

**TRIBAL CLIMATE CHANGE POLICY TRAINING**  
**SEPTEMBER 14 & 15, 2009 | UNIVERSITY OF OREGON IN PORTLAND, WHITE STAG BUILDING**

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**TRAINING SUMMARY NOTES**

The notes that follow summarize the content presented during the two-day Tribal Climate Change Policy Training, highlighting key concepts, considerations and issues raised during three presentations: 1. Climate Change Policy Panel, which provided an overview of climate change policy development at the federal level; 2. Climate Change Policy: Concepts and Mechanisms, which offered insight on climate policy scales, terminology and tools; and 3. Cultural Resources and Ecosystem-based Approaches to Adaptation, which offered considerations for cultural and natural resources in the face of climate change, and options for adaptation.

- [Pages 2-3](#) summarize the opportunities described during the training for tribes to engage in climate change policy discussions.
- [Pages 4-7](#) review the training origins and content, and offer key points for the three presentations.
- [Pages 8-20](#) provide detailed notes from each presentation.

Any misinterpretations, errors or omissions in the summary notes are the fault of the note-taker. The notes are best complemented by the additional training materials available.

For additional training content and resources, visit the Tribal Climate Change Policy webpage on Sustainable Northwest's website: <http://sustainablenorthwest.org/programs/policy/tribal-climate-change-policy-training-meeting-materials>.

**Additional materials available:**

- Tribal Climate Change Policy Training agenda
- Speaker bios
- Participant list
- Webcast of the training
- Presentation slides
- Good Company's bibliography of climate change and carbon footprint resources
- A document describing tribal priorities for Senate climate legislation (prepared by NCAI and NTEC)
- Recent article in *Indian Country Today* about a recent Senate briefing on tribes and climate change
- The USDA Forest Service's Strategic Framework on Climate Change
- A video "Shadow of Salmon" (created by Salmon Defense)
- More information on the Tribal Climate Change Policy Forum, October 15-16, 2009, in Eugene, Oregon

**SUMMARY: OPPORTUNITIES FOR TRIBES TO ENGAGE IN AND INFORM CLIMATE POLICY**

Speakers and participants made numerous suggestions about how tribes can engage and inform climate change policy and action. The following is a summary of those ideas and strategies discussed throughout the two-day training.

*National*

- **Talk/meet with House and Senate representatives.** It is imperative that tribal leaders have conversations with House and Senate representatives. The National Tribal Environmental Council (NTEC) and the National Congress of American Indians (NCAI) are interested in working with tribal leaders to share insight with legislators, and are offering to walk with tribal leaders up to the Capitol to meet with legislators.
- **Participate in NCAI annual convention.** NCAI welcomes involvement in its annual convention and trade show in Palm Springs, California, (October 11-16, 2009), which will include discussions on climate change adaptation and policy.
  - **Conduct a climate change cost assessment.** NCAI is looking for a tribe to go through a cost assessment to answer the question: what is the cost of inaction if a tribal government does not adapt to climate change? NCAI is looking for tribes to describe how climate change is and will impact the tribe and what it costs. There is a need to monetize impacts to show how much climate change is going to cost. The cost assessment will be on display at NCAI's annual convention. The Swinomish Tribe's work on climate change adaptation provides one example for tribes in the Northwest.
- **Share tribal climate change resolutions and policies.** NCAI welcomes resolutions from tribes that could be used in showing tribal commitment, needs, and interests in addressing climate change.
- **Write letters to policymakers.** Tribes can draft letters to help the message reach legislators. NTEC, NCAI, NARF, and NWF are working to develop template letters for tribes. The four organizations' role is providing briefing documents on proposed policy and policy recommendations, and with insight from individual tribes, the organizations can speak to specifics for different tribes.
  - Tribes should send copies of the letters tribal leaders write to the four organizations because that insight strengthens their advocacy efforts on behalf of all tribes.
  - Provide specifics on climate impacts to tribal lands and climate actions tribes are engaging in.
  - Quantify impacts and actions if possible; and point out how adaptation and mitigation relate to quality of life and culture (issues and opportunities).
  - Provide examples of how the tribe has taken little amounts of money and done tremendous work with it to demonstrate to legislators that if tribes are provided an equitable share, we could see incredible accomplishments.
  - Provide examples of tribal traditional practices in order to raise awareness of their value; traditional practices are time tested and sustainable.
- **Advocate the value of tribal knowledge, experience and insight.** With long-term knowledge, tribes are noticing that natural resources are diminishing, we are seeing deformation, no longer the beauty that we used to see; even during a meeting 10-15 years ago we were discussing changes. We have to reach out to states. We have to put our own tribe's interests into those letters; tribes need to express our needs and our concerns.

*State level*

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- **Communicate and consult with states.** State departments need to consider indigenous representatives as part of their international delegations. State departments have a lot of latitude and can give the tribes tremendous help by saying sit down and work this through with us.

### *Regional*

- **Unite regionally.** The Northwest Indian Fisheries Commission and Columbia River Intertribal Fish Commission are engaged working on climate change issues. In addition to individual tribes speaking to Congress, uniting regionally can have great impact also – that unity speaks very loudly.

### *International*

- **Participate in international negotiations and voice interest in participating.** Tribes need to participate in negotiations. Currently a lot of indigenous NGOs are at the table, but not as many tribes. Individual tribes need to be involved in order to discuss issues such as REDD and make collective decisions on how to move forward.
  - NCAI needs to put international participation on its agenda. Individual tribes need to engage at the international level and they need to voice an interest in engaging.
- **Communicate with the Intergovernmental Panel on Climate Change about integrating more information on and documentation of tribal traditional practices.** Currently the outline for the IPCC Fifth Assessment Report is coming out; tribes need to get involved to keep momentum moving forward on integrating tribal traditional practices.

### *Additional Intertribal Actions*

- NCAI is working with the University of Colorado and others to bolster the status of tribal governments in international forums; and to gain recognition that the role of tribal governments needs to be elevated.
- State and national engagement efforts of Northwest tribes have given inspiration for indigenous communities to take action in Australia.

## **TRAINING OVERVIEW**

### ***Event Origins***

In winter 2008 the USDA Forest Service announced a funding opportunity for which the Pacific Northwest Research Station of the Forest Service (Portland, Oregon) submitted a climate change knowledge transfer proposal to explore social vulnerability and equity in the context of climate change. At that time, no funding was available to look at the social dimensions of climate change, or the impacts of climate change on social, cultural, political, economic and environmental characteristics of human communities. The PNW Research Station didn't receive the initial funding sought, but did receive funding for projects which encompass the objectives of the initial proposal.

