August 2, 2013

Dr. Steve Cliff
Chief, Climate Change Program Evaluation Branch
California Air Resources Board
1001 "I" Street, Sacramento, CA, 95812

Subject: Proposed Amendments to the AB 32 Cap-and-Trade Program: The Relative Size of Increased Allowance Gifts to Refineries and the Effect on Emissions and Economic Leakage

Dear Dr. Cliff,

I am an oil and gas economist at the University of Wyoming, focusing on the fundamentals of market dynamics and industry decision making throughout the US and international gas and oil markets. I was formerly the editor of the Journal of International Economics and Chair of the Economics Department at my University. I am writing to you to comment on the recently released draft proposed amendments to the AB 32 cap-and-trade regulation related to modifying the amount of gifted (e.g.: free / administratively allocated) credits to refineries.

As stated, the proposed modification is intended to provide additional "transition assistance" to large petroleum refineries in California, to help cover their facility emissions, most of which are owned and operated by major multinational oil companies. In short, based on well-known market conditions for this sector, it is my opinion that increasing the amount of gifted credits to oil refineries covered by the AB 32 cap-and-trade regulation is unlikely to achieve the intended result, and is thus, a poor policy choice for the state.

It is my understanding from literature CARB has made available thus far: the central concern underlying the potential shift in allowance gifting is the possibility that some California refineries will exit the market unless they receive some compensation for their emissions (AB32 compliance obligation). I argue there are three fundamental reasons why this is a false choice – making the gifting of allowances to refineries in compliance periods 2 and 3 unwise policy for the state.[1] First, due to well-established market dynamics, refiners will be able to minimize any diminution in profits felt by their business under the current program design (before the increased transition assistance), thereby avoiding the economic impact on their business. Second, the amount of money at stake is very small in relation to the size of the industry and the likely cash flow for a typical refining firm. Third, the mechanics of the gifting arrangement do not offer the means for refineries to credibly commit to remaining in the industry. The end result is simply a cash gift to refiners, with no guarantee they will remain in operation.

[1] These arguments included in this memo are focused on refinery decision making with respect to keeping facilities open and do not venture into the area of allowances associated with the combustion of transportation fuels in motor vehicles.

The reduction in refiner profit margins under the current program design is likely so insubstantial it will not induce any refiner to shut down one of its plants.

It is well documented that the market for gasoline in California, when compared to every other state, is quite large, with average daily sales over 5 million gallons during the past few years (2010 - present). It is also generally agreed that the short term elasticity of demand for gasoline is quite small in magnitude, perhaps in the range of -.2, indicating that the quantity of gasoline demanded by Californians over a short time frame would likely fall by only 1% following a 5% increase in the price. Furthermore, it is agreed that refinery capacity utilization for PADD 5, which includes California, has been in the range of 75 - 90%, suggesting that supply is likely to be more responsive to increases in price than is demand. One estimate (reported in Pindyck and Rubinfeld's popular Intermediate Microeconomics text) suggests a supply elasticity of around .4.

When combined with the demand elasticity in the motor vehicle market, the implication of higher supply elasticity is that roughly 2/3 of any increase in costs would likely be passed on to consumers in the form of higher prices. As such, the burden of any cost increases borne by refiners following the implementation of a cap and trade system would be unlikely to exceed 1/3. This cost-pass through exists separate and apart from any decision to give free allowances.

The relation between crude oil and gasoline is such that the probable increase in refining costs associated with a $1 increase in carbon permit prices is on the order of $.01/gallon. Carbon permit prices in California are currently in the range of $15/ton, indicating an implicit increase in refining costs of around $.15/gallon. Based on the elasticities discussed above, the likely reduction in refining margins is on the order of $.05/gallon under the current program design. With current gasoline prices in California hovering in the range of $ 4/gallon, this decrease in refining margins does not seem substantial. In particular, it is difficult to believe that a reduction in refining margins of this magnitude would induce any refiner to shut down one of its plants.

The amount of money at stake is small in relation to the size and profits of the industry and would likely not be a significant contributing factor to leakage.

The change in allowance gifting that is under consideration would raise the percentage of permits gifted from 75 % to 100 % in compliance period 2 and from 50 % to 75 % in compliance period 3. The average annual rate of CO2 emissions for the 12 refineries in California was about 2.85 million tons in 2009. Using this statistic as a benchmark, a 25% increase in allowance permits would correspond to slightly more than 700,000 tons per year. At current permit prices, the implied value of a bundle of permits sufficient to cover this volume of CO2 emissions is $10,000,000. At the sales volumes associated with California refineries indicated above, and with wholesale prices in the range of $2.85/gallon, **daily** sales revenues average over $1,000,000 for California refineries, or $365,000,000 for the year. In light of that statistic, an **annual** gift of $10,000,000 does not seem like much of an inducement to remain in the industry.

The mechanics of the gifting arrangement do not offer the means for refineries to credibly commit to remaining in the industry.

Even if one agreed that the amounts of money at stake were sufficient to overturn a decision to exit, an additional concern exists that raises questions over whether the current proposal will achieve the intended result of transition assistance and reduce economics and emissions leakage. Because the value of the gifted permits is not, and cannot be, tied to the decision to remain in the industry, there is nothing to prevent a refinery that has been given a permit allowance from selling the permits on the open market, pocketing the proceeds, and then exiting anyway. In other words, the promise to remain in the industry in exchange for a gift of permit allowances is not credible. Refineries cannot and will not make such promises, and CARB cannot rely on them.

Conclusion

On balance, the policy adjustment under consideration is unlikely to be effective at preventing California refiners from shutting down any refinery – and therefore not an appropriate or effective mechanism for transition assistance. The reduction in refinery profits associated with the imposition of a price on carbon will be insufficient for impacting the decision to stay in operation; the amount of money involved seems very small in relation to the size of the market for gasoline in California; and there is no guarantee that the gift will have a credible impact on any shut down decisions.

On balance, based on my experience in the oil and gas sector, proposed adjustment is ill-advised. Thank you very much for you time and consideration of these comments.

Sincerely,

Charles F. Mason
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