

Commission on Climate Change Report – Additional texts:

We recommend that Virginia urge the Federal government to adopt a national GHG emissions price-based reduction program, and cooperate with other nations in establishing such a program on a global basis.

Mitigating and adapting to climate change entail present and future costs. Economic mechanisms that internalize these costs and reflect them in energy prices are the most economically efficient means of encouraging savings in energy use, and in stimulating searches for and adoption of low GHG emission energy sources. To be most effective they should be applied on a uniform national basis across all energy uses. Establishing an emissions reduction goal and a related cost for CO₂ (and other GHG) emissions and incorporating that cost in the price of energy is such a mechanism.

A cap and trade system, with a rigorous and declining cap, and permits auctioned annually, is one option suitable for energy generators. Cap and trade has been used with success in the US power generation industry to reduce emissions of compounds of sulfur and nitrogen, and mercury, and with some success by European nations attempting to meet Kyoto Protocol goals. A national cap and trade for US power generation makes sense, but applying it to transportation fuels, industrial processes, agriculture, commercial and home heating, and other miscellaneous uses may prove problematic, because millions of individual emitters are involved. We therefore recommend that any national program apply an emissions fee, equivalent to the cost of CO₂ emissions developed by a cap and trade program, to all other energy uses.

Offsets in lieu of direct emission reductions are popular with generators but difficult to monitor and subject to “gaming.” Should any GHG reduction program consider using offsets, care should be taken to make sure they are real, verifiable and permanent. Since establishing a global GHG emissions reduction program will depend on the US (the world’s largest emitter) moving first, we recommend that offset options, if any, be limited initially to the United States.

Government revenues generated by auction of emissions permits and/or emissions fees should be used to advance efficiencies and new, low emission energy sources, lessening the impact of change on lower income individuals and those losing jobs, and/or substituting for taxes now levied on beneficial components of the economy, such as employment.

We recommend that any additions to Virginia’s electricity generation capacity be limited to nuclear energy, renewables (wind, solar, geothermal, wave and tidal), combined heat and power installations, energy from landfills and organic waste, deferring any new coal-fired plants until carbon

capture and storage (CCS) technology has been proven to be a commercially feasible option.

Burning coal to generate power by conventional processes produces more CO₂ emissions than oil or gas (on a ratio of roughly 100-80-60). Power produced from coal in an Integrated Gasification Combined Cycle (IGCC) plant cuts emissions per KWH by a reported 25% from conventional burning of coal, but is still much more emissions intensive than natural gas, and of course far more than the emissions-free nuclear, wind, solar and geothermal power generators. Bio-mass, often referred to as a “renewable,” is such only if the vegetation from which it is drawn re-grows by an amount equal to that burned each year, maintaining a constant inventory of these natural feed stocks.

Additional coal plants of any kind are unsustainable for the long term unless carbon capture and sequestration (CCS) proves both technically and economically feasible, an answer that lies at least 10 years in the future. In any event, the practicality of CCS will depend on proximity to CO₂ storage sites, and so it is unlikely to be a universal solution for using coal. Coal fired plants built today will remain in service for many decades, hampering progress towards a low emissions economy and a consequent lesser climate change threat, or they will become abandoned white elephants burdening rate payers for years.

We recommend that Dominion and other power suppliers expedite installing demand management programs to reduce peak demand, using both advanced metering technology, and off-peak pricing to level loads, in order to forestall costly investment in new transmission facilities which may never be needed.

The greatest environmental protest in northern Virginia during the last several years has been leveled against Dominion’s proposed 500 Kilovolt power line from Meadowbrook to Loudoun County, sited to cross miles of historic and scenic countryside. The company’s justification for this project is a business-as-usual projection of increasing demand for power in Virginia and to the north. The plants feeding this line are coal fired and generally old, and hence susceptible to replacement by cleaner generators whose locations are as yet unknown. Dominion is currently experimenting with demand management using state of the art metering to address daily peaks that are typically twice daily lows. Such programs have been in operation by the power distributor NOVEC and others for many years, so the technology is at hand and does not need testing.

The Governor’s charge to this Commission calls for a reduction in emissions from today’s levels, as do the plans of states to the north. This Virginia plan calls for greater efficiencies in use of electricity (resulting in lesser demand), and a changed mix of energy sources which are likely to have different generating

locations than the existing coal plants they will replace. There is therefore no need for this expanded transmission line now, nor any certainty about whether or where new transmission capacity will someday be needed.

As stated elsewhere, the opportunity for power generators to improve their income should be decoupled from volume of power sold, removing the incentive to build this not now needed facility.

We recommend that the State Corporation Commission (SCC) include in its evaluation of projects an analysis of the GHG emissions and climate change impact of each project, and the effect of existing or anticipated emission reduction programs on the assumptions used to justify it.

The charter of the SCC calls for protecting consumers by examining the cost and other impacts of actions by regulated industries, but is silent on changing circumstances such as emissions reductions and climate change. In evaluating Dominion's proposed power line in northern Virginia, the SCC accepted Dominion's business as usual demand projections, and appeared to ignore testimony questioning the reasonableness of those projections in the light of growing awareness that something had to be done about GHG emissions. The result was to approve a project for which many believe there is no need, thus doing exactly what the SCC is supposed to avoid – burdening the ratepayers with amortizing the costs of an unnecessary investment.

We recommend identifying and exploiting opportunities for Combined Heat and Power projects, and removing any obstacles to their implementation.

Combined heat and power (CHP), which can also incorporate cooling, offers significant opportunities to increase energy efficiency with accompanying benefits in reduced greenhouse gas emissions. CHP systems can usefully recover 75 percent or more of the energy value of fuel, compared to less than 50 percent from burning fuel separately in a boiler and buying power from the electric grid. CHP systems also enhance power quality and reliability, operating through or recovering more quickly from electric grid outages. Further, CHP systems can take advantage of "opportunity fuels" such as landfill, sewage treatment, and blast furnace gases; industrial and agricultural scraps; and other wastes and residues.

Contrary to some contentions, there remain significant opportunities for additional CHP applications in Virginia. CHP is not limited to large industrial facilities. Smaller industrial, agricultural, commercial, and institutional facilities offer

significant promise, particularly as new technologies have become available. Three to eleven percent of the electricity savings by 2025 that are identified in the recent ACEEE report for Virginia are from CHP measures.

The ACEEE and other analysts have identified various ways to enhance cost-effective CHP applications, including consistent, clear, and streamlined utility interconnection procedures; use of output-based air pollution standards and recognition of CHP benefits in air quality permitting; inclusion of CHP in renewable portfolio standards (RPSs) or energy efficiency resource standards (EERCs); and financial incentives such as tax incentives. Other policy measures, including utility regulations, building codes, and zoning and siting requirements are also important.

We recommend a study of the location of research facilities dedicated to upgrading Virginia's energy and climate research in order to maximize their results.

Virginia has limited funds to spend on research, and quality of output depends heavily on the skill of researchers employed in each particular project. Some of Virginia's research "center" locations (such as Wise County) seem to have been selected more for employment or political reasons than for their appeal to top scientific talent. Scientists gravitate to locations where there are numerous colleagues with whom to share experiences and test theories and conclusions. The best resist going to outpost locations; most prefer being part of a large community of scholars, such as a research university or technical community like Silicon Valley in California. Virginia has several suitable locations, including Richmond, Charlottesville and Blacksburg. Remote or isolated locations are unlikely to attract top talent or produce outstanding results, and should be avoided.

B. Smart 11/4/08