The first project, a climate change literature synthesis, aims to review academic, governmental, NGO, and media publications in order to understand the climate risks and opportunities facing socially vulnerable populations in the U.S., including indigenous peoples, marginalized urban populations, and rural, resource-based communities, and identify gaps in information and research; the end products of the project include the synthesis and briefing documents for policymakers and land managers. The second project encompasses the current Tribal Climate Change Policy Training focused on the nuts and bolts of climate policy, terminology, and experiences of tribes working on climate mitigation and adaptation policy; and the Tribal Climate Change Policy Forum, October 15-16, 2009, which will focus on dialog among tribal leaders and staff, and consider tools needed for tribes to engage in climate policymaking and planning.

### ***Tribal Climate Change Policy Training Goals and Objectives***

The Tribal Climate Change Policy Training intended to increase knowledge about climate change policy among Native American tribes in the Pacific Northwest in order to increase capacity to engage in climate policymaking, take action to reduce greenhouse gas emissions, prepare, respond, and cope with climate impacts, and apply traditional knowledge at the policy level. The training aimed to increase understanding of: climate and energy policy at multiple levels; the key concepts and issues of climate policy; the fundamentals of climate change inventories and carbon footprints; opportunities to engage in climate policy; and best practices related to adaptation.

## **TRIBAL CLIMATE CHANGE POLICY TRAINING – DAY 1**

### ***Summary***

Day One began with introductions and an opening prayer by the Confederated Tribes of the Umatilla Indian Reservation. A video-conference policy panel which featured Bob Gruenig, National Tribal Environmental Council; Jose Aguto, National Congress of American Indians, and Fred Clark, USDA Forest Service Office of Tribal Relations provided an overview of climate change policy development at the federal level. An evening reception offered participants a chance to get to know each other and talk about the information the policy panel presented. Two quotes shared during the day captured the importance of getting information on climate impacts to tribes to legislators: "If you're not at the table you're on the menu" and "The solution to the future is grounded in the past."

### **Key Points from the Climate Policy Panel:**

- Tribal participation in climate policy at the federal level is improving; tribes are influencing the American Clean Energy and Security Act of 2009 (ACESA). The rights, needs, and interests of tribes are being incorporated to some degree.

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- Intertribal organizations – the National Tribal Environmental Council (NTEC), the National Congress for American Indians (NCAI), the Native American Rights Fund (NARF), and the National Wildlife Federation (NWF) are advocating for tribes as climate policy is developed.
- Tribal recommendations seek to right wrongs of the past and take advantage of opportunities around renewable energy in Indian country; renewable energy is one of the primary opportunities for economic development in Indian country and could result in more revenue to tribes than Indian gaming (double or triple the amount).
- ACESA could allocate over \$100 trillion per year for recovery for the next four decades. The amount of funding is significant, and, as a result, there are many interest groups trying to get funding; tribes are just one of those interests seeking funding for energy and adaptation.
- Current funding allocated for tribes for climate adaptation and mitigation, renewable energy development, and energy efficiency within the ACESA is insufficient.
- Language in ACESA protecting the rights of tribes internationally is inadequate.
- The voice of the tribes on the hill is essential to carry the discussion around climate policy further; tribes need to have their voices heard on the hill in person tribe by tribe, not just through tribal organizations.
- Tribal leader engagement is strongly needed because tribal leaders are the most compelling voices to bring the true voice of Indian country to the table.
- Tribal staff and tribal members need to work to get the issue of climate change in front of tribal leadership.
- Individual tribes need to engage at state and international levels and they need to voice an interest in engaging.
- Uniting regionally can also have great impact – that unity speaks very loudly.
- Landscape-scale efforts and partnerships between federal agencies and tribes are necessary to address climate change.
- Language regarding incorporating traditional knowledge into climate research, planning, and project implementation is lacking. One issue is the need to define what it means, which is difficult considering the potential for traditional knowledge to be used improperly, insensitively, or taken out of context. Individual tribal leadership could influence this by providing examples of projects that integrate knowledge systems such as the Joint Fire Science Group integrating traditional knowledge with fire science in the west. Current efforts could provide examples that could be leveraged.
- Challenges exist regarding incorporating traditional knowledge at the policy level and at home for tribes in educating the youth.
- As climate change poses risks to cultural survivability, it is important to have dialogue with youth about valuing culture and storytelling – passing information about how ecosystems work. Using media and hands-on experience can help in educating youth about culture and traditional tribal practices.

## **TRIBAL CLIMATE CHANGE POLICY TRAINING – DAY 2**

### ***Summary***

After reviewing day one, a morning blessing by the Confederated Tribes of Grand Ronde, and introducing new participants, day two focused on climate policy nuts and bolts and climate adaptation. Joshua Skov of Good Company guided participants through climate policy at multiple scales from an economist's point of view, providing information on policy terminology, equity considerations, cap-and-

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trade systems and cost of carbon, and carbon footprints and lifecycle greenhouse gases. Terry Williams and Preston Hardison of the Tulalip Tribes shared insight on considering cultural and natural resources in the face of climate change, and options for adaptation. Day two closed with acknowledgement of speakers, participants and steering committee members, and information on the October Tribal Climate Change Policy Forum – where participants will have opportunity to continue dialog on how tribes can engage in climate mitigation and adaptation policy and actions, and learn from tribes that are taking action. The forum will complement a visit by the University of Oregon’s inaugural Oregon Tribes Professorship law chair, Dr. Rebecca Tsosie.

### **Key Points from the Climate Change Policy Concepts and Mechanisms Training:**

- One of our challenges is to understand the lifecycle greenhouse gases of our own activities. Lifecycle GHGs are GHG emissions associated with the entire lifecycle of a product, service, fuel, infrastructure component, or other activity. In what we do and buy, lifecycle greenhouse gas emissions are owned (belong to us) or shared (belong to others).
- The cost of carbon is the cost or price of emitting a ton of CO<sub>2</sub> or CO<sub>2</sub> equivalent emissions as a result of regulatory mechanisms such as cap-and-trade systems. Under cap and trade the cost of carbon represents the scarcity of the right to emit. The cost today of emitting a ton of CO<sub>2</sub> emissions in the United States is \$0. For the future, we’re reasonably certain the cost will change from \$0 to something positive.
- Cap and trade is a tool that covers a wide range of possibilities and has a number of key parameters; which means it can manifest in many ways. Cap-and-trade systems involve setting a cap on emissions; distributing the cap, the allowances that add up to the cap (the rights to emit); distributing the auction proceeds from the allowances; allowing trading; and retiring allowances.
- Cap and dividend considers auctioning all allowances and not giving away any allowances to emitters, and distributing the auction proceeds on a per capita basis. Opportunity exists for a net positive impact on the poorest households depending on who benefits from auction proceeds to what degree.
- A carbon tax is another tool available to reduce greenhouse gas emissions.
- [Good Company’s bibliography](#) provides tools and resources for calculating carbon footprints and understanding carbon markets such as “State of Voluntary Carbon Markets” (#175 under ‘Offsets and Offset Quality’).
- In rural America, the current reality is more carbon-intensive lifestyles and industries; and, huge climate action and economic opportunities through forestry, agriculture and renewable energy. The key parameters to consider are: allowable offsets from biological sequestration in coming legislation, extent and type; forces to help make it happen, technology, technical assistance and financing; and the additional benefits of land management. Management of biological carbon stocks will become a bigger deal over time as the fossil carbon stock declines and is deemphasized; with this in mind, land managers should consider how to focus activities – biological carbon cycle vs. fossil carbon cycle.

