

# Natural and Working Lands INR Report Discussion

Sub Committee Presentation to the OGWC, Nov 17<sup>th</sup>, 2023

# Overview

- **Review of the Commission's work on Natural and Working Lands (N&WL)**
- **Overview of HB 3409 (S 53 – 67)**
- **Review INR's N&WL Report and Commission Subcommittee Recommendations**
- **Discuss HB 3409 Directed Advisory Committee Process & Next Steps**

# Natural and Working Lands Proposal

- Year plus long process
- Over 1000 Oregonians provided comments
  - Landowner Oriented Survey
  - Landowner Oriented Focus Groups
  - Public Survey
  - Public Comments to the Commission at 11 Meetings
- Adopted August 4<sup>th</sup>, 2021



Natural & Working Lands Proposal  
2021

# Session 2023 - HB 3409 Sections 53-67

- **Declares state policy to implement and incentivize strategies to advance natural climate solutions and improve understanding of natural climate solutions**
- **Calls for Tribal consultation, state agency coordination and opportunities for public comment**
- **Allows the Commission to establish a Natural and Working Lands Advisory Committee ( $\geq 15$  members)**
- **Requires development of carbon sequestration and storage data, metrics, and goals**
  - Establish a net carbon sequestration and storage inventory and baseline by Jan. 1, 2025
  - Develop activity-based metrics and a baseline and community impact metrics
  - Update the goal and provide a biennial report on progress toward the goals by Dec. 1 of even years

# HB 3409 Sections 53-67

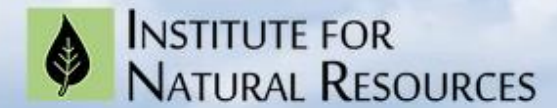
- **Workforce study and report**
- **Establishes Natural and Working Lands Fund**
  - OGWC to consult with agencies and provide opportunities for public comment
  - OGWC to determine allocation of funds
  - Separate Fund accounts are established by OWEB, ODA, ODF, and ODFW
  - OWEB distributes Fund allocations to ODA, ODF, and ODFW
  - Conduct rulemaking as needed
  - Produce an annual report summarizing Fund use and identifying additional funding needs by Sept. 15 each year
  - Produce a Biennial Report on Fund projects and funding sources by Dec. 1 of even years

# Tribal Consultation

- Meet with Tribal Natural Resource Leaders through their regular Tribal/State meetings
- Conduct outreach to all Tribal Chairs
- Require agencies implementing the Fund to include consultation in finalizing the use of the fund
- Update our Tribal Consultation process based on the recommendations from the Task Force on Tribal Consultation

The Oregon Global Warming Commission adopted a Natural and Working Lands Proposal that sets goals for carbon capture and storage on Oregon's natural and working lands. The Institute for Natural Resources at Oregon State University received funding from the US Climate Alliance and Natural Resources Conservation Service to:

1. Establish and facilitate a Natural and Working Lands Advisory Committee;
2. Develop a methodology to inventory net carbon capture in Oregon's natural and working lands;
3. Develop climate-smart management practices and establish an activity-based baseline;
4. Define the scope of work for a Workforce and Training needs analysis;
5. Identify community impact metrics; and
6. Produce a final report.



# Oregon's Natural & Working Lands

Oregon's natural and working lands - forests, grasslands, rangelands, farmlands, wetlands, and urban parks and open spaces - produce many benefits, including opportunities to capture and store carbon to reduce Oregon's overall/net contributions to greenhouse gas emissions. Oregon has goals to increase the amount of carbon natural and working lands capture and store by 2030 and 2050. If the state is successful in achieving these as well as sector-based carbon storage goals, Oregon could be net neutral and mitigating the effects of climate change by 2040.



A Project of  
[Oregon's Global Warming Commission](#)

<https://www.ogwcnaturalandworkinglands.org/>



# Advisory Committee

## NWL Advisory Committee Meetings

This web page contains the meeting recordings and information associated with the OGWC Natural and Working Lands Advisory Committee meetings. This page is updated monthly to illustrate the progress being made by stakeholders in advancing Oregon's natural and working lands proposal.

