. Those 70,000 jobs equates to one in every 250 jobs in California is because of Chevron. We generated more than \$9 billion in economic activity in 2007, directly or indirectly, through our supply chain and consumption, as determined by standard multiplier effects². We're committed to supporting the building blocks of California's economy and competitiveness — education, career and technical training, and support for small businesses. In 2007, we spent about \$750 million with small businesses — approximately half of this with minority- and women-owned businesses in California.

We appreciate the significant task before you and the Economic and Allocation Advisory Committee (EAAC) to reach beyond the recommendations and concepts of a cap and trade system as described in the scoping plan in order to create a fair and reasonable blueprint for allocations and cap and trade design, and to develop a balanced evaluation of the economic impacts of the cap and trade program on California.

We would like to share our challenges conducting business here, our experiences reducing CO₂e, making investment decisions based on AB 32 constraints and having to compete in the competitive global marketplace. We believe that our experience enables us to present some real world examples for your committee's consideration. We raise these examples to you so that you can see that these are not just concepts and that they deserve serious treatment and incorporation in your analysis and report. We are concerned particularly with the prospect of a California only cap and trade market with limited offsets and even more limited linkage to other markets. These limits will result in higher costs of operation and eventual leakage of emissions and jobs outside the state.

We have significant experience as a company reducing greenhouse gases in our refineries in order to operate with reduced energy costs. Our rating within the industry worldwide is in the top quartile and we have effectively reduced our energy use by almost 30% in the last ten years. This change is the result of significant investments that we began making long before AB32 was passed. In addition to such voluntary reductions, California itself is ahead of the nation in energy efficiency with the result that the low cost opportunities for energy efficiency and CO₂e reductions in California are gone. This means that the cost of complying with the AB 32 program even in the early years will be higher in California than in other areas such as Europe.

Richmond Refining Conditional Use Permit

Our Richmond facility operates under a Conditional Use Permit (CUP) from the City of Richmond. The latest CUP was issued with a condition that we reduce our CO₂e emissions by 432,000 mtonnes per year between 2009 and 2020. This requirement was added by the City to ensure early, local compliance with

² Energizing California. Milken Institute. March 2009,
<http://www.milkeninstitute.org/publications/publications.taf?function=detail&ID=38801190&cat=resrep>

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AB32. As a result, we have firsthand experience today working to reduce CO₂e in order to operate our facility. The reduction required is 36,000 tons per year beginning in 2009, which represents about a 1%/year reduction in total CO₂e emissions.

Because the facility already operates at a high level of energy efficiency, the cost of compliance is significant. We have identified feasible options for the first two years that result in a cost of carbon of less than \$100/mtonne. In the following four years, however, the marginal cost of abatement rise to \$100 to \$200/mtonne of CO₂e for measures that could be implemented onsite. In reality after four years, no currently recognized technology exists to reduce each additional 36,000 mtonnes of CO₂e per year. That leaves only three remaining options which are 1) reducing our refining operations and thus our production of transportation fuels; 2) carbon capture and sequestration (CCS) which has significant barriers to implementation and permitting; and 3) offsets.

This case study highlights several issues for your committee. The availability of known cost-effective reductions is limited particularly for companies that have already invested in energy efficiency. The cost of carbon is critical to the economic analysis. New technology provides only small additional opportunities for GHG reduction, and can be risky in terms of safety and reliability. In this case, offsets and CCS with its significant potential barriers to implementation are the only options for ongoing operations. The estimated cost of CCS at the Richmond Refinery is approximately \$54 Million per year.

Our other California facilities will face similar situations in 2012 when the cap and trade program is implemented. Since California is the only state with a mandate to reduce CO₂e in the United States, and there is significant lead time required to develop these programs, it is unlikely that facilities in other states will face similar programs or costs in the first five years of the cap and trade program.

As an accomplished economist, you understand that any refiner (or any other firm in a competitive market) should shut down operation on an economic basis when market prices fall below the refiner or firm's average variable costs in the short run. New costs, specific only to California refiners run a very real risk of pushing a number of California refiners average variable costs above market prices because refiners are price-takers in a competitive intrastate, interstate, and international market the remainder of whom do not face the increased California costs. The FTC examinations of gasoline prices and oil markets continually find that the market is competitive.