### **Cultural Resources and Ecosystem-based Approaches to Adaptation:**

- Climate change reflects that when you start messing with Mother Nature the results are not just warming, but Nordic winds, fish kills and hypoxia, species moving out of their ranges, additional icing in areas, etc.
- It is important to understand the issues and concepts around climate change, land use planning and population projections, and what it takes to have healthy communities, and to incorporate it into planning for the future.

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- It is important to consider all of the embodied costs of actions and products, including carbon, human rights, water, livelihoods and ecosystem impacts.
- All of us have an obligation to try to maintain the health of the Earth. We need to know when we're causing harm and what to do to change it.
- Tribal governments and the U.S. government (along with sub-national governments) have to start sorting out what it takes to be responsible in addressing climate change.
- Tribes need to clarify their visions for people and landscapes, and think about what's important. Tribes need to maintain, strengthen and protect culture and knowledge. One of the opportunities we have today is the history and knowledge of the tribes; the challenge is capturing it as we move forward and address climate change.
- Climate impacts and how to plan for them aren't clear; many questions linger such as –
  - Where will people from the Southwest go when the water runs out?
  - What will happen when the real impacts kick in?
  - What will happen to us as salmon people when the salmon don't exist? How do we plan for that, what are the types of things we need to think about?
  - Will tribes have to consider shifting the genetics of a plant or animal to have it exist in a warmer world?

### *Adaptation Planning*

- We may not see actual benefits of adaptation actions we take today for 20-30 years.
- Because of the place-based nature of indigenous peoples' rights in the U.S., to access natural and cultural resources in the face of changing climate, tribes may have to try to keep species and lands in their place.
- The more you delay climate adaptation, the harder it's going to be to get where you want to go; you have to expect surprise, uncertainty, and complexity.
- Consider reducing barriers and enhancing buffers (e.g., address non-climate impacts to salmon).
- Involve tribal governments, tribal agencies, and external agencies – federal, state, other tribes
- Actions to adapt include: abandoning, changing, defending and enduring, escaping, modifying, resisting or retreating.
- Consider climate impacts across sectors such as agriculture, education, fishing, gathering, and government, etc. and in terms of cultural resources, ecohydrology, phenology, species, invasive species, extremes/variability, floods, food, health, water, and non-climate impacts.
- Think in terms of scale – local, landscape, and global.
- Monitor changes.
- In forestry, consider how to sequester carbon and biodiversity
- Traditional knowledge is essential for identifying the problems and the solutions; indigenous peoples want to work to solve this problem together, but a lot of traditional knowledge is secret and sacred. As tribes start working with federal agencies and others, agreements and protections are needed regarding traditional knowledge.
- Interchanges among tribes and network building are also important so that tribes can share experiences and species.

## **EXTENDED TRAINING NOTES**

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The extended notes that follow come from one individual tasked with taking notes during the two-day Tribal Climate Change Policy Training. The notes are not a complete account of the information shared during the presentations. They are best complemented by the video recording of the training and the presenter's slides available at: <http://sustainablenorthwest.org/programs/policy/tribal-climate-change-policy-training-meeting-materials>. Any misinterpretations, errors or omissions are the fault of the note-taker.

### **TRIBAL CLIMATE CHANGE POLICY TRAINING – DAY 1**

#### **PRESENTATION 1: CLIMATE CHANGE POLICY PANEL**

Terry Williams, Commissioner of Fisheries and Natural Resources for the Tulalip Tribes of Washington, moderated the climate change policy panel which featured Bob Gruenig, National Tribal Environmental Council; Jose Aguto, National Congress of American Indians, and Fred Clark, USDA Forest Service Office of Tribal Relations. The panel and discussion aimed to frame the needs and issues around climate policy for tribes, describe the climate policy mechanisms currently proposed, namely the Waxman-Markey Bill, also known as the American Clean Energy and Security Act of 2009 (ACESA); and consider opportunities for tribes individually and collectively to engage in federal climate policymaking and federal agency planning.

Introducing the panel, Terry described the importance of considering how to respond to federal agency requests for participation in shaping climate policy; and taking advantage of the opportunity to incorporate tribal knowledge at the policy level. Additionally, Terry described the importance of considering how the federal government can fulfill its commitment to tribes; he suggested tribes have opportunity now to work with the Environmental Protection Agency and other federal agencies on climate policymaking, planning and implementation, and in so doing, incorporating tribal voices and needs. Terry stressed that we cannot wait 30 years to take action, we need to start acting now, acknowledging we're all connected, to ensure the earth remains livable as the climate warms. All of us united have something we can do.

#### ***Bob Gruenig, National Tribal Environmental Council***

Bob described the importance of tribal preparation for climate change and the incorporation of tribal needs and interests in federal climate policy, considering the 560 plus federally recognized tribes and the 95 million acres of tribally owned lands. Tribes have a lot invested in their lands, Bob said, and it's important that those interests be addressed in climate policy. Bob described the recent increase in tribal involvement in climate policymaking, noting that the earliest climate legislation proposed in 2003 did not mention tribes and during the last Congress tribes were reactionary; however, during the current Congress tribes have had more up-front involvement and have been working collectively to develop a set of tribal principles and policy recommendations.

Yet, many more stakeholders in addition to tribes are trying to influence adaptation policy and access the funds allocated for adapting to climate change. With the Lieberman-Warner bill, Bob described, that eighty-five percent of tribal recommendations were incorporated into the legislation, but now there are more stakeholders vying for funds and inclusion.

