



February, 2008

Dear Colleague,

Natural resources are at the center of the climate change issue, both because they may be affected by climate change, and because natural resources play a role in reducing greenhouse gas emissions and in producing renewable energy. The attached summary highlights activities being undertaken by the Department of Natural Resources (DNR) in response to climate change and the need to increase development of renewable energy sources.

I am pleased to share this overview with you. It showcases some activities that are already underway and others that are proposed involving DNR-managed forestlands, agricultural lands, aquatic lands, and geology. These activities include sustainable forest management, forest health, community and urban forestry, and wind power, among others.

This information is currently available on line at
<http://www.dnr.wa.gov/pdf/climatechange.pdf>.

It will soon be available on DNR's new website at
http://www.dnr.wa.gov/ResearchScience/Topics/OtherConservationInformation/Pages/climate_change_dnr_02112008.aspx.

If you would like additional copies or if you have questions about this document or any DNR activity related to climate change, please contact Policy Director Craig Partridge at craig.partridge@dnr.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Doug Sutherland".

Doug Sutherland
Commissioner of Public Lands

Department of Natural Resources' Current and Proposed Activities Relating to Climate Change and Renewable Energy

February, 2008

Introduction

This overview showcases activities being undertaken by the Department of Natural Resources (DNR) in response to climate change and the need to increase development of renewable energy sources. Natural resources are at the center of the climate change issue, both because they may be affected by climate change, and because natural resources play a role in reducing greenhouse gas emissions and in producing renewable energy.

Commissioner of Public Lands Doug Sutherland and DNR staff are participating actively in Washington's climate change response. Commissioner Sutherland has been a member of Governor Gregoire's Climate Advisory Team, and DNR staff have led or served on several of the technical committees developing reports delivered to the Governor last week. Many of the recommendations both for mitigating climate change and for adapting to climate change involve natural resources, and represent opportunities for needed action by DNR. Some of DNR's actions are already underway. This overview includes current activities and those that may be proposed for the future, with legal and funding support from the legislature.

Climate Change Mitigation

Forest Lands

- Sustainable management of over two million acres of forested state trust lands sequesters and stores large amounts of carbon that would otherwise contribute to atmospheric greenhouse gasses. A rough estimate is that state trust forest lands store over 200 million tons of carbon, and that number is growing each year. Additional tons of carbon are stored each year in the long-lived wood products that are produced from these lands.
- Our dry pine forests in eastern Washington are at elevated risk of un-naturally large and severe fires, which can release large amounts of greenhouse gasses into the atmosphere and slow the regeneration of carbon-capturing forest growth after the fire. There are about 340,000 acres of state-managed lands in this condition, out of about 3 million acres on all ownerships. Due to past fire suppression, these dry stands are over-crowded with small trees that act like tinder. Thinning or controlled burns to reduce these excessive fire fuels can help reduce greenhouse gas emissions from uncontrolled fires. DNR is looking for ways to increase these treatments on state-managed lands. This relates directly to climate change adaptation on forest lands, covered below.
- Planting trees in our urban areas helps absorb more atmospheric carbon while reducing energy needed to cool buildings in the summer. DNR has introduced legislation to jump-start a new broader urban forestry program for Washington by inventorying and assessing existing urban forests.

- Losing existing working forests to development in our urbanizing areas causes a loss of carbon to the atmosphere. DNR is working in many ways to encourage forest landowners to keep their land in working forests. One of those ways is to use \$70 million in the FY 07-09 biennium to purchase forest land at risk of conversion to development, for long-term management as forested state trust lands. The funds are dedicated to purchasing trust lands to replace others that have previously been transferred out of trust ownership.
- Commissioner Sutherland is joining Governor Gregoire and forest landowner representatives in reaching out to other western states and British Columbia in the Western Climate Initiative to ensure that any regional greenhouse gas emission cap-and-trade program includes market-based provisions to recognize and reward voluntary measures taken by Washington's forest landowners to store additional carbon in healthy working forests and forest products.

Agriculture

- As a major agricultural land manager, DNR encourages its agricultural lessees to practice the best soil management, helping agricultural soils store carbon that would otherwise be released to the atmosphere. About 10,000 acres of leased dry-land wheat farms are currently enrolled in DNR's "no-till" program. DNR also requires approved plans on every agricultural lease, to ensure lessees meet the highest soil conservation standards.

Geology

- Underground injection of carbon dioxide and other greenhouse gasses for permanent storage in stable geologic formations is a promising means for electricity generators to curb their emissions. As the state's geology agency, DNR scientists are in a good position to provide available geologic information on the most promising locations for geologic "sequestration." A DNR-request bill provides funding for DNR to expand on current information and assemble a more comprehensive inventory of geologic sequestration opportunities for Washington.

