Renewable portfolio standards premature

Renewable portfolio standards — what in the world does that mean? In a nutshell, it means a law that says a portion of the electricity sold by an electric company must be generated from renewable energy sources, generally wind, solar, biomass, geothermal, and hydro. On the face of it that is a good thing. It moves us away from the pollution and resource depletion associated with fossil fuels and the radiation threat associated with nuclear power. But there are associated dangers.

The Virginia legislature is considering an RPS law [SB 278] which would mandate that 20 percent of Virginia's electric energy come from renewable sources by 2016. That would require over 3,000 megawatts [MW] of generation operating at 100 percent capacity to meet this mandate. To accomplish that we will need nearly quadruple the existing renewable sources within ten years.

Solar energy is almost unlimited but photo-voltaic systems are very expensive to install. Wind power is by far the next largest potential source for renewable energy in the near term. Thus, it turns out that an RPS law is largely a wind-power promotional tool. Using the current generation of wind turbines, this would require the erection of over 4,000 1.5-MW turbines 400 feet tall extending over 500 miles of ridgeline. Newer technology might reduce this to 2,000 3-MW turbines 550 feet tall or more, perhaps requiring 400 miles of ridgeline.

That might be acceptable if wind power was a proven technology with few social or environmental consequences, as its advocates proclaim. But we know that bird and bat populations are adversely affected and that the wind power industry has not cooperated with those studying the problem. Extensive fragmentation of forest land, noise and light impacts on nearby residents, gross intrusions on pristine mountain views, and possible reductions in property values, tourism, and the local economy are all problems that require study. It would be foolish to enact any legislation promoting wind power prior to the completion of objective studies of where turbines could be located and what the actual benefits and environmental tradeoffs might be.

Guest View

By John Sweet

At this time the concept of renewable energy should be studied but it is premature to be considering any legislation, let alone enacting it into law. Even if an RPS law contains reasonable siting criteria for wind turbines, it would still amount to mandating their use prior to determining their feasibility. This is the classic cart-before-horse scenario.

If you agree that Renewable Portfolio Standards legislation is premature, please contact your representatives in Richmond. For Highland County these are: Senator Emmett Hanger, P.O. Box 2, Mount Solon, Va. 22843, 804-698-7524 or email at district24@sov.state.va.us

Delegate Chris Saxman, P.O. Box 2517, Staunton, Va. 24402, 804-698-1020 or email at delcsaxman@house.state.va.us

Also contact the chief patron for SB 278, Sen. Mary Margaret Whipple, 3556 North Valley Street, Arlington, Va. 22207, 804-698-7531 or email at district31@sov.state.va.us

The arithmetic of renewable energy

To provide 20 percent of Virginia's electric energy renewable sources would require over 3,000 megawatts [MW] of generation operating at 100 percent capacity. In 2002, Virginia had 1,340 MW of renewable generation operating at an average capacity factor of 63 percent, a net capacity of 845 MW. That means we will need nearly quadruple the existing sources.

Solar energy could provide as much as 13,000 MW by installing photo-voltaic panels on the roofs of existing commercial buildings alone, at a cost of 30 to 40 cents per kWh, five to ten times the cost of conventional power. Wind power now costs about five to six cents per kWh when the generous tax subsidies are factored in.

A recent report (see footnote) on renewable energy in Virginia projects that renewables other than wind could account for an additional 375 MW over the next ten years. Added to the existing 845 MW, that still leaves about 2,000 MW to be found in wind generation. On our Appalachian ridges the wind blows within a suitable speed range only about 30 percent of the time (a *capacity factor* of 30 percent), which means that over 6,000 MW of installed (or *nameplate*) capacity must be erected to provide the 2,000 MW of actual capacity. Thus over 4,000 1.5-MW turbines or 2000 3-MW turbines are required. To avoid one turbine interfering with the wind pattern of another, these must be spaced out along a ridge top. The smaller ones are typically placed about eight per mile and the larger ones about five per mile, leading to the requirement of 400 to 500 miles of ridgeline devoted to industrial installations.

A Study of Increased Use of Renewable Energy Resources in Virginia, Virginia Center for Coal and Energy Research, Michael Karmis, Editor, Nov. 11, 2005, 107 pp. Available on line at: http://www.energy.vt.edu/Publications/Incr_Use_Renew_Energy_VA.pdf [1.22 Mb]