The American Clean Energy and Security Act, Bob described, currently devotes nine percent of funds for adaptation to local governments and one percent to tribes; it devotes one percent for natural resource

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adaptation and of that one percent, 3 percent for tribes. Overall, Bob suggested, this means very little resources have been allocated for tribes to address climate change; and there is opportunity for the Forest Service to take leadership in ensuring tribal access to resources and assistance, and tribal preparation for climate change.

Bob described the challenge in increasing allocated funds for tribes is demonstrating and justifying to policymakers why tribes need a certain amount of resources, even though states in many respects get a free pass.

Bob stressed the need also for tribes to develop adaptation plans and for climate legislation to incorporate traditional science and knowledge.

### Overview of American Clean Energy and Security Act of 2009 – considerations for tribes

#### *Subtitle E – Adapting to Climate Change:*

In describing ACESA adaptation considerations for tribes, Bob pointed out the differences in funding available to states and Indian tribes. While states are allocated a certain amount of funds or allowances, tribes are left to compete for a small amount of funds or allowances. Bob described recommendations (see following) for increasing funding available to tribes and the mechanisms or programs through which tribes can access the funds.

#### *Subtitle E, Part 1 – Domestic Adaptation:*

Under this part of the Waxman-Markey bill, Bob suggested tribes would like a dedicated amount of money so that they won't have to compete. Tribes need more than the \$16.6 million currently allocated to address the issues facing their communities; tribes are asking for six percent for American Indian tribes and one percent for Alaska Native villages.

#### *Subtitle E, Part 1, Subpart C – Natural Resource Adaptation:*

Under this part of the bill, Bob described that currently tribes would receive three percent of funds allocated and 4.9 percent of the funds allocated to federal agencies. He suggested this is a definite plus for tribes; however there are concerns that the large funding increase to one US Fish and Wildlife Service program could result in an administrative meltdown and affect tribes accessing the funds. Bob noted also that not all tribes prefer working with the USFWS – some tribes would prefer working with the BIA or the USDA NRCS program. Tribes would like one-quarter of the funds allocated under this part of the bill to the USFWS, one-quarter to BIA and one-quarter to the NRCS program; and tribes would like eight percent of funds allocated to federal agencies. Bob described the need for accountability for wildlife adaptation programs and for monies given to the Department of the Interior to be distributed on an equitable basis, accounting for tribal lands and lands that tribes co-manage.

In addition, Bob described that tribes have interest in accessing the Land and Water Conservation Fund with funds made available on a competitive basis, but assurances that a portion of the funds would be awarded to tribes. Tribes have interest in no less than five percent of the Climate Change Health Protection and Promotion Fund being made available to tribal health clinics and for tribes to address and prepare for health-related climate impacts. Tribes have interest in considering and incorporating tribal traditional knowledge into policy and planning. Lastly, tribes have interest in protecting treaty-reserved rights to first foods.

### Current status of ACESA

Bob said the Senate EPW Committee plans to have a bill out by early- to mid-October; a number of legislators have issues with the bill; healthcare could postpone the bill; and Agriculture, Foreign

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Relations, Finance, Commerce, and Energy and Natural Resources committee markups could also postpone the bill. The intent to have a bill out by Copenhagen may no longer be the case because of healthcare; we might not see a climate bill passed potentially until spring 2010.

### Briefing on Tribes and Climate Change Legislation, September 9, 2009

Bob described that the Senate held a hearing with Indian tribes on climate change last week, which focused on energy, efficiency, and domestic and natural resources adaptation. The hearing lasted about an hour and a half and was well received. Bob said there was good feedback on the briefing and led to members of the Senate asking a Wisconsin delegation about climate concerns and impacts to Wisconsin tribes.

Recent article on the briefing: <http://www.indiancountrytoday.com/archive/59727607.html>

### *Jose Aguto, National Congress of American Indians*

Jose stressed the need for international action on climate change and the importance of the U.S. acting nationally and internationally, coming to the table at Copenhagen with substantive commitments to reducing greenhouse gases.

He provided a broader view to give a sense of ACESA's significance, pointing out that the bill will allocate over 100 trillion dollars per year for recovery for the next four decades. The amount of funding is tremendous, Jose noted, and as a result an incredible number of interests are trying to get a piece of the pie; tribes are just one of those interests seeking funding for energy and adaptation. Currently, Jose said the slice for tribes is inadequate. With help from the National Tribal Environmental Council, National Wildlife Federation, and Native American Rights Fund, Jose described that NCAI was able to participate in ACESA development on behalf of tribes; and in this instance tribes are at least at the table with regard to national legislation that has significant implications.

We strongly need tribal leader engagement, Jose suggested, because tribal leaders are the most compelling voices to bring the true voice of Indian country to the table. The National Tribal Environmental Council and the National Congress of American Indians are interested in working with tribal leaders to share insight with legislators, and are offering to walk with tribal leaders up to the Capitol to meet with legislators.

On the ground, Jose described, ACESA means an 80 percent reduction in greenhouse gases by 2050, significant reductions in oil and gas production, and significant ramping up of energy efficiency by 2030; a transformation in the way we construct homes; and by 2020 70 percent of energy coming from renewable sources – a tremendous transformation around energy in this country.

### NCAI Pursuing Opportunities for Tribes through ACESA: addressing existing barriers and inequities and creating opportunities for developing renewable energy on tribal lands

Through the Waxman-Markey bill, Jose suggested, NCAI is trying to right wrongs of the past and take advantage of opportunities around renewable energy in Indian country; renewable energy is one of the primary opportunities for economic development in Indian country and could result in more revenue to tribes than Indian gaming – it could double or triple the revenue from gaming. In the Southwest, tribal solar potential could provide four times the 2004 U.S. energy demand; and in the Great Plains, tribal wind potential could serve 20 percent of current U.S. electricity demand.

Currently, tribes' abilities to access renewable energy has obstacles from A to Z; it starts first with tribal capacity regarding the environment, housing, health, and education – there is a lack of capacity and a historical lack of federal support for tribes to develop energy resources.

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### Tribal Recommendations for Climate Policy

Jose described the tribal recommendations for climate policy that would increase tribes' abilities to develop renewable energy and energy efficiency on tribal lands:

- Under ACESA, requesting 250 million per year allocated to fund tribal energy departments and to deploy renewable energy projects
- Under ACESA, recommending 50 million per year in funding for the tribal energy program. Jose said the Department of Energy's tribal energy program (established in 2002) has received severely less funding than the program for states.
- Passing additional legislation for tribes to be involved in energy transmission planning; and for tribes to access tax incentives and credits – currently tax incentives and credits are not available to tribes, but they should be to allow tribes equal access and opportunity. Tribes are currently at a competitive disadvantage in negotiation with energy providers and in developing and producing renewable energy.