Climate Change Adaptation

Forest Lands

- Climate change may already be affecting the health of Washington's forests, especially in eastern Washington, where record summer heat and drought are contributing to major outbreaks of pine beetles and other insects harmful to trees. About 2 million acres of eastern Washington forest are affected, and the past few years have seen about 20 times more trees killed per year than in the previous 20 years. As a result of action requested by DNR in 2007, with broad stakeholder support, the legislature has enacted new forest health legislation, giving us new scientific and regulatory tools to ensure forest landowners address this forest health threat. DNR will be working to disseminate technical information and assistance to landowners and others. We are also working to establish a large-scale pilot program to demonstrate best treatment practices to improve forests' resilience in the face of insect outbreaks.

- However, more could be done. DNR will be joining others in the future to explore how to bring stronger financial incentives to bear to encourage thinning of unhealthy forests. DNR has also signed a Memorandum of Agreement with the British Columbia Ministry of Forests to engage in cooperative, cross-border forest health projects and information sharing.
- DNR, through its Webster Forest Nursery provides between 10 and 15 million seedlings annually for reforestation harvested areas on Washington's working forests. If climate change causes larger disturbance events such as fires and storms, greater nursery capacity may be necessary.
- Another future need DNR will be exploring is expanded seed banks, both for new genetic variants of commercial tree species adapted to new climatic conditions, but also for rare and at-risk species that could face critical pressure if climate change alters their restricted habitats.
- DNR is working hard to make sure its system of 11,000 miles of forest roads are up to current standards for fish passage under the new Forests and Fish law. This ongoing action will also help ensure the road system can adapt to changing runoff patterns if more of Washington's ample precipitation falls as rain rather than snow in the winter. DNR is on-track to complete all road fish-passage renovations.
- DNR is the steward of 81 natural areas totaling over 125,000 acres, which are critical to the protection of key features of Washington's natural heritage, including rare and sensitive species. If climate change alters the spatial pattern of ecological conditions critical to the natural features protected in these areas, DNR may need to develop monitoring plans to address this risk to ensure these areas continue to meet their objectives.

Aquatic Lands

- If climate change causes sea level rise, it could affect the state-owned saltwater tidelands managed by DNR. Low elevation coastal areas may need heightened attention to increase their resiliency and to avoid damage to natural resources and human infrastructure. A particular concern is that if sea level rises and inter-tidal ecosystems migrate landward, miles of bulkheads could stop that natural movement and cause a shrinking of beaches and inter-tidal habitat. DNR is developing a habitat conservation plan for its aquatic lands, which contains an adaptive management process that could address this type of impact.

Renewable Energy

Forest Lands

- Like many forest landowners, DNR is interested in the possibilities of marketing forest biomass for energy and bio-fuel. DNR is currently exploring a pilot partnership with a private party to utilize logging slash and other surplus forest residue from state forest lands for production of a compressed bio-energy product.

- DNR is administering a contract with the College of Forest Resources at the University of Washington to conduct a legislatively-funded study to estimate biomass availability from logging slash from a sampling of eastern Washington forest lands. The study will be a step toward a more refined future estimate of total availability of forest biomass for energy uses, which will be critical to the development of biomass processing facilities.
- The growth of a biomass energy industry in Washington would have important benefits for the health of Washington forest lands, because it could provide a new market for small-diameter trees and under-utilized forest residues resulting from forest health thinning treatments. This would in turn help reduce the risk of catastrophic forest fires which are large emitters of greenhouse gasses.
- In the future, DNR will be exploring opportunities to contribute to feasibility studies and pilot projects for utilizing forest biomass for heat and power production, as well as for conversion to cellulose-based ethanol.

Agriculture

- DNR-managed state trust lands in eastern Washington are major contributors to renewable wind energy. With 12 wind power leases signed and another 10 in development, state lands could soon be the home of over 150 wind towers producing over 200 megawatts of electricity.
- In the future, state trust lands in eastern Washington could see significant development of solar energy facilities. The biggest current project in the state is next door to state trust lands.

Aquatic Lands

- Applications have been made in 8 locations in Puget Sound for energy facilities harnessing energy from tidal exchange. DNR supports renewable energy development on state-owned aquatic lands, both tidal and ocean wave-derived energy, while ensuring protection of the state's important environmental resources and other users of these lands.

Geology

- DNR will be putting all its scanned publications and other available information on geothermal energy potential on the agency website for greater accessibility. With additional funding, DNR could collect and make available additional geothermal information for Washington.

Conclusion

Natural resources are at the center of climate and energy issues. DNR will continue to respond actively in the years ahead to the challenges posed by our changing climate and need to expand production of clean, renewable energy sources.