

September 13, 2018

Mary Nichols, Chair  
California Air Resources Board  
1001 I Street, P.O. Box 2815  
Sacramento, CA 95812-2815

**Re: Support for ICT Rule to Reduce NOX and Its Health impacts from ambient ozone**

**Submitted online via CARB's Web Comment Submittal Form**

Dear Chair Nichols:

I am writing to support your ICT rule now under consideration.

When I became the Ventura County Air Pollution Control Officer in 1982, we had the 4<sup>th</sup> worst ozone levels in the nation, according to EPA. Therefore, my number one job was to determine what was causing the problem and, from that, create a solution.

The solution came down to two words: Nitrogen Oxides, or NO<sub>x</sub> as it is commonly known. The need to focus our control on NO<sub>x</sub> was because Ventura County had an 18:1 hydrocarbon to NO<sub>x</sub> ratio at the time. Worse yet, over half the hydrocarbons were from biogenic and geogenic sources that cannot be controlled by anyone. Conversely, nearly all the NO<sub>x</sub> in the air is anthropogenic, being emitted from combustion sources. Therefore, Ventura County had a "NO<sub>x</sub> sensitive" atmosphere, and still does.

As you know, ozone is formed in the lower atmosphere from a photochemical reaction of reactive organic compounds and NO<sub>x</sub> in the presence of sunlight and heat. It quickly became clear to us that removing NO<sub>x</sub> from our atmosphere would be far more effective to reduce ozone than removing HCs since we had little control over many of the hydrocarbons, and we certainly cannot remove the sunlight.

The VCAPCD then went on a path to seek all NO<sub>x</sub> reductions possible. Most NO<sub>x</sub> in the air is a byproduct of combustion, so we went after combustion sources. Stationary internal combustion engines. Power plants. Commercial boilers. We began this in the mid to late 1980s.

One of the significant changes we made was to convince the South Coast Area Transit District (now Gold Coast Transit), with an offer of a \$300,000 grant in 1993, to switch from diesel fueled buses to CNG buses. While there were many naysayers at SCAT who said it could not work, it did work! Now CNG is the fuel du jour for transit buses nearly everywhere in California.


In the 20-year period from 1980 through 1999, Ventura County had the fastest rate of ozone progress in the nation, according to EPA. We did it because of NO<sub>x</sub> controls on everything we had authority to regulate, and the use of grant funds where we did not have authority to regulate.

When I retired in 2002, Ventura County had achieved the 0.12 federal one-hour ozone standard that was in place when I was hired. This was completely due to combustion NOx controls.

As I approached retirement EPA determined that the one-hour standard did not adequately protect public health, so they switched to an 8-hour standard. While Ventura County now has a plan in place to achieve the current 8-hour standard, it does not have a plan to attain the new 8-hour standard. And their primary source of NOx is motor vehicles; on road, off road, heavy duty, construction, and transit.

CNG buses still emit NOx. Battery electric buses (BEBs) do not emit NOx, though there is some NOx formed when fossil fuel power is used to recharge BEBs. And, as with the switch from diesel to CNG, there are naysayers questioning the viability of BEBs. Yet, there are over 132 BEBs now operating in California with more than 655 on order, planned, or awarded as of May 2018. While that sounds great, the entire fleet of over 16,000 buses in the city of Schenzhen, China, are zero emission BEBs. So, it is clear that BEBs can work, despite the naysayers.

It's time now to make the next move forward from CNG buses to BEBs for the sake of public health in California. This you can do by supporting the ICT rule.



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