

WSPA Comments on CARB LCFS Workshop – September 25, 2014 – Fuel Availability

[All slides referenced are from the staff's September 25th workshop presentation]

General

Lack of Substantive Information Presented at Workshop to Comment on

As expressed during the workshop, we are disappointed with the lack of any substantive information presented at the workshop. We are concerned that ARB has not presented the anticipated California fuel availability, which is what WSPA member companies expected to be presented at the workshop. In addition, we have concerns with some of the assumptions presented in the workshop materials, but it is difficult to comment when there is insufficient detail in the staff's materials in order for us to constructively provide WSPA's thoughts.

Reality vs. Optimism

ARB staff continues to strongly assert that the LCFS program, not the RFS2, is now driving advanced biofuels production. The RFS2 program is struggling with driving advanced biofuels because the compliance curve was faster than LCFS and hit the wall of reality sooner. The EPA has already had to concede that advanced biofuels are not available in the timeline and volume expected earlier. It should also be noted that almost all of the advanced biofuel production facilities ARB and others mention are not in California – challenging the notion that the state is really driving the advanced biofuel market and attracting investments. As previously commented by WSPA in our Wood Mackenzie and BCG contractor work in 2012, the California LCFS will draw these fuels to California via shuffling resulting in sub-optimal costs and often increased emissions. Overall, during the workshop it was apparent ARB has overly optimistic U.S. availability projections - especially sugarcane ethanol and renewable diesel, but also Brazilian cellulosic and renewable gasoline – as evidenced by BCG, our contractor's analysis, in the attached report.

New Biofuel Facilities

When calculating/projecting future biofuels supply ARB should not use press announcements as reliable evidence of actual facilities/volumes, since many projects are cancelled after initial press announcements but prior to construction, based on engineering studies that are completed and a more definitive cost estimate becoming available. ARB should count facilities that have started construction for potential facility/volume availability in the next 2 – 3 years. If construction has not started, then a discount factor of at least 50% should be used in projecting future capacity.

When using past growth rates and projecting them into the future, ARB should take into account the period of two or so years of essentially no growth.

Specific Fuels

Natural Gas

ARB has estimated that 600 – 1,200 million Diesel Gallon Equivalents (DGE) of Natural Gas (NG) will be used as transportation fuel in California by 2020, as compared to 100 DGE NG in

2013. This equates to approximately 15 – 33% of the diesel fuel used in California in 2013 being converted to NG by 2020. What evidence does ARB have to indicate that such a high percentage of the diesel fleet will be converted to Natural Gas engines by 2020?

This estimate appears to be inconsistent with the ARB Lower NO_x Heavy-Duty Natural Gas and Other Alternative Fuel Engines - Technology Assessment presentation, dated September 2, 2014. The conclusion of the Technology Assessment stated the following related to conversion of Heavy Duty Diesel engines to Natural Gas engines: “Vehicle cost, refueling infrastructure, and methane emissions still impact the adoption of natural gas engines” (slide 28, available at: <http://www.arb.ca.gov/msprog/tech/presentation/lowernoxfuel.pdf>).

In addition, the EIA 2014 Energy Outlook, shows a growth of approximately six percent in the amount of pipeline NG + LNG + CNG (approximately 33% increase in LNG + CNG) used in the transportation sector between 2013 and 2020 (using the High Growth Case from Energy Consumption for Pipeline Fuel NG + Compressed /Liquified NG by Sector and Source Table at <http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=0-AEO2014&table=2-AEO2014®ion=1-0&cases=highmacro-d112913a,full2013full-d102312a,ref2014-d102413a>). This indicates ARB’s estimate of a 500 – 1100% increase in NG used in the transportation sector may be extremely optimistic.

Renewable Diesel

Slide 19 - ARB makes a rather optimistic statement that 1-1.5 BGY of soy oil are available for renewable diesel. That begs the question of where is that volume going now and what kind of distortion would it cause to shift it from its current market into the renewable diesel market? Would this be soy-based biodiesel shifting to renewable diesel?

Similarly, ARB quotes 400-900 MM GPY of corn oil being ‘available’. That volume of corn oil is going somewhere now. Is it in the DDGs, or food grade corn oil, or silage/waste? What market shift will likely result? Is this another food-to-fuels shift? These secondary market impacts need to be considered in the analysis of what is truly available for fuel production.

In general, competition for feed stocks needs to be analyzed between renewable diesel and biodiesel and the overall availability adjusted accordingly.

ARB appears to be assuming that all renewable diesel that is imported into North America will be available for consumption in the United States. However, Canadian regulations and logistics will likely result in a portion of the renewable diesel imported into North America being consumed in Canada. Below is a summary of the Canadian regulatory structure that indicates there will likely be demand for renewable diesel outside of California.