4 May 2023  
1:00pm-2:30pm

[Attendees](#)  
[Chat Box Discussion](#)  
[Agenda](#)



6 April 2023  
1:00pm-2:30pm

[Attendees](#)  
[Chat Box Discussion](#)  
[Powerpoint](#)  
[Agenda](#)



2 March 2023  
1:00pm-2:30pm

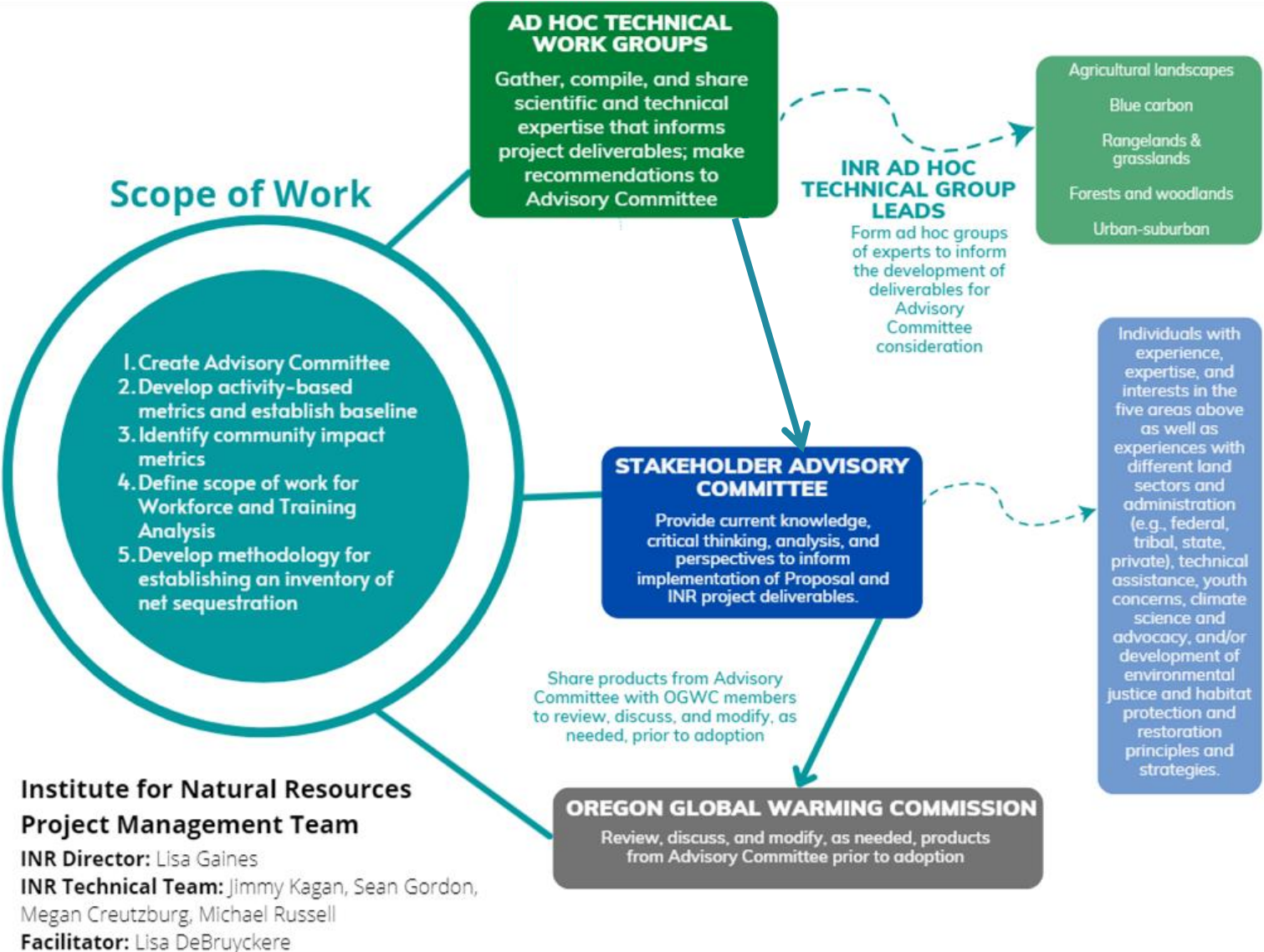
[Attendees](#)  
[Chat Box Discussion](#)



