



Carbon and Forest Management Work Group

Meeting 3: January 10, 2024 | 9:00 am – 3:00 pm

Meeting Summary and Notes

Meeting Overview

The second meeting of the Washington Department of Natural Resources (DNR) Carbon and Forest Management Work Group took place on Wednesday, January 