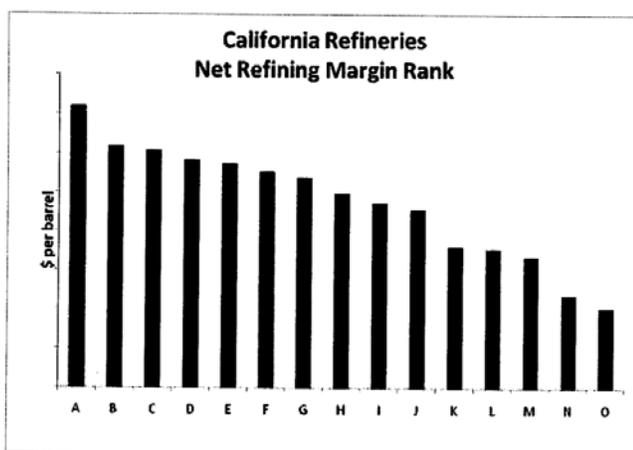
Global Competition in California's Gasoline Market

In addition to the overall higher cost of operations that we face in California, we also face global competition. California refineries are "trade exposed". California refiners have a range of profitability as shown below by their net margins (revenue from refinery product sales less operating costs and raw material costs). California refinery margins have come under downward pressure from the U.S. recession and may continue to see downward pressure from increased CAFE standards and biofuels substitution as a result of the Low Carbon Fuel Standard. As long-term costs associated with AB 32 increase for California refiners, low margin refineries are susceptible to partial or permanent closure.

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Increased refining cost impacts associated with AB32 include: significant exposure to the carbon market due to inclusion of transportation fuels in the cap and trade, increased allowance auction levels, non equitable allocation of allowances to each capped sector, limited access to offset credits. Transportation fuels produced by these marginalized refineries still need to flow into California. Consequently, product imports from other domestic and international sources are likely to increase to fill the gap.

Since California refineries represent some of the most environmentally controlled and energy efficient refineries in the world, the incremental barrels of fuel imported into the State will be produced by more GHG intensive refineries coupled with increased GHG emissions associated with shipping these barrels into the State. A reduced long-term margin environment associated with AB 32, coupled with increased foreign competition, increases the probability of reduced discretionary capital investments in California's refining sector.



California gasoline is a unique fuel that can be produced by a limited number of refineries outside of California. Imports come into California from three major sources: 1) offshore from the Asia Pacific with Korea as major supplier; 2) the Pacific Northwest (PNW) with somewhat more limited California transportation fuel export capability, and; 3) the Gulf Coast where there is additional California fuels manufacturing capability. More refineries world-wide now have the capability to make California fuel specifications, particularly in India and China. Overall, the California gasoline market is tightly balanced with approximately 5% imports today. For a detailed analysis of these cases, please see Attachment 1.

While there are seasonal variations for California gasoline/diesel supply and demand, California refinery production and imports are generally balanced with demand. Disruption to gasoline or diesel supply at California refineries can cause price volatility in the market, due to the tightness of the supply.

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In summary, GHG cost burdens on the California refining sector will change the supply/demand relationship in California. Increased refinery costs associated with AB32 will reduce refining net margins placing increased financial pressure on the State's marginal refiners. Refinery closures will translate into lost jobs, both direct and indirect, and more reliance on non-California sourced product supply. Refinery closures, along with a higher cost-refining sector will directionally reduce discretionary capital spending resulting in direct and indirect impacts to building trades and other suppliers. While new fuel supplies will come from offshore, the Pacific Northwest, and Gulf Coast, they will come with the potential for reduced supply reliability, higher price volatility, and increased aggregate GHG emissions. California fuels production will shift into non-GHG regulated markets resulting in carbon leakage and likely higher net levels of GHG for each gallon of transport fuel consumed in the State. This is counter to California's Global Warming policy goals of net reduced GHG emissions over time for each of the capped sectors under AB 32.