First Name	Last Name	Affiliation	Title
Lauren	Anderson	Oregon Wild	Climate Forest Program Manager
Jocelyn	Bridson	Tillamook County Creamery Association	Director of Environment & Community Impact
Mimi	Casteel	Hope Well Wine and Vineyard	Owner, Winegrower and Agricultural Consultant
Gary	Clarida	Retired	Forestry technician, sawyer, and equipment maintenance supervisor
Craig	Cornu	PNW Blue Carbon Working Group	Coordinator
Tyler	Ernst	Oregon Forest Industries Council	Policy Counsel, Manufacturing and Resources
Brian	Glaser	Ernest Glaser Farms	Farm Owner and Operator
Greg	Green	Ducks Unlimited	Director of Conservation Programs - PacNW
Ben	Hayes	Springboard Forestry, LLC/Hyla Woods	Manager/Principle
John	Hillcock	Wallowa County	Commissioner
Greg	Holmes	1000 Friends of Oregon	Working Lands Program Director/Southern Oregon Advocate
Megan	Kemple	Oregon Climate and Agricultural Network	Co-Director, Director of Policy Advocacy
Dylan	Kruse	Sustainable Northwest	Vice President
Debora	Landforce	2 Fox Farm	Partner
Jan	Lee	Oregon Association of Conservation Districts	Executive Director
Karen	Lewotsky	Oregon Environmental Council	Rural Partnerships Lead; Water Program Director
Nicole	Maness	Willamette Partnership	Partner, Resilient Habitat and Working Lands
Mike	McCarthy	McCarthy Family Farm, Owner; Parkdale Valley Land Trust, President; Oregon Farm Bureau State Board	
Dan	Probert	Country Natural Beef	Director
Josh	Robinson	Robinson Nursery	Co-Owner
Elizabeth	Ruther	The Pew Charitable Trusts	Science and Policy Analyst
Amanda	Sullivan-Astor	Associated Oregon Loggers	Forest Policy Manager
Laura	Tabor	The Nature Conservancy	Climate Action Director
Joseph	Vaile	Klamath-Siskiyou Wildlands Center	Climate Program Director
Katie	Voelke	North Coast Land Conservancy	Executive Director
Teryn	Yazdani	Beyond Toxics	Staff Attorney, Climate Policy Manager

# The Process

- 11 Advisory Committee Meetings
- Technical Ad Hoc Committees
- External Review



# N&WL Sub-Committee

## Commissioner Sub-Committee Members:

- Nora Apter
- David Ford
- Catherine Macdonald
- Tom Rietmann

# Natural and Working Lands Inventory

See page 34 - 43, INR Report

**Objective:** Create proposals for a greenhouse gas inventory consistent with IPCC framework inventory methodologies.

## BASIC

Uses more advanced methods than EPA's State Inventory Tool to apply a stock change approach and some higher resolution regionally-specific emission factors.

## ADVANCED

Uses more detailed state-specific data and models and advanced methods driven by high-resolution data and finer grid scales to provide greater certainty and have closer link to ecosystem dynamics.



What are the recommended methods to determine:

1. The current carbon stocks and net sequestration in Oregon's NWL?
2. How carbon stocks, emissions, and sequestration in Oregon's NWL change through time?
3. The causes of these changes?
4. How we track these differences?

# Key Issues and Committee Recommendations

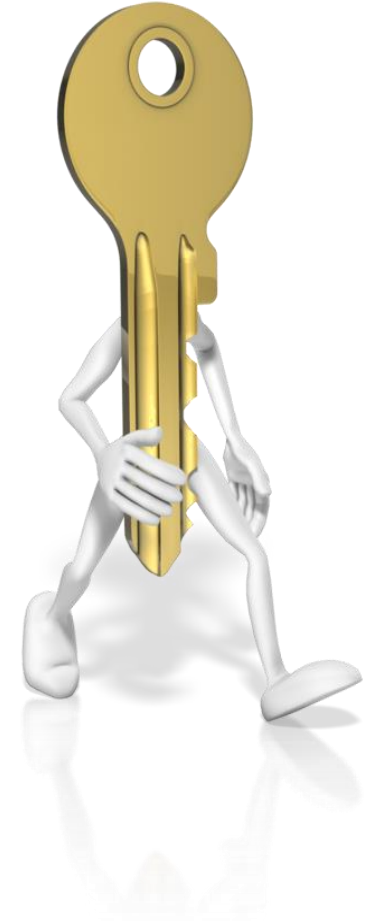
## Inventory Methodology - Key Issues

Basic versus Advanced

Potential adjustments to proposed methods

## Sub-Committee Recommendations:

- Consult NR Agencies
- Adopt a version of the Advanced methods based on agency recommendations, costs, and pending federal data improvements
- Issue an RFP to select a contractor



