

Governor's Commission on Climate Change

Proposed Findings – Discussion Document

September 10, 2008

The Commission is mindful of Governor Kaine's charge to us, and we accept his views on certain foundational issues as our starting point. As Governor Kaine stated, the fact global climate change is happening and is largely human-caused is now widely accepted.*

We have used the IPCC's 4th *Assessment Report* as our reference point on the science of climate change. Governor Kaine also told us that because Climate Change is a global problem, a national solution is needed in order for significant reductions in GHG emissions to be achieved. However, because the effects of climate change on Virginia will be profound, we cannot wait for the federal government to act. Further, given our nation's robust economy, we believe that the actions taken by U.S. states can have a significant effect on global GHG levels.

In pursuing actions to combat climate change, Virginia is not acting in a vacuum. Indeed, we join 37 other states in preparing a climate change action plan. Based upon these concepts, what we have learned from the experts who have made presentations before the Commission, from our discussions, and from the many external documents we have shared with one another and posted on the Commission's website, we now make the following findings:

Effects on the Built Environment and Insurance

- Sea level rise is a major concern for Coastal Virginia, particularly the highly populated Hampton Roads regions. The Chesapeake Bay Program's Scientific and Technical Advisory Committee projects that sea levels in the Chesapeake Bay region will be 0.7-1.6m (2.3-5.2 feet) higher by 2100.
- Based on an analysis by RMS (a catastrophe modeling company), Virginia Beach is the 10th largest coastal city in the world in terms of assets exposed to increased flooding from sea level rise.
- Modeling and simulation tools are already being used to improve our understanding of how sea level rise and storm surge may effect certain areas of coastal Virginia. However, the fact that LIDAR (Light Detection and Ranging)

* While we have acknowledged these points as being beyond debate in our deliberations, we have allowed those with a different viewpoint to make their views known to the Commission during public comment periods at our meetings.

elevational data does not exist for most of Coastal Virginia is a major obstacle to the ability to plan effectively for these changes.

- Climate change should be viewed as a threat to national security. Its impacts are likely to exacerbate instability and conflict in many areas around the world. In Virginia, there are several major military installations located in low-lying areas that will be affected by sea level rise and storm surge.
- The continued affordability and availability of insurance for Virginia's landowners is a concern as our climate changes. These effects are already being felt in Coastal Virginia. The frequency and severity of storms in the future are expected to exceed those of the past, and the insurance industry may not have the ability to handle several concurrent events.

Effects on Natural Systems

- Climate change will have a significant impact on Virginia's ecosystems. Virginia represents the northern extent of the range of many southern species, and the southern extent of the range of many northern species. Over time, vegetation is expected to move from current locations to higher altitudes and higher latitudes. The effect of this will be that suitable habitat for some species will decline, other species may become extirpated in Virginia but survive elsewhere, and other species may become extinct altogether. The effects of climate change on the health of Virginia's forests is of particular concern.
- Climate change will exacerbate the threats already faced by Virginia's ecosystems, such as habitat loss and pollution. Conservation efforts must become increasingly focused on managing resources to maintain healthy, connected and genetically diverse wildlife populations.
- Some of the Chesapeake Bay's "foundation species" could decline or disappear as salinity and temperatures continue to increase. Foundation species support many other species, so these impacts would be felt throughout the ecosystem.
- Oxygen levels in the Chesapeake Bay are expected to decrease due to increasing temperatures, which will have a negative impact on species like striped bass, blue crabs and oysters. Acidification of the Bay and Atlantic Ocean is also a concern as waters absorb more CO₂.
- Coastal wetlands, a critical habitat for many of the Chesapeake Bay's plants and animals, are being lost as sea levels rise.
- More research on potential effects of climate change on Virginia's agriculture and forestry industries is needed.

General Principles Regarding Strategies

- The importance of the role of states in addressing climate change is illustrated by the World Resources Institute analysis that the emissions of Virginia, North Carolina and South Carolina are equivalent to those of South Korea or, perhaps more striking, the emissions from 10 Midwestern states are equivalent to those of India.
- Strategies that are focused on increasing the capacity of natural carbon sinks are among the most cost-effective ways to abate climate change. Conserving land and planting trees and other vegetation also produce a plethora of co-benefits like improving air quality, providing habitat for wildlife, producing food and fiber, and providing recreational opportunities.
- The three largest sources of GHG emissions in Virginia are electricity generation, transportation, and non-utility uses of fuel in industrial, commercial and residential facilities. Emissions from all of these sources must be addressed in order for our climate-change mitigation efforts to be successful and fair.
- The nation's movement toward a carbon-constrained economy represents an opportunity for researchers, inventors, and investors to accelerate the advancement of technologies in the areas of renewable and low-emission energy as well as carbon capture and storage.
- Many of the technologies needed to reduce emissions are already available and are becoming more affordable every day. As stated in the Virginia Energy Plan, energy efficiency and conservation provide the least costly and most readily deployable energy resource options available to Virginia. It is essential to identify and remove fiscal and regulatory barriers to investments in energy efficiency and conservation.
- Carbon capture and storage offers the potential to reduce GHG emissions while continuing to producing energy from fossil fuels.
- Global climate change is a global problem that requires a global solution. That global solution is only achievable if the U.S. exerts political, diplomatic, and technological leadership.
- The Commission expects Congress to enact an economy-wide cap-and-trade program in the next 4 years. The development of new technology will be accelerated by the market demand created by a cap on GHG emissions.
- The experience of several European countries demonstrates that Virginians can reduce energy consumption and still enjoy an excellent quality of life.
- As stated in the Virginia Energy Plan, demand for electricity is expected to increase substantially in the future. While efficiency and conservation efforts should be accelerated, new electricity generation capacity will also be needed.

- While recently-enacted federal fuel efficiency standards will reduce the level of GHGs that would otherwise be emitted by automobiles, a significant increase in vehicle miles traveled would mean that transportation emissions would still grow over time. Areas with compact development patterns and readily available transit services have lower vehicle miles traveled per capita than areas with sprawling development and limited transit.