### International provisions of ACESA: U.S. holding other nations accountable for indigenous rights

Jose described how ACESA internationally seeks to reduce deforestation in developing nations, which still have significant forest stands. Currently, forest burning contributes 20 percent of global greenhouse gas emissions. ACESA allocates five percent of funds to international offsets to reduce deforestation. Jose pointed out that the provisions regarding international offsets talk about tribes in a way we've seen tribes addressed for decades (similar to descriptions in the Convention on Biological Diversity and instruments protecting Intellectual Property Rights). The provisions state indigenous peoples should be consulted with; however, Jose questioned what *should* means on the ground. NCAI is working to make sure nations adhere to the international provisions of ACESA and consider indigenous rights by making the rights of indigenous peoples be a requirement for disbursing the funding available to nations for conservation. NCAI is recommending requiring other nations to comply with their own regulations – other nations that have signed the UN Declaration on the Rights of Indigenous Peoples.

Regarding carbon offsets in the international provisions, Jose said NCAI hasn't dealt with offsets at this time, but noted there are questions about how you define what a legitimate carbon offset is. Jose said there is need also for recognizing the value of indigenous land management practices, and for replacing the traditional conservation organizations and the way they contemplate biodiversity conservation – physically removing indigenous peoples from their lands. Jose said indigenous peoples are the best natural resource managers out there; we want to promote indigenous practices internationally and nationally in the carbon offset program.

Jose described that NCAI is not asking the U.S. to sign the UN Declaration on the Rights of Indigenous Peoples at this time because of logistics and the current lack of federal administrative staff to take on the issue. NCAI does have a resolution urging the U.S. to support the Declaration, but is waiting until the current administration has staff in place to address it. However, Jose said NCAI hopes the current recommendations regarding the ACESA international provisions will motivate the U.S. to sign the UN Declaration on the Rights of Indigenous Peoples.

### Senate Bill 1462 – American Clean Energy Leadership Act

Jose noted that Senator Bingaman introduced a bill that is equivalent to the energy portions of ACESA. Currently tribes are not included in the bill. NCAI is working to incorporate tribal interests and needs and ensure equitable inclusion for tribes.

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### ***Fred Clark, USDA Forest Service Office of Tribal Relations***

Fred described the role of the Forest Service Office of Tribal Relations, which is part of the executive branch and helps put together programs, projects, and policies to help facilitate give and take between tribes and federal agencies, and across the federal government. Echoing Jose, Fred stressed the voice of the tribes on the hill is essential to carry the discussion around climate policy further; tribes need to have their voices heard on the hill in person tribe by tribe, not just through tribal organizations.

### USDA Forest Service Strategic Framework on Climate Change

Fred described the Forest Service's motivation: caring for the land and serving the people. He described how the Forest Service's Strategic Framework on Climate Change embraces both people and the land – diverse populations of people and landscapes. The Framework's vision encompasses science, mitigation, adaptation, appropriate policy, understanding what ecosystem services are and how to increase them, education, and new and stronger alliances with tribes and states. Seven principles and seven goals focused on land and people guide the Framework. For the Forest Service, Fred described, the Framework sets the tone and provides structure and a road map for addressing climate change, and in the process, relying on science and other knowledge systems, building partnerships and sustainability.

### USDA Forest Service Tribal Relations Program, how it fits with the Forest Service's work on climate change

Fred described that the Forest Service's Tribal Relations Program has two components, the Washington office and field offices. The Washington office works on policy, modifying existing and developing new policy. The tribal relations offices, Fred described, are facilitators, bridges between tribes and the agency; not the ones actually doing consultation.

Regarding climate change, Fred stressed the importance of considering all lands and landscape-scale efforts, including the 18 million acres of tribal forests.

### ***Question & Answer following panelist presentations:***

#### **Is there language in the legislation regarding creating a National Climate Data Center on integrating multiple knowledge systems?**

- The Native American Rights Fund put together catch-all language about incorporating traditional knowledge, but it wasn't included in the House bill.
- Individual tribal leadership could influence this by providing examples of projects that integrate knowledge systems such as the Joint Fire Science Group integrating traditional knowledge with fire science in the west. Current efforts could provide examples that could be leveraged.
- One issue regarding language on incorporating traditional knowledge is the need to define what it means, which is difficult considering the potential for traditional knowledge to be used improperly, insensitively, or taken out of context.
- There is a need to do away with traditional conservation models and replace them with models in which indigenous peoples remain on their lands and return to their lands to practice traditional ways.
- There is a need for to shift the paradigm from giving money to developing nations and conservation organizations, to giving money to indigenous peoples.

**Can NCAI can help in addressing the troubles tribes are having in getting 8A status?** Tribes are having a hard time getting 8A status; the California office is sending forms back saying they're incomplete.

- Yes. Contact Jose Aguto, NCAI; phone: 202-466-7762 x. 230; email: [Jose.Aguto@NCAI.org](mailto:Jose.Aguto@NCAI.org)

### **How are youth getting involved in climate policy and sharing stories?**

- The key is having a dialogue with youth about valuing culture and storytelling – passing information about how ecosystems work.
- Tribes face challenges engaging youth. For the Spokane Tribe, youth have not accepted the scientific approach to management, but they've lost the traditional approach; the Tribe is dealing with a gap and how to fill that gap is a worry.
- The kids really need to be out on the landscape not learning the digital, data technology, but kids are interested in media and some are finding it is one way to engage youth and document culture through media – video recording and interviews with tribal leaders.
- Tribes in Australia are recording the knowledge and using it to talk with natural resource management agencies about using fire as a management tool; tribes had to find a way to deal with issues of keeping knowledge in communities. Currently, one tribal community is documenting the knowledge of its last alive elder, knowing that knowledge is only a skeleton of culture, of the knowledge that existed.
- Hands-on experience for kids is really where it's at. The Northwest Indian Fisheries Commission produced a film "Shadow of the Salmon" geared for middle school students, and to reach that level, told the story in a contemporary and traditional sense through the eyes of somebody their own age.
- Have children shadow you in the work you do; take the time to teach – as long as we live we're all a teacher as well as a student.
- We need to ask our youth: do you understand the importance of water, of the air you breathe?; do you know how to gather food for yourself? What happens when our electricity goes away? We need to focus on being self-sufficient because you never know when our lifestyles are going to change.