# Community Impact Metrics Framework

See pages 28-31, Framework page 30, INR Report

## Examples of Place-based Community Impact Socioeconomic Metrics

### The Framework

Impact metrics measure the benefits and burdens on communities associated with strategies for carbon sequestration in natural and working lands and waters (Senate Bill 1534). Impact measurement is a process of collecting and analyzing data to assess the effect of a program, intervention, or policy on a particular population.[1] Community impact metrics measure the benefits and burdens associated with different strategies, practices, and programs that may inform and evaluate the co-benefits and impacts of GHG emissions reductions and increased carbon storage strategies on natural and working lands.[2] Science-based targets should incorporate consistent and continual reporting processes, transparency in data sources and calculation methodologies, and interoperability with evolving standards and regulations.[3]

Criteria to consider when developing social and cultural metrics[4]:

- Incorporate impacts based on discussions with stakeholders and the recognition of both individual and community-level effects.
- Incorporate proxy and constructed metrics to help overcome measurement difficulties and provide information about context-specific impacts
- Seek to meaningfully engage the diverse potentially affected interests
- Develop measures that are readily understood, concise, and operational to facilitate implementation in decisions.
- Adopt a values-focused approach that allows for personal experience and facilitates analysis of alternatives.
- Document value trade-offs and key risk tolerances.
- Adopt best practices regarding risk and impact communication to highlight impact assessments.
- Incorporate stakeholder perceptions into assessments and inventories.

[1] <https://www.sopact.com/>

[2] [https://www.oregon.gov/lcd/Commission/Documents/2021-11\\_Item-10\\_OGWC\\_Attachment-A\\_Natural-and-Working-Lands-Carbon-Sequestration-and-Storage-Proposal-OGWC.pdf](https://www.oregon.gov/lcd/Commission/Documents/2021-11_Item-10_OGWC_Attachment-A_Natural-and-Working-Lands-Carbon-Sequestration-and-Storage-Proposal-OGWC.pdf)

[3] [https://deline.com/wp-content/uploads/2022/10/Timeline\\_Truth-in-Climate-Impact-FINAL-Oct-2022.pdf](https://deline.com/wp-content/uploads/2022/10/Timeline_Truth-in-Climate-Impact-FINAL-Oct-2022.pdf)

[4] Bessette and Gregory (2020)



### Economic Stability

**Employment**

- Reductions in land sector unemployment/ increased employment
- Equitable access to green job opportunities
- Improved access to land-sector based education and training
- Investments in workforce development and local skilled jobs
- Short- and long-term sufficiency wage land sector jobs created and representative of the diversity of local communities
- Capacity of land sector workforce and number of workers
- Contribution of natural and working lands to the state's economy and employment
- # of individuals receiving land sector-based job training

**Income**

- Increases in medium household income
- Increased local income in communities within and adjacent to natural and working lands

**Business Growth**

- % change in business establishments
- \$ invested in projects that enhance carbon storage and reduce GHG emissions
- Tax incentives available to landowners to support GHG emission reductions and support carbon storage
- Increase in tourism levels

**Poverty and low-income**

- % of children under 18 years of age in poverty
- No increase in low-income households in communities\

**Energy**

- Lower consumer energy bills



### Neighborhood/Physical Environment

**Housing**

- Increases in home ownership across racial and ethnic groups
- Population spending more than 30% of income on housing
- # subsidized housing units per 1,000
- % vacant housing units
- Worker access to housing in the community in which they work
- # of new green roofs

**Transportation**

- Access to all ages and abilities bicycle network
- % of community members with access to high-frequency public transportation choices within 1/2 mile

**Parks**

- Equitable distribution and access to parks and open spaces (including walkability)
- Green corridors and connections as well as buffers that provide access to nature and protection and relief from climate hazards
- Proximity to green spaces and green infrastructure within developed lands
- # of citizens benefitting from and using green corridors
- Increase in scenic values

**Food**

**Food security**

- % of population that is food insecure
- # of people whose calorie intake falls below FAO-defined specified values

**Food quality**

- Equitable access to healthy options (fresh food)



