

Electricity is in the Air!

Ah... April! Spring is here and the world around us is coming alive. The sun is higher in the sky. The forsythia is in bloom; crocuses and daffodils are bursting from the recently frozen ground. Rivers are swollen with snow melt. The very air is energized, and we are too.

Spring is a time for new beginnings -- a great time to talk about alternative sources of electrical energy.

Once the stuff of science fiction, hippies, and fringe elements, alternative energy has come of age. Today, it's just as common to see a solar array on the roof of the home of a bank president or insurance company executive, as it is on a long-haired hermit's house. Even the oil companies are singing the praises of wind and solar power.

US energy demand has grown tremendously over the last few decades. In the 1960's, most families had one TV, and none had Tivo, computers, microwave ovens or many of the other electrically-powered conveniences we take for granted today. Compounding the increase in per-household demand, there has been a parallel increase in population. A study by Carnegie Mellon University found that electricity demand in the US has quadrupled since 1960.

Here in the Pioneer Valley, according to one source, Hampden County's

population increased by 27,000, or about 6½ percent between 1960 and 2000. During the same period, Franklin County gained about 30 percent, and Hampshire County's population expanded by nearly 50 percent.

While the population has expanded, local power supplies have barely changed. Just try to think of the last new power station to be commissioned in the Pioneer Valley. Give up? Bear Swamp, in Rowe, was completed 35 years ago in 1974. Northfield Mountain's pumped- storage hydro-electric plant came on line two years earlier in 1972.

Instead, we've looked to outside sources to satisfy our growing energy appetite. South of the Pioneer Valley, Northeast Utilities built the three nuclear reactors that make up the Millstone Complex in Waterford, Connecticut. The first was completed in 1970, the second in 1975. Millstone III came on line in 1986, completing the project.

Meanwhile, a nuclear power plant proposed for Montague, Mass. was canceled in 1980, due in part to negative public sentiment. In 1992, the Yankee nuclear power plant, on the Deerfield River in Rowe, was decommissioned. In 1998, the oldest of the Millstone reactors was permanently shut down.

In 2003, we were reminded how much we've come to rely on other parts of the country. The Northeast Blackout that August demonstrated the vulnerability of the continental power grid. A local failure due to an untrimmed tree hundreds of miles away, in Ohio, began a cascade that left a huge swath of the US and Canada, including the Pioneer Valley, in the dark.

Economic and political pressure is building to increase local supply to answer local demand. Alternative energy technologies can, and should, be part of the solution, but they're not one-size-fits-all. So, what exactly is alternative energy? Is it anything but

oil? Does alternative energy necessarily mean good energy? Is it cheap? Is it expensive?

The Massachusetts government defines alternative to mean any form of electrical generation other than fossil fuel and nuclear. Fossil fuels include coal and any petroleum product: gasoline, diesel, heating oil, natural gas, and propane. Hence, bio-fuels, hydro, wind, and solar are alternative energy, as defined by the state.

Any of these technologies can help supply our much-needed power, but are they equally appropriate? We need to be smart about our regional energy production choices. Each has potential, but in our zeal to satisfy demand, we can't be blind to its limitations.

Bio-fuel such as wood waste is renewable, for example, but no cleaner than fossil fuels when burned. All wood waste is not equal, either. There is clean virgin wood, such as the stumpage and slash that is the by-product of logging. On the other end of the spectrum, wood waste from industry and residential demolition is often contaminated with nasty stuff we don't want to put into the air we breathe.

Hydro-power is clean, but it creates obstacles to spawning fish and usually requires the flooding of large tracts of land. Wind power is also non-polluting, but the vanes of the wind generators can kill birds. The more effective a wind generator is, the faster the vanes rotate, increasing the danger to birdlife. In addition, wind power is unpredictable in most of the Northeast. Multiple towers are usually required to generate sufficient power for a site to be economically viable, increasing both the costs and the footprint of the facility.

Until recently, solar power has only been practical on a small scale. However, in the southwestern deserts of the US, particularly California, there are new facilities to

capture solar energy on the scale of a commercial power plant. There are also commercial solar generators slated for construction in the Northeast. The effectiveness of residential systems shouldn't be dismissed either. A thousand houses with typical solar systems add up to equal a 30-50 megawatt power station.

In residential applications, solar power has a high initial cost, but the payback period is shortening. Support for solar is growing, such as the recent change in Federal energy tax credits, state rebates, and other tax incentives. The length of the payback period of a specific installation will depend on factors such as hours and strength of sunlight, and cost of electricity in the market (if electricity costs rise, the payback period is reduced).

Without strong local involvement, ill-advised, knee-jerk decisions regarding new power sources are increasingly likely. Energy policy, which often determines the site of a new facility, is formulated in Boston and Washington D.C. This decreases local control, which limits the influence of so-called "Nimbys" (Not In My Back Yard).

A Nimby is a person who opposes locating something necessary, but undesirable, in his neighborhood. The term should be reserved for those who object groundlessly in the face of all contrary evidence. Unfortunately, it's often unfairly applied to any opponent, even those with sound arguments.

Policymaking from a distance reduces both sensitivity to genuine threats of proposed power generators, and first-hand knowledge of local conditions. Thus the potential for questionable decisions is raised, with potentially hazardous consequences.

So, what can we do locally? We can take steps to reduce our demand. Many great resources are available to help us learn how to painlessly reduce our consumption of

energy. For one, our local electric company offers help for any of us to reduce use and save cost. Let's take advantage of it!

We should take responsibility for our share of the growing national energy shortage. We can learn more about the pros and cons of available technology and get constructively involved in the decision-making process.

Spring is here. Let's seize the optimism that the season inspires. Each of us has the power to make a difference; collectively, that power can be awesome.