Leakage is Already Occurring in California

While reviewing the possibilities of leakage from California refineries on an industry-wide basis is critical to your review of methods to fairly allocate allowances, we would also like to share a real world example of investment decisions that are driven by the need to return fair value to stockholders under least risk scenarios

Our refinery in El Segundo was selected as the best Chevron location to implement breakthrough technology in new hydro processing that would have included significant capital investments of over \$1,000,000,000. It would have resulted in the creation of 500 construction jobs and 50 permanent full-time jobs. The project would have required permitting in the South Coast Air Quality Management District (SCAQMD), which had pledged that they would work with us to get the permit approved. However, two factors combined to force this project out of the state. First, SCAQMD was nearing a crisis in the availability of emission reduction credits (ERC) in 2006, which ultimately drove a freeze in the permitting of all new economic activity in early 2009. Second, the project was estimated to generate 200,000 mtonnes of CO₂e annually. The uncertainty regarding California's regulatory treatment of such a project with the passage of AB32, coupled with other uncertainties, especially permitting uncertainties, resulted in the transfer of the project to Pascagoula, Mississippi at the end of 2006. We point out this example simply to explain that leakage is not something that could theoretically happen; rather it is something that does happen, when significant uncertainties and fiduciary responsibilities require tough choices.

The Fate of New Projects

The October meeting of the EAAC and the October CARB memo focused on methods for addressing allowances for the existing stationary sources in California. Originally, the AB 32 Scoping Plan recognized that there needed to be an estimate of business as usual, one that was developed by CARB for 2020. The CARB memo abandons this concept as unnecessary. In so doing, they are also abandoning the concept of the need for new economic growth and expansion in California between 2012 and 2020. We are concerned that this approach does not recognize the importance of balancing California's dual long-term needs: one to reduce greenhouse gases and the other to continue to grow and develop energy

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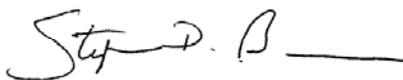
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resources, the economy, and jobs within our state. How would a large project that has an emissions footprint today have any opportunity to be developed if offsets are limited? We have such a project. The benefits to the project are quite real. It applies new technology to an existing oilfield whose production would otherwise decline. It would increase the energy resources available and prolong the life of the field in California, which would be preferable to increasing imports and closing the facility. It results in continued jobs and economic investment in California. It is only possible if 100% offsets for the project are available. In this case, whether allowances or offsets are purchased, it is necessary to acquire all of the CO₂e credits for a new project or large expansion.

There are several areas discussed above where the EAAC's recommendations are critical. One is in the allocation of allowances. Benchmarking within industries is recommended to recognize early actions rather than penalizing companies for having made their efficiency investments before the baseline years. Benchmarking is the process of comparing the business processes and performance metrics including cost, cycle time, productivity, or quality to another that is widely considered to be an industry standard benchmark or best practice. These policies create a reasonable technical basis for determining the appropriate amount of allowances and reductions that are required for distribution of allowances within a sector so that the surrender requirements of the allowances and access to offsets does not create windfall gains to the very companies that delayed greenhouse gas reductions. CARB likes to consider that early actions are automatically rewarded by the fact that the facility has fewer allowances to hold. This is not true when allowances are allocated based on historical emissions, since the larger the source the more allowances it receives regardless of efficiency. Essentially the larger sources that are more efficient have much less internal ability to reduce and without a benchmarking approach that accounts for internal efficiency, these sources would have to subsidize others who have not invested. Since one of the prime criteria of the EAAC is equity, a system that rewards efficient use of resources such as industry specific benchmarking would make sense.

Thank you for this opportunity to provide real life examples of our company's experience in California's economy working to reduce our CO₂e footprint. We trust that you will use it to place in context the very important work that you are doing to create recommendations on a fair and workable allocation program for California's cap and trade program. We look forward to working with you and your Committee as a constructive part of the process.

Best Regards,

A handwritten signature in black ink, appearing to read "Stephen D. Burns", followed by a horizontal line.

