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Biomass Energy Policy

Additional submitted attachment is included below.

Balancing the Ultimate Cost of Solar vs. Biomass Power

A widespread environmental and economic disaster is unfolding in Central California, as the unintended consequence of solar power policy. Several biomass electric power plants have gone out of business, and several more are scheduled to do so. They are going out of business because their power purchase agreements are expiring and electric utility companies are no longer willing to use biomass power. Apparently, solar power is available at a lower initial cost.

Biomass plants normally provide double benefits by creating renewal energy as they cleanly burn millions of tons of wood waste created by orchard farming. They have done so for over thirty years, allowing Central California's orchards to expand and feed much of the world. But now that biomass plants are closing, farmers have nowhere to take wood waste from pruning or replacing old worn out trees. This results in open burning in the orchards, a smoky problem that was avoided many years ago by construction of the biomass plant network. Open burning results in more soot than biomass plants, thereby producing more black carbon – which is classified as a dangerous Short Lived Climate Pollutant (SLCP) targeted by CARB. Open burning of orchard waste in the San Joaquin Valley returned in early 2016 with the closure of the Delano, CA biomass plant. Several other scheduled plant closures will also soon impact valley residents.

The shift away from biomass energy also results in more greenhouse gas (GHG) emissions. As solar power is an intermittent power source, it does not generate power at night or during increment weather, and electric utilities must cover gaps in intermittent energy sources with other fuel sources to power the grid. This involves burning one fuel or another. When utilities supplement solar power by choosing fossil fuel or natural gas rather than biomass power to fill the gaps, the result is double burning: orchard waste is burned with no benefit, while fossil/gas fuels are burned to cover the gap. Double burning equals more GHG emissions than necessary.

New solar electric power is displacing biomass power as a main part of the Renewal Portfolio that electric utilities are required to have. But while solar power is often considered a clean power solution, it has major unintended consequences for the environment. First are the orchard smoke and the unnecessary GHG emissions from double burning. An emerging consequence is the future liability for proper disposal of millions of old solar panels. According to the many publications, there is no good way to recycle worn out solar panels after their useful life. Solar panel recycling is very costly and involves hazardous chemicals. Unless preparations are made for the future financial burden of solar panel disposal, there will be myriads of abandoned scrap solar panels. This future environmental problem hasn't dawned on most people yet. However, the California Department of Toxic Substances Control (DTSC) is beginning to address the issue. Solar power may be cheaper now, but with a big price to pay later.

So, if "cheap" solar power eliminates the biomass plants that were built to prevent open burning in California's orchards, our position as the world's main fruit and nut supplier may be in jeopardy. As difficulties with orchard waste disposal make farming more costly, farming may decline in California, taking away thousands of jobs and curtailing the state's economy. Those who remain in the Central

Valley will face more polluted air and the legacy of millions of old solar panels to dispose of. Globally, there is concern for unnecessary GHG emissions from double burning. These issues must be addressed together because they are so interrelated. An overall solution may be to use a combination of solar and biomass power, recognizing the true long term effects and ultimate cost of solar. A balanced approach could avoid creating new air issues, disposal legacies, and loss of agricultural economy.

To avoid the next crisis with funding the disposal of toxic wastes, let us learn an important lesson from past experiences. There are many examples of consumer goods used on a mass scale with upfront pricing that did not cover the costs of protecting the environment when the items were discarded. Happy consumers did not realize how their purchases would impact the environment years in the future. To reduce these delayed environmental impacts, many legislative struggles have occurred, with mixed results. Most "solutions" of this nature involve new fees or subsidies. For example:

1. Tires – After a few decades, it became evident that tires rise to the surface of landfills. Many states now ban tires from landfills and charge extra fees to subsidize tire recycling.
2. Refrigerators – After a few decades, it was discovered that Freon gas from scrapped units was harming the atmosphere. New laws and fees resulted to control the scrapping of old units.
3. Fluorescent Lights – After decades of popularity as energy savers, it was discovered that mercury was released into the environment when they broke during disposal or recycling. New laws and recycling subsidies exist in some states.
4. Household Chemicals – Discarding of unused cleansers, pesticides, paints, etc. in landfills was found to be harmful to the environment. Programs to reduce this impact are scattered and not always well funded.
5. Television and Computer Screens – Cathode ray tubes (CRTs) from old TVs and computers contain several pounds of lead each. Although some states now have landfill bans, the reality is that most are eventually shipped out of those states for disposal. While California has established new fees to support recycling, most units are actually "recycled" in third world countries without proper control.
6. Electronic Waste – The most current issue with environmental harm from disposal of consumer goods is with millions of cell phones and other small electronic devices. A huge backlog is building up in America's closets, waiting to be disposed of someday unless massive recycling programs are somehow subsidized.

This is not to knock solar panels. They are an important part of civilization now. However, their end of life issues must be addressed. Otherwise, there may be an unpleasant surprise in the future. History can repeat itself.

By recognizing the true long term cost of solar panels, perhaps a balance of solar and biomass power can be wisely used to meet California's new Renewable Portfolio Standard while preserving our economy, avoiding air pollution, and avoiding the next toxic disposal crisis.

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