## **TRIBAL CLIMATE CHANGE POLICY TRAINING – DAY 2**

### **PRESENTATION 2: CLIMATE CHANGE POLICY: CONCEPTS AND MECHANISMS**

*Joshua Skov, Good Company*

#### **Framing Equity in Climate Policy Mechanisms**

As he introduced his presentation, Josh pointed out several equity considerations for climate policy concepts and mechanisms such as cap-and-trade systems and a carbon tax. Josh described for example that where a cap-and-trade system is administered and where the economic burden falls are very different questions. It is important, he said also, to consider what the *net* cost will be. Under cap-and-trade systems, Josh said, tribal populations could have higher costs at the consumer level, but higher economic opportunity also. Josh stressed that the global scientific and public policy imperative is to start lowering emissions now, and in so doing acknowledging intergenerational equity. At the level of total global emissions, Josh said, considering current vs. cumulative emissions and biological carbon sinks, and calculating baselines have huge equity implications. At the national level, there are equity implications in distributing economic burden to sectors, regions, and populations. Yet, he suggested a challenge regarding equity in climate policy mechanisms is the fact that economists typically consider first what is efficient and how to grow the pie; and second (if at all) equity, how the pie gets divvied up.

Josh said the advocacy considerations for tribes which came up during the Waxman-Markey bill (ACESA) discussion on day one apply also to the policy mechanisms his presentation covers.

#### **Climate Science**

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Josh described three summary points from the Intergovernmental Panel on Climate Change's Fourth Assessment Report to highlight current consensus on climate science:

- we have observed climate change
- human actions are contributing to rising temperatures
- future changes in climate are all but inevitable, perhaps catastrophic

Recommend resource on climate science:

*IPCC AR4, WG 2, Summary for Policymakers:* <http://www.ipcc.ch/ipccreports/ar4-wg2.htm>

With these points in mind, Josh said, risk management should be the focus for policymakers.

### **Terminology**

Josh clarified several terms his presentation includes:

Global warming vs. climate change: use interchangeably.

Carbon footprint, GHG inventory: lifecycle greenhouse gas emissions.

Climate risk, physical risk, regulatory risk: mostly apply in a corporate setting.

Cost of carbon: the financial risk associated with regulatory mechanisms.

Mitigation: reducing greenhouse gas (GHG) emissions.

Adaptation: responding or preparing for physical changes.

Climate action, climate action planning: mitigation and adaptation planning.

GHGs, global warming pollution, carbon pollution: CO<sub>2</sub> and all CO<sub>2</sub> equivalent emissions

Carbon offsets, carbon credits: tradable commodity representing a unit of CO<sub>2</sub> or CO<sub>2</sub> equivalent (typical unit is million tons CO<sub>2</sub> equivalent); has many possible characteristics – meets regulatory obligations, traded in markets, independently verified, etc. (characteristics are not mutually exclusive).

### **Cornerstone concepts**

1. Lifecycle Greenhouse Gases: are GHG emissions associated with the entire lifecycle of a product, service, fuel, infrastructure component, or other activity. In what we do and buy, lifecycle greenhouse gas emissions are owned (belong to us) or shared (belong to others). For the most part, we've never had to calculate these before and we often don't have good intuition. One of our challenges is to understand the lifecycle GHGs of our own activities.

GHGs in the U.S. have been attributed as follows: (percent)

- traditional - agriculture (8), commercial (6), residential (5), electric power industry (34), industry (19), transportation (28)
- alternative - provision of goods (34), local transportation (13), infrastructure (1), provision of food (12), other passenger transport (8), building energy use (32)
- the whole lifecycle is almost never transparent and slices are interrelated and influence each other
- in addition, consider the global nature of our economy, importing goods from other countries and the GHG emissions resulting in the lifecycles of those goods

Josh suggested the implication of understanding lifecycle greenhouse gases is transforming our lifestyles and economies in the U.S. and globally.

2. Cost of Carbon: is the cost or price of emitting a ton of CO<sub>2</sub> or CO<sub>2</sub> equivalent emissions as a result of regulatory mechanisms.

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- What is the cost today of emitting a ton of CO<sup>2</sup> emissions in the United States? Zero; but we suspect that is wrong, is a market failure; for the future, we're reasonably certain the cost will change from zero to something positive.
- Under cap and trade the cost of carbon represents the scarcity of the right to emit.
- It relates to a carbon footprint. If you can manage your carbon footprint, you can manage your cost of carbon risk. You can attain a sense of scale calculation.
- Different mechanisms, sellers and markets, result in different costs of carbon.
- Energy markets influence the cost of carbon.

Note: GHG-generating activities have additional impacts besides GHG emissions, including air pollution, ocean acidification, habitat degradation, and costs. It is important to consider additional impacts as many proposed climate solutions have unintended consequences. Examples include deforestation as a result of growing feedstock for biofuels and food vs. fuel.

### **Is there an aggregated GHG Inventory for Tribes in the U.S. and/or Canada?**

Currently, Josh said, he is unaware of an aggregated GHG inventory for tribes in the U.S.

### **Scales of Climate Policy**

Josh described how policy for setting emissions reduction targets, action plans, etc. exists at dramatically different scales – international, national, regional, multi-state, state-level, local and organization-level:

- International: Kyoto protocol and beyond (what happens in Copenhagen). Carbon trading is occurring internationally and a cost of carbon exists.
- National: Waxman-Markey and great uncertainty about its details.
- Regional: Regional Greenhouse Gas Initiative (RGGI), an actual functioning cap-and-trade system in 10 northeastern states for electric power entities; Western Climate Initiative (WCI), not yet implemented and federal policy could preempt; Midwestern Greenhouse Gas Accord (MGGA), still developing.
- Multi-state: The Climate Registry, mandatory reporting, protocols in development, cap-and-trade systems, voluntary carbon markets
- State-level: mandatory GHG emission reporting in 2010 in WA, OR, and most likely California (AB 32); they will be the first examples of mandatory reporting.
- Local: U.S. Mayors Climate Protection Agreement (900+ cities); also municipal climate action plans (Chicago, Portland, etc.).
- Organizations, businesses: GHG inventories; also the Chicago Climate Exchange (CCX) a voluntary carbon market for corporations

### **Cap-and-trade Basics**

For additional, resources on cap-and-trade basics Josh recommends:

- Sightline Institute's primer on cap-and-trade systems (see Good Company bibliography)
- Ralph Nader op-ed last winter is shortest, pithiest case for carbon tax or cap and trade (see Good Company bibliography)

Josh described that cap and trade is a tool that covers a wide range of possibilities and has a number of key parameters; which means it can manifest in many ways.