### Education

**Literacy**

- % of 3rd graders reading at grade level

**Training**

- Access to technological and other training for farmers
- Access to vocational training

**High School Education**

- % CCSD high schools

**Higher Education**

- Population aged 25 and older with a bachelor's degree or higher



### Sustainability

**Water**

- # gallons per capita per day
- Enhanced water quality
- Volume of water reused
- # of violations of Safe Water Drinking Act
- Flood risk reduction

**Recycling**

- % of municipal waste recycled
- Reduction in total waste disposed

**Air quality**

- % of good air quality days annually
- Fewer days of unhealthy air quality
- Air pollution that does not exceed NAAQS and standards
- Reduced haze and improved visibility

**Incentives**

- Annual investment in weatherization, electric heat pump, and community solar incentive/subsidy programs
- Support for farmers to implement climate-resilient agricultural practices
- Amount of consumer incentives that reward people for taking steps to reduce their use of fossil fuels

**Fossil Fuel Alternatives**

- % of land sector-based businesses that supply all or a portion of their electrical needs with solar, or alternative climate-friendly energy sources
- # of electric vehicle charging stations

**Temperature**

- Relative decrease in local temperatures during summer period



### Management, ownership, and capacity

**Public engagement**

- Capacity and access for broad participation in land sector-based scoping, planning, design, and implementation
- Inclusion of small farmers in program development and design
- Development of shared decision-making frameworks with tribal partners
- Incorporation of traditional ecological knowledge and tribal expertise into management
- Strengthened partnerships with small farms, woodlands, and landowners
- % of private property owners and developers that implement climate change preparation measures (e.g., reducing impervious areas)

**Land ownership**

- Diverse land ownership and management
- Support for diverse organizations and individuals to own, manage, and steward land



# Advisory Committee Recommended Metrics

See page 31, INR Report

- % change in soil organic matter.
- Increased soil carbon content.
- Increased water holding capacity of soil.
- Cost to treat drinking water sources that originate in or near watersheds with applied natural climate solutions.
  - Number of TMDLs of different point source and non-point source pollutants.
  - Water temperature.
- % community emissions offset by natural and working lands in and surrounding the community.
  - Metric tons of CO2 equivalent sequestered by natural and working lands.
  - % increase of annual tree rings (measurement of growth rate following release treatment).
- # acres treated for climate and fire resiliency surrounding a community.
  - % of those fuels created into green fuels and energy for the community.
    - Bio energy
    - Renewable Fuels
    - Renewable NG
    - Renewable Hydrogen
  - % of energy displaced by cleaner options due to those natural and working lands strategies and practices.
  - Quantity of pollution reduced due to these cleaner energy and fuel options.

## Land use

- Total acres of cropland, rangeland, grassland, and forestland converted to industrial or residential uses in Oregon.
- Total acres of land protected in perpetuity under conservation or agricultural easement.

## Land Management

- Pre-program and post-program acreage devoted to certain specified practices and an analysis of the relative GHG emissions and carbon sequestration.
- # of projects participating in climate-resilient practices.
- # of different entities/organizations participating in climate-resilient management practices.
- # of natural and working landowners/managers using climate-resilient management practices.
- # of projects that incorporate indigenous and local practices and knowledge.
- # acres restored lands.
- % of land sector-based businesses that supply all or a portion of their electrical needs with solar, or alternative climate-friendly energy sources.

## Socioeconomic Indicators

- Contribution of natural and working lands to local economies.
- # jobs created or maintained through the implementation of natural and working lands strategies that provide an “above the median wage” in Oregon (average wage in 2021 for all Oregon employment was \$64K).
- Total direct monetary contribution of natural and working lands to the state’s economy (combined and inclusive of all relevant sectors such as tourism, recreation, timber and food production, processing, distribution etc.).
- Total indirect economic value of natural and working lands ecosystem services (water quality protection, watershed functioning, pollinator services, biodiversity protected, landscape resiliency from wildfire, etc.).
- Total Oregon students graduating with certificates or degrees in sustainability, habitat restoration, agronomy, forestry, or other related fields with skills that meet the needs for natural and working lands strategies. These could occur at post-secondary educational trade schools, colleges, universities, or job training programs.
- # of high school students enrolled in natural resource career and technical education programs or who participate with a career technical student organization that provides the student with the knowledge necessary to achieve the state’s natural and working lands goals.

