Comments re: SB39 docket number **13-CCEJA-1**

Clean policy, be it energy or otherwise, must encompass clean elements of interrelated and overlapping disciplines. If one stands alone, it negates others.

Trees are a necessary part of clean energy policy due to the numerous benefits they provide for mitigating existing and future air pollution. They are also an important tool for the management of energy use, creating shade which cools buildings, hardscape, and adjacent environments. Without them, surrounding temperatures are warmer, unfavorable for human activity and require more energy to cool and sometimes heat buildings (by way of wind protection).

While I strongly endorse the use of many trees in clean energy policy, I do not endorse the use of all trees, particularly in schools. All trees are not clean. Some trees produce Volatile Organic Compounds which defeat the purpose of planting them. Others create unseen, unhealthy, excessive pollen levels yet they are considered clean by many horticulture and landscape professionals. Allergenic trees have the capacity to negatively impact health, particularly in children for many reasons:

1. Children play vigorously, exchanging air 2-3 times that of adults
2. Children's lungs are smaller and not fully developed, therefore pollutants pose more risk
3. Certain allergenic pollen and foods cross react - Oral Allergy Syndrome a/k/a Pollen-Food Syndrome
4. Pollen counts are highest during school hours; 10 am to 4 pm
5. Pollen season coincides with school terms (and testing) –Spring
6. Many types of asthma are triggered and exacerbated by pollen
7. Proximity to pollen source increases exposure-higher air concentrations

The trees that cause and/or trigger allergies and asthma have been known for decades. Ironically, allergenic trees, often male clones, are considered "clean" because they do not create visible fruit and seed and are often spec'd for their apparent cleanliness. However, they shed considerable pollen. Invisible pollen pollution is difficult and costly to identify and quantify but it is by no means clean.

The old school belief that proximity to a pollen source does nothing to exacerbate allergies or asthma is not supported by physics, studies and empirical data. Pollen counts vary greatly within cities based on immediate landscaping. Areas with large numbers of allergenic trees have higher local pollen counts. While there is an underlying threshold (a baseline or regional count), there are great variances in local counts in different parts of many towns. See
http://www.clarkcountynv.gov/depts/airquality/Pages/Monitoring_PollenReports.aspx

Allergies and Asthma are extremely difficult to manage in children. Though pollen allergies are rarely deadly, asthma deaths are relatively common. Treatments do not guarantee survival after an asthma attack. Avoidance is the only known cure for allergies and asthma remission. Distance creates space for avoidance.

Excessive pollen can cause even those with mild untreated allergies to have symptoms: "brain fog." Absenteeism and illness during spring testing can be reduced by reducing allergens. Reducing allergies, asthma and absenteeism has the potential to increase test scores. Reduced absenteeism also increases a school district's federal per capita income.

Trees are important for emotional well-being as well as overall health. Shade makes areas livable, usable and more desirable. Pleasant, inviting environments increase mobility and activity resulting in lowered weight, better health and fewer illnesses associated with inactivity. Shade blocks UV rays, thereby reducing the risk of skin cancer. Trees are also reported to increase friendliness and reduce crime!

Trees must be an integral part of schools and cannot be ignored for the sake of clean energy. Energy and trees have been partners for many years and should continue to be; just as they are, and have been, with stormwater management. Solar power and trees can exist in harmony when properly chosen and sited. Properly chosen and sited trees also enhance clean energy policy!

Relative to the plan:

Energy Efficiency upgrades:

The planting of Low allergy and pollen free trees (and the replacement of high allergy/pollen producing trees) can be considered upgrades to energy efficiency. Reducing pollen, particularly near air intakes, requires less filtering and increases time between filter changes or cleaning while the planting of trees and shrubs in general can reduce energy use.

Clean Energy:

As mentioned earlier, trees mitigate other forms of energy that cannot or will not be replaced. Cleansing trees added to clean energy policy broadens the scope from simply clean energy production to clean energy production plus mitigation of past and future pollution from other energy sources. Consider it Enhanced Clean Energy Policy or Clean Energy Policy^2.

Eligible Workforce Training:

Training regarding proper tree selection, siting and maintenance. One serious issue with pollen is the use of blowers at school during school hours. High pollen environments are exacerbated when blowers are used to clear spaces of visible debris. Invisible pollen is recirculated and becomes extremely unhealthy. One solution to this could be to employ a trained air sampler for each school district to determine when blowing is acceptable and when it poses health issues.

Non-Energy Benefits:

By instituting an allergy-free or low allergy policy for plantings, three out of five non-energy benefits are covered:

1. Improved air quality (both indoors and out) - also discussed above
    a. Mitigates current and future air quality issues - including those from other energy sources
    b. Reduces pollen, counts near source plants can be extremely high
    c. Eliminates recirculation of pollen due to blowing
    d. Requires less filtering and provides more time between changes/cleaning
2. Improved occupant comfort for many reasons:
    a. Moderates outdoor air temperatures
    b. Better breathing

c. Clarity of mind - many with allergies complain of “brain fog”
d. Fewer incidents of emergency asthma actions and medications - which affects many people, not just those actively involved

3. Improved health and safety
    a. All items in #2 above
    b. Reduces overall allergy and allergy symptoms*
    c. Reduces overall asthma and asthma symptoms*
    d. Less medications needed on campus
    e. Increases outdoor activity, especially for those with allergies and asthma
    f. Pollen is not recirculated resulting in fewer episodes of re-exposure to allergens

Though only 3%, the value gained is much, much higher for the beneficiaries. Perhaps the largest non-energy benefit is increased attendance and therefore increased per capita federal funding at each school.

Other comments directly related to the plan:

Trees (or shrubs) should also be allowed on the West and Southwest sides of structures; selected and sited so that their mature sizes are small enough to shade the building but not interfere with rooftop or other energy related structures and equipment.

Trees should be included in water management guidelines. They mitigate stormwater and hold moisture onsite thus reducing dust that can interfere with equipment efficiency and adversely affect air quality, both indoors and out.

Though there are numerous other benefits of trees not mentioned here, but tax dollars should not be spent on trees known to cause chronic, adverse health conditions. There should be very strong language that on school grounds and campuses, all plants, not just trees, must be allergy free or not known to cause allergy or asthma. The literature is very clear as to what these trees are. The California Air Resources Board (CARB) position on trees and their relationship to air quality can be found at http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm. I do not stress other plants because, as stated above, trees are the primary allergy issue on school campuses (along with shrubs, grasses and groundcovers).

In conclusion, I strongly support the inclusion of allergy free trees and plants and language in Clean Energy Policy that states trees and other vegetation installed, or to be installed, be allergy free, low allergy or not known to cause allergy, ESPECIALLY with regards to all school projects.

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* Asthma is now the most common chronic childhood disease in the US and Canada. Asthma typically develops after allergies have developed (and pollen is the most common allergen). Allergies develop by over-exposure to a potential allergen over an extended period of time (i.e., a child exposed to the same allergens in a school yard over several years). Therefore, limiting exposure to known allergens should lower the number of children who would otherwise develop allergies and ultimately, asthma.