1. In Canada, there are no retail labeling requirements for blends of renewable diesel (RD). In addition, RD blends can be transported by pipeline with no labeling requirements.
 - a. Specifications of aromatic content of diesel limits RD blend levels (typical is approximately a 30% RD blend).
2. RD blending provides Canadian fuel producers with increased flexibility.

- a. Lower cloud points possible in RD vs. Biodiesel (BD); allows for an expanded blend window (i.e. March to October).
 - b. BD blending is limited to 5% due to OEM warranties.
 - c. BD is generally only blended in April – September to avoid cold weather solids precipitation and cloud point constraints. However, B5 can be blended year-round in lower mainland BC and Vancouver Island because of the mild climate.
3. RD blending is occurring to comply with LCFS and biofuel regulations in Canada.
 - a. British Columbia’s LCFS regulation.
 - b. Canada-wide – 2% renewable content in diesel supply (nationwide) mandate. (<http://www.ec.gc.ca/energie-energy/default.asp?lang=En&n=0AA71ED2-1>)
 - c. Ontario – requiring increased use of biofuels in diesel supply with phased approach of 2% - 4% (by 2017). In addition, the CI of the biofuels must be 70% below that of diesel by 2017.

In 2012, approximately 18 million gallons of RD was blended in British Columbia alone.

4. This was prior to the implementation of the British Columbia LCFS program, and is approximately twice the volume of RD supplied into California during 2012. (<http://www.empr.gov.bc.ca/RET/RLCFRR/Documents/RLCF-007-2012%20Summary.pdf>).
5. In 2013, approximately 4,700 million gallons of diesel was sold in Canada (<http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/trade37c-eng.htm>), equating to a countrywide minimum of 95 million gallons of renewable content into the diesel fuel supply.

Specific Workshop Slide Comments/Questions

1. Slide 7 – EPA may allow E15, but ARB regulations do not and will likely not between now and 2020. Besides the ARB fuel specifications, there are other infrastructure and vehicle warranty limitations that impact the ability for E15 blending to occur in meaningful quantities. There should be no consideration by ARB of blending at E15 levels between rule adoption and 2020.
2. Slide 7 – E85 is no longer a relevant term. The ethanol fuel specification is E51 – E83, and because of the required low vapor pressure of CARBOB, less ethanol can be blended than what is allowed by the maximum E83. ARB’s revisiting of their own ‘E85’ specification has been delayed for years, which creates uncertainty about how this fuel can be blended in significant quantities. Moreover, California has a lower vehicle flex-fuel population on a percentage basis than the rest of the U.S., minimizing the ability to rely on such higher-level blends for LCFS compliance between now and 2020.
3. Slide 9 – Whereas FAPRI has been an excellent resource, their continued activity has been hampered after 2012. Although 2012 may seem recent enough for use in ARB’s projections, it does not include drought conditions that were experienced in the U.S. as noted, but also may not fully include the change in Brazil’s sugar cane crop in the 2012-

13 timeframe. Thus, the FAPRI 2012 outlook will not be timely enough to capture significant changes in production of crops for biofuel supply projections in the 2016 to 2020 timeframe. Please see BCG's slides relative to SCE that address this issue.

4. Slide 10 - The Brazilian supply number for sugar-cane ethanol is critical especially given media/industry reports of recent crop issues, shifts in ethanol percentage in gasoline, and the Brazilian economic malaise in general (e.g., Reuters, March 28, 2014 and International Business Times, October 19, 2014). These issues need to be vetted by ARB in the analysis of fuel availability ranges for this particular ethanol supply.

Slide 10 - ARB did not provide a listing of the plants it expects to provide the U.S. cellulosic supply of 100-250 MMGPY. This should have been available for vetting.

Slide 10 – What is the CI anticipated/assumed for Brazilian cellulosic ethanol?

5. Slide 12 – What is the CI anticipated/assumed for renewable gasoline?
6. Slide 19 – Are the soybean and corn oil volumes also being considered for conversion to biodiesel? How is ARB factoring competition for these feed stocks between renewable diesel and biodiesel.
7. Slide 26 – It appears ARB is assuming 88% of the renewable diesel volume from international facilities will come to the U.S. What is the basis for allocating such a high percentage?
8. Slide 32 – Why is the “potential value-added” only provided for waste grease biodiesel when the preceding slides seem to tout the volumes of multiple biodiesels.
9. Slide 40 – What are the CI's of the fuels listed on this slide? If CI's are not available through a full LCA – then no volumes of these fuels should be assumed available for compliance in the time horizon being evaluated (2020).
10. Slide 41 – There is a reference to decreasing ethanol CI values. Is this a reference to corn? If so – is there a lower limit with today's processing technology? In other words – how low can it go?
11. Slide 43 – Why is there no mention of competition with the other states – only the assumption that the more demand for the fuel, the more supply? What about a possible time-lag between high credit prices and when a project can be financed, built, started-up and actually produce on-spec product reliably?

Attachment – Boston Consulting Group - Comments on Low Carbon Fuel Standard Fuel Availability Report