## Ecological Indicators



- Excess deaths
- Food security.
- Water security.
- # of emergency department visits / hospitalizations associated with heat, wildfires, wildfire smoke, etc.
- Access to nature or green spaces.
- Air quality.
- Water quality.
- # of nature-based solution projects that reduce health risks.

## Community Support and Connection Indicators



- % of population aware and supportive of agriculture and farms and the role they play in providing food and ecological services.
- # acres used for school, community gardens and/or urban farms.
- # agricultural acres with on-farm technical assistance, demonstration projects, and incentives.
- Acres of community co-managed or owned properties managed for climate benefits.

## Access to Program Indicators



- Accessibility of state programs incentivizing natural climate solutions to land managers on small and medium scales.
- Accessibility of state programs incentivizing natural climate solutions to BIPOC land managers.

## Social Justice/Equity Indicators



- Equitable access to public parks and open spaces.
- Funding: Total value of funding, financial incentives, technical assistance, and other supportive resources directed to communities most vulnerable to climate change and/or communities that experience economic, racial or geographic disparities.
- Timing: Number of projects implemented in communities most vulnerable to climate change and/or communities that experience economic, racial or geographic disparities.
- # of nature-based solutions implemented in climate vulnerable communities.
- # of nature-based solutions implemented in communities dependent on natural resources, with a positive impact.
- # of nature-based solutions implemented in communities with lower than the media population in Oregon (rural communities)
- % of socially disadvantaged farmers and ranchers with on-farm technical assistance, demonstration projects, and incentives.
- Farmworker quality of life (including wages, health, and wellbeing).
- # of socially disadvantaged natural resource sector landowners/managers provided with opportunities to access capital for equipment or employees to implement nature-based solutions.
- # of natural resource sector workers able to purchase a single-family home.
- # of families in natural resource-dependent communities that spend less than 30% of their income on housing.
- Financial viability for farms that helps offset climate mitigation to production (e.g., actual costs of management, farm and worker labor, and equipment) focused on a net financial benefit to farms.
- # of unhealthy air quality days associated with Oregon wildfires.

# Key Issues and Committee Recommendations

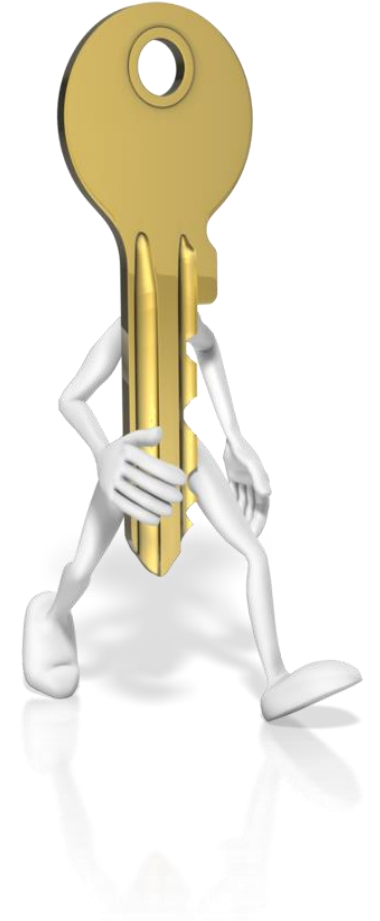
## Community Impact Metrics – Key Issues

Types of Community Impact Metrics to include (e.g., ecological, public health, community support and connection, access to programs, social justice and equity, and socioeconomic indicators.)

Cost and manageability of data collection

## Sub-Committee Recommendation:

- Focus on Access to Programs, Social Justice and Equity, and Socioeconomic indicators
- Use best available data collection methodologies for a manageable list of Community Impact Metrics
- Begin using them to track the Natural and Working Lands Fund investments and encourage application to other programs





# Natural and Working Lands Workforce Development and Training Needs Assessment

- Request for Information
- Replies to the ODOE released Request for Information

State of Oregon



**COVER PAGE**

DEPARTMENT OF ENERGY

**REQUEST FOR INFORMATION (RFI)**

**Seeking Information About:**

**Workforce Development and Training Needs Assessment and  
Gap Analysis of Natural and Working Lands Sectors in Oregon**

**RFI #23-XXX**

**Date of Issue:**

**Responses Due Date:**

Single Point of Contact (SPC):