### How Cap and Trade Works

1. Set a cap

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- a. Need to determine geographic, timeframe, and source boundaries and total allowable emissions; over time the right to emit could become scarcer and more valuable as allowable emissions goes down
  - b. Source considerations should include imports of electricity and international/interregional trade
  - c. Setting the cap too high could result in no or little emissions reductions and no cost of carbon; setting the cap too low could result in extremely high cost of carbon and burden the economy
2. Distribute the cap, the allowances that add up to the cap (right to emit)
    - a. Credits could be auctioned, given away to historic emitters (cap and giveaway), or some combinationDistributing the auction proceeds
    - b. Proceeds could be returned to individuals/households on a per capita basis (cap and dividend); some of the proceeds could be returned to the most vulnerable households (cap and buffer); proceeds could be put toward adaptation activities
  3. Allow trading
    - a. Regulated entities can get allowances to match their emissions; entities that can reduce emissions can sell the difference = economic incentive of cap-and-trade
    - b. Treatment of offsets requires consideration
  4. Retire allowances

### Issues, Concerns, and Strengths of Cap and Trade

- Treatment of offsets
- Social equity adjustments of initial allocations in cap distribution and use of proceeds
- Fairness of the system is separate from efficiency of the system – have to ask questions about efficiency and equity in light of the long-term consequences
- Cap-and-trade is complicated and policy parameters are subject to lobbying
- Cap-and-trade vs. carbon tax – uncertain price, certain emissions reductions vs. certain price, uncertain emissions reductions

Important question to ask through considerations: *Does policy result in net reduction in CO<sub>2</sub> from the atmosphere?*

### Cap-and-trade Precedent

Josh described how the EPA's sulfur dioxide trading program has become an icon for its success in addressing sulfur dioxide emissions; and how the Kyoto trading systems are working well within the EU after and rocky start and are still rocky outside of EU. Josh said the possibility exists to have a successful policy (capping and trading), but a climate failure (no or too little net reduction in CO<sub>2</sub> from atmosphere).

### Cap and Dividend

Cap and dividend, Josh described, considers auctioning all allowances and not giving away any allowances to emitters, and distributing the auction proceeds on a per capita basis; opportunity exists for a net positive impact on the poorest households depending on who auction proceeds affect and to what degree.

### **Waxman-Markey Bill**

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Under Waxman-Markey, Josh described that the allocation of allowances within cap and trade is basically an 85-percent give away (see pie chart in slides for breakdown). He said it is important to ensure that tribes plug into complementary measures.

### **Carbon tax**

Carbon tax, Josh described, is another tool available to reduce greenhouse gas emissions; with alleged advantages such as it is simpler to design and administer and supposedly less provides uncertainty for businesses; however, similar to cap and trade a carbon tax could be influenced by lobbying and difficult to adjust as necessary with climate changes. Yet, Josh suggested it does hold potential as a short-term bridge to cap-and-trade.

### **Implicit Climate Policy in Many Policies**

Josh provided examples of policies that work across purposes, including climate change:

- In ACESA – complementary measures
- Renewable Portfolio Standards/Renewable Electricity Standards – happening in many states in the U.S., has very clear climate implications
- Net metering – the ability to generate renewable energy and sell it back to the grid, reduces institutional barriers to producing renewable energy and selling it back to the grid
- Forestry and agriculture – wildfire management, biological sequestration, subsidies for land sequestration
- Transportation energy/fuel – electric vehicle technology support, corn and ethanol subsidies, accelerated depreciation for oil/gas exploration, bike/pedestrian policy
- Link between transportation and land use – Smart growth, Transit-oriented development

### **Carbon Footprints / Conducting a GHG inventory**

Regarding conducting a greenhouse gas inventory, Josh suggested reviewing Good Company's bibliography on tools for calculating carbon footprints. Josh described considerations for conducting a GHG inventory, including: setting boundaries, considering owned vs. shared emissions and controlled vs. influenced emissions, available data, and responsibility and mission-related activities; and how to report on climate performance, level of transparency.

### **Cost or Opportunity for Rural America?**

In rural America, Josh suggested, the current reality is more carbon-intensive lifestyles and industries; and, huge climate action and economic opportunities through forestry, agriculture and renewable energy. Josh described that the key parameters to consider are: allowable offsets from biological sequestration in coming legislation, extent and type; forces to help make it happen, technology, technical assistance and financing; and the additional benefits of land management. Management of biological carbon stocks will become a bigger deal over time as the fossil carbon stock declines and is deemphasized; with this in mind, land managers should consider how to focus activities – biological carbon cycle vs. fossil carbon cycle.

### **Carbon Markets**

Josh recommended a resource listed in Good Company's bibliography for more information on carbon markets, "State of Voluntary Carbon Markets" (#175 under 'Offsets and Offset Quality'). Josh described the differences in engagement in carbon markets between North America and non-North America. In non-North America, he said, countries engage in carbon markets through the Kyoto Protocol and the Clean Development Mechanism (CDM), which links developed and developing countries.

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Important terms in carbon markets include: Verified Emissions Reduction (VER), Certified Emissions Reduction (CER) under the Clean Development Mechanism, Carbon Financial Instrument (CFI) in the Chicago Climate Exchange, and Carbon Reserved Ton (CRT) under Climate Action Reserve.

### Key Criteria for Carbon Credits

Josh described key criteria considered for carbon credits:

Real – emissions have already been reduced, carbon is already sequestered.

Additional – project based GHG reductions must be beyond what would happen anyway, in a business-as-usual scenario.

Permanent – GHG reductions must be permanent and backed by guarantees; guaranteeing permanence will be a challenge in biological sequestration.

Verifiable – performance can be readily and accurately quantified, monitored and verified; will be a challenge in agriculture and forestry, considering scale (small vs. large projects, aggregated activities) and the uncertainty of climate change.

Market shifting – impose an activity in one place and squeeze out an activity in another place; falls under additionality to some degree.

### Additionality

The CDM tests, Josh described, offer some questions to consider regarding additionality:

- Would the project result in net reduction in GHG emissions in the atmosphere?
- Does the project make financial sense; will it pay for itself?
- Does the project face barriers that prevent implementation or not?
- Does the project go beyond common business practice?
- Does the project go beyond the legal requirement?

The definition of additionality, Josh described, could influence the opportunities available to tribes through carbon markets and carbon credits. It is important to consider whether regulations or incentives are the way to go, considering implications to people and landscapes.

### **Ending on an optimistic note**

Josh concluded his presentation with three points of optimism: we've made and remade our energy economy multiple times throughout history and can do it again; since 1970 we've become twice as energy efficient just because of technology change and economic progress; and in the first wave of GHG reductions, tremendous cost saving potential exists.

### **PRESENTATION 3: CULTURAL RESOURCES AND ECOSYSTEM-BASED APPROACHES TO ADAPTATION**

The afternoon presentation featuring Terry Williams and Preston Hardison of the Tulalip Tribes focused on climate change adaptation, policies, and considerations for tribal cultures, and natural and cultural resources.