Stephen D. Burns

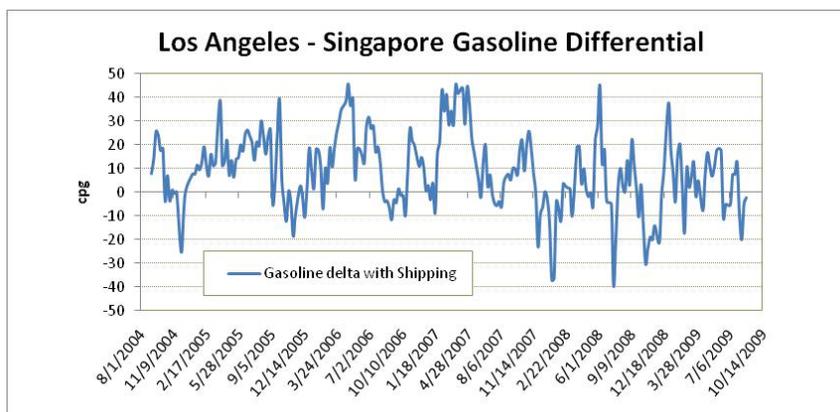
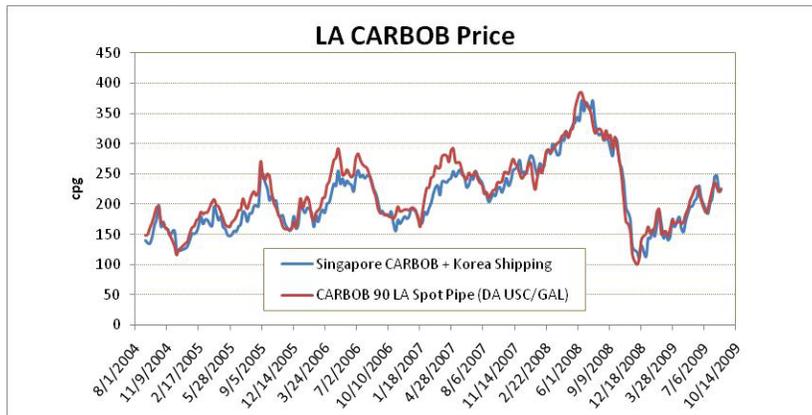
Appendix 1

Detailed Analyses of Non-California Refining Capabilities to Supply California Gasoline

Products will flow into California when:

1. the product price at the regional trading hubs [New York Harbor, Singapore, Gulf Coast, Rotterdam] + incremental cost to manufacture California fuel specifications + price of transportation is less than the California price and/or
2. when the cost of manufacturing and shipping is less than the California manufacture price

If the supply of non-California product increases, the product price volatility resulting from a supply disruption may be magnified over the current state. The curve below shows the difference between LA and Singapore California gasoline pricing. Korean shipping is included and averages around 10 cents per gallon (cpg) for 2009. Adding carbon costs will shift the curve downward, opening the California market to offshore supply. Singapore is the major trading hub for Asia-Pacific (AP) product and is the basis for AP product pricing. Historically, Los Angeles gasoline is priced higher than Singapore gasoline. Korea and India are major exporters and can supply product to the US.



Refineries in the Pacific Northwest (PNW) can also compete in California. While they are a member of WCI, Washington has not developed a greenhouse gas program beyond reporting requirements. California's lead time to create their program from legislation to implementation will be 5 years. Refineries in Washington can produce some California gasoline. Companies with refineries in both California and Washington currently optimize operations between their refineries. Adding additional costs to refinery operation in California will change this optimization. However, there is a limit to how much California gasoline and diesel the PNW refineries can make and still supply the PNW market

US Gulf Coast (GC) refiners are another possibility as a source of product. The GC states have not made any specific commitments to GHG reduction and don't make a California gasoline today. While GC refiners do not make it they do have the capability. However the major issue for importing from the Gulf to California is shipping. Shipping is expensive at ~12 cpg. In addition, it takes about 2-4 weeks to land product, since the product must go through the Panama Canal.