Address:	550 Capitol St. NE
City, State, Zip	Salem, OR 97301
Phone (voice)	503-508-8190
E-mail:	<a href="mailto:Odoe.contracts@energy.oregon.gov">Odoe.contracts@energy.oregon.gov</a>

# Key Issues and Committee Recommendations

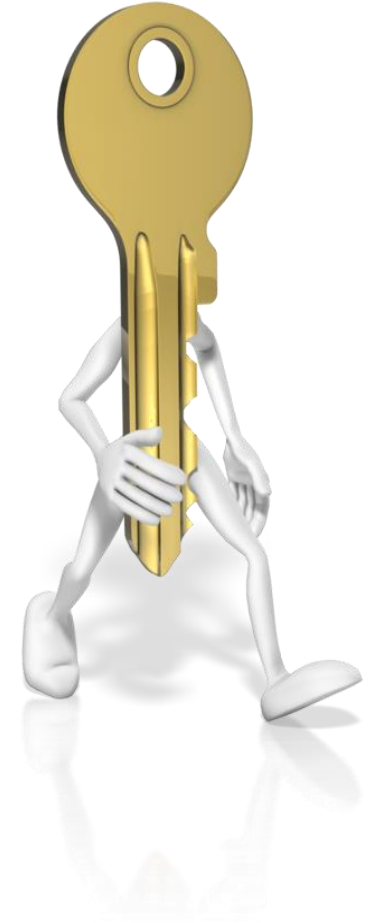
## **Workforce Development and Training Needs Assessment and Gap Analysis of Natural and Working Land Sectors in Oregon**

**Sub-Committee Recommendation:** Review and refine the RFI based on:

Responses to the RFI

Revisions based on recommended activities

Issue an RFP to select a contractor



# Activities and Activity-Based Metrics

See pages 8-27 & Appendices E1 – E4, INR Report

- Technical Team identified activities and metrics
  - Practices that are highly certain with established evidence
  - Practices that are less certain or the evidence is still emerging
  - Practices that are currently not recommended
- Advisory Committee identified activities
- Input from external reviewers



# Recommended Activities

See List of Recommended and Emerging Practices on pages 19-20



## Blue Carbon

- Tidal wetland conservation
- Tidal wetland restoration
- Seagrass conservation



## Rangelands

- Prevent conversion to invasive annual plant dominated systems
- Restore deep rooted perennial grasses to areas impacted by invasive species
- Restore functioning riparian areas
- Prevent conversion of grasslands, shrublands, and savannas to juniper woodlands
- Prevent conversion to urban and/or row crop land use



## Forest Lands

- Prevent conversion of forest to non-forest land uses
- Afforestation/Reforestation
- Improved Forest Management
- Increase the proportion of carbon stored within long-lived harvested wood products
- Reduce wildfire risks

# Recommended Activities

See list of Recommended and Emerging Practices on pages 19-20



**Agricultural Lands**

- Anaerobic digestion of manure and beneficial use of methane or flaring and appropriate land application of digestate
- Improve irrigation strategies and efficiencies
- Improve nitrogen management
- Reduce enteric emissions from ruminant production systems via approved enzyme feed additives
- Reduce food loss and waste
- Protect agricultural lands from urban or industrialized conversion\*
- Increase woody plant coverage\*
- Encourage no-till and residue till management\*
- Implement edge-of-field herbaceous (non-woody) conservation practices\*
- Utilize cover crops and crop rotations\*
- Improve nutrient management and reduce nitrogen application\*
- Prescribed grazing\*
- Pasture-based management\*
- Alternative manure management



**Urban & Suburban  
Lands**

- Maintain and expand forest vegetation cover
- Improve fertilizer use in urban and suburban lands to reduce excess nitrogen releases

# Key Issues and Committee Recommendations

## Activities Metrics – Key Issues

Practices recommended by the technical team only versus mix of practices recommended by the technical team and Advisory Committee Members

Inclusion of practices that would reduce Sector Based emissions

Inclusion of actions that produce benefits other than mitigation (e.g., adaptation, soil health)

Sub-Committee Recommendation: Get agency review and ask them to

- Consider a mix of practices recommended by the Technical Team & Advisory Committee
- Consider practices that would produce other benefits but focus on practices that will result in net sequestration
- Consider inclusion of practices that would reduce Sector Based Emissions but focus on tracking actions that will produce land sector emissions