#### ***Terry Williams, Tulalip Tribes***

Terry Williams described how the U.S. lacks a vision to keep us all healthy and on course to a common, viable future. As climate changes, Terry said, the people of this country will start to acknowledge the value of natural resources in this country, abruptly. The more we understand what we're being taught about climate change, the better off we're going to be; information about climate is out there and has been for a long time, but it's not something people think about when planning for the future. Terry suggested, when you're put in a position of responsibility, of governance, you have to start sorting out

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what it takes to be responsible. Terry described how the Tulalip Tribes just opened a new office of natural resources and protection of treaty rights, which focuses on elements that bar the Tribes' ability to function as a government.

Terry suggested the need to understand the issues and concepts around climate change, and land use and population projections. In the state of Washington, Terry noted, population is projected to double in the next 20 years, and for the Tribes, that's scary. We're trying to talk to people about what it takes to have healthy communities, talking with the youth about what's right and wrong. Terry described that to find stability amidst chaos is a huge task, especially for children. Storytelling is important in teaching the youth because when they aren't sure they look back on what they were taught as a kid.

In discussions now among stakeholders, Terry said, we're considering how we want our forests to look for our children. Terry described that in the Snohomish basin agriculture next to the Tulalip Tribes' reservation is a huge issue – the fecal coliform counts in the rivers used to be among the highest in the world. However, the Tribes have worked with the farmers to change direction, working cooperatively to build a digester to handle the waste, get the fecal coliforms out of the river and protect the fish.

Terry described tremendous changes already observed in the landscape and hydrology. We're now having spring flooding two months early. As we think about what's important to us, our children don't understand what the stability of the river and forest are; it's changed so rapidly that we don't understand what we've lost and what we're heading into. But the vision we're telling people, Terry said, isn't clear enough for people to understand what it means. Where will people from the Southwest go when the water runs out? What will happen when the real impacts kick in? What will happen to us as salmon people when the salmon don't exist? How do we plan for that, what are the types of things we need to think about? Casinos are bringing an economy to people who haven't had access to one, but are not bringing the same benefit to culture. Will tribes have to consider shifting the genetics of a plant or animal to have it exist in a warmer world? If people aren't practicing what we learned as children as adults, we can lose it within a generation. Treaties acknowledge tribes' right to culture, but the U.S. has not followed through with that. It's now up to tribes to make sure we do. As people, we need to focus on what it is that we need for the future to be healthy. One of the opportunities we have today is the history and knowledge of the tribes; the challenge is capturing it as we move forward and address climate change.

### ***Preston Hardison, Tulalip Tribes***

Preston described how we live in a world that's been globalized and the scale on which we use energy and resources is massive; it has created an ecological debt. He pointed out that now we're talking about slowing down energy and resource use, but the damage we've done, the greenhouse gases already in the atmosphere, will affect us for hundreds of years. Greenhouse gas reduction now will influence future greenhouse gas release and not the greenhouse gases currently in the atmosphere.

Indigenous peoples and rural communities around the world, Preston said, have contributed the least to climate change. He suggested in addition to considering the lifecycle of carbon in products, we need to consider embodied costs in products and actions, including human rights, water, livelihoods and ecosystem impacts. No matter what we do, Preston said, we know we're going to have to adapt and rely on ecosystems to do so. Preston suggested the need to take ecological thresholds seriously. Whatever adaptation actions we take today, the actual benefits may not show for 20-30 years.

He described how indigenous peoples in the U.S. are confined to reservations where rights are place-based on tribal land bases and usual and accustomed areas. However, climate change is disrupting

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species ranges and populations. For tribes to access natural and cultural resources in the face of changing climate, Preston suggested that tribes would have to try to keep species and lands in their place.

### **Three main legal approaches for Tribes**

Preston described three legal approaches tribes could consider to motivate action to address climate change:

- Federal Common Law of Public Nuisance
  - Deals with neighbors
  - Problem with climate change is that it's coming from everywhere and you can't really be sure where so it's difficult to identify who's at fault and there's no international liability law
- Atmospheric Trust/Public Trust (Mary Wood)
  - Public trust is about a limitation on the government's behavior and its obligation to protect the environment for current and future generations. The Atmospheric Trust Framework applies the concept of the public trust to climate change
- Tribal Trust
  - Example: Boldt Decisions – U.S. v. Washington
  - The concept of habitat servitude (Mary Wood); you as a citizen have the obligation to maintain habitat as part of the federal obligation to maintain and protect resources of interest to tribes and uphold treaty rights.

### **Tribal Adaptation Planning**

Preston presented climate change adaptation (adjusting to unavoidable impacts) considerations for tribes. He described different approaches to adaptation, noting that you can be proactive or ad-hoc, reactive and unplanned; and the more you delay the harder it's going to be to get where you want to go; you have to expect surprise, uncertainty, and complexity. He described various adaptive actions, noting you can abandon (behavior, culture, place, practices, technology), change (behavior, culture, place, practices, technology, timing), or defend – put barriers in place (soft, hard, constructed, natural), or endure, escape, modify, resist or retreat. Preston suggested you could think about vectors (increase/decrease, promote/discourage) and sectors (agriculture, education, fishing, gathering, government, etc.). You can think about adaptation in terms of impacts (to cultural resources, ecohydrology, phenology, species, invasive species, extremes/variability, floods, food, health, water, non-climate impacts). And, you need to think in terms of scale – local, landscape, global. You can consider monitoring changes.

In terms of tribal strategies, Preston said, it's important to consider reducing barriers and enhancing buffers (for example, addressing non-climate impacts to salmon). It's important also to involve tribal governments, tribal agencies, and external agencies – federal, state, other tribes. The bottom line, Preston said, is keeping the land cool and retaining water on the landscape.

### **Tribal Climate Adaptation and Forestry**

Regarding forest management and climate adaptation, Preston suggested considering how to sequester carbon and biodiversity. He suggested considering multiple values, and bundling different types of credits because it could allow moving out to a landscape-level of adaptation. What climate change is telling us is that the existing jurisdictional and management boxes on the landscape are not going to stand. Preston said, we think traditional knowledge is essential for identifying the problems and the solutions; indigenous peoples want to work to solve this problem together, but a lot of traditional knowledge is secret and sacred. As tribes start working with federal agencies and others, agreements and

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protections are needed regarding traditional knowledge. We all need to consider the small decisions we make and the necessity of the large. Interchanges among tribes and network building are also important so that tribes can share experiences and species.