

Op-Ed

## A New Approach to Energy Independence

Overlooked in the discussion on global warming and renewable energy is the role of local governments and their communities. They can make a huge contribution to energy security, reduce our dependence on foreign oil and eliminate greenhouse gas emissions. This can be achieved by turning household trash, commercial debris and other discarded wastes in their backyard to make electricity and biofuels. Unlike the incinerator plants which currently burn waste to make electricity, the new technologies are pollution free and much more efficient.

In Warrenton and Fauquier County, Virginia, we are developing such a project. A recently completed study, funded by USDA, confirms it is technically feasible, economically viable and environmentally positive for a small scale biomass plant at our landfill to use local trash and residues to convert into electricity or a biofuel like ethanol and biodiesel. Rather than continue to bury wastes that emit greenhouse gases, enough electricity can be produced in a closed loop, oxygen deprived system to electrify every house and building in Warrenton and a lot leftover for the rest of the county. Or, make enough ethanol which when blended with gasoline in the common E-15 blend could fuel every vehicle in the County. In fact, evolving technology can simultaneously produce both electricity and fuel. With the help of a federal loan guarantee, we hope through a public-private partnership to demonstrate this new technology so that we as a community can be energy independent. It is a model that is easily transferable to other communities.

It will be the centerpiece of our Green initiative which calls for a 50% reduction in our carbon footprint by 2020. This is an ambitious but achievable goal since the biomass plant, or biorefinery, alone will eliminate over 75,000 tons of greenhouse gases (GHG) annually and that represents about 20% of the total GHG emissions in the County. Also, it will eliminate the need for 250,000 barrels of oil.

These are significant numbers for a small community of 8,000 in Warrenton and 65,000 in Fauquier County. Without any other energy conservation measures such as changing lights, retrofitting buildings, planting trees or cold water showers in the dark, a local wastes to energy plant will substantially reduce the carbon foot print of a community. The response in our community has been very enthusiastic.

The national focus has been on producing biofuels from crops such as corn and soybeans while developing other renewable sources such as hydro, solar and wind. The President and Congress have set ambitious goals of 36 billion gallons of biofuels and at least 10% of all electricity from renewable sources. The Farm Bill and Energy Bill being worked out in Congress right now would set mandates to achieve these goals. Here in Virginia we are at less than 2% renewable electricity.

For us to reach these goals would require a new approach that does not tap into our food supply. The food vs fuel debate is getting louder and angrier. The rhetoric has really picked up with a recent UN report saying that biofuels from crops like corn and soybeans are a “crime against humanity”.....it will lead to “famine.” And it’s not just here in the U.S. that the debate is having an impact. China just banned the use of corn for ethanol declaring that no food crops can be used for ethanol.

Biodiesel is facing a similar problem since its principal feedstock, soybeans, has other competing uses. Importing palm oil to supplement domestic soybean oil – like the Europeans are doing – has triggered off a new debate: the ecology vs fuel debate. Vast areas of natural forests are being cleared and converted for soy farms in the Amazon and oil palm plantations in Indonesia and Malaysia. Clearing land for palm oil plantations will release nearly 2 billion tons of carbon dioxide, a lot more than will be saved by the use of biodiesel it will produce. Then there’s the liberal use of petroleum based pesticides, herbicides and fertilizers for soy and palm oil cultivate that fill the air with more tons of greenhouse gases.

So how do we reach these goals for renewable fuels and renewable electricity. It would take another 100 million acres planted with corn and soybeans to get there. Unlikely, and not the best for the environment. The attention is focused on such biomass as the residues of agriculture crops like corn husks or rice hulls and the planting of dedicated energy crops like switchgrass. There is also woody biomass or forest residues like tree clippings and wood chips. There are more than a billion tons of forest residues in the country. Demonstration projects are underway to test the economic and technical viability. It offers a huge potential but it could be years away.

In the meantime there is a readily available and easily replenished biomass material: urban wastes. At best, only half of these wastes can be recycled so the rest is buried in a hole where it biodegrades and emits greenhouse gases as well as leachate that contaminates groundwater. Instead they could be converted into green electricity or biofuels. There are more than 200 million tons of household trash and over 150 million tons of commercial debris buried every year. That works out to more than 15 billion gallons of biofuels or nearly 40,000 megawatt hours of electricity. It works out to a lot more if you add what they call the ‘wet wastes’ which are sewer sludge and animal manures. I read somewhere there are more carbon atoms in a 5 cent bushel of sludge or manure than in a \$4 bushel of corn. The technology, called anaerobic digestion, is well established. It should be used on the poultry litter to stop the nitrogen from seeping into the watershed and causing - by some estimates, - 20% of the pollution of the Chesapeake Bay.

Here in Virginia we are facing a growing deficit of electricity generation. It is projected to be 4,000 MGW by 2012. Dominion Virginia Power would like to import this electricity, which is most likely from a non-renewable source, and carry it a long distance over new transmission towers and lines where it can be used here to meet the

growing demand as well as exported north into higher rate markets. It would incur a huge capital and environmental cost. Instead, let's look at small scale generation plants at or near customer needs. This distributed generation complements central power and is more reliable, higher quality and cheaper. It would reduce GHG emissions by avoiding long distance transportation of power. And, it would make a community more sustainable and self reliant just by using the discarded wastes and residues in their backyard. No longer would they have to depend on foreign oil or use fossil fuels. It could lead to true energy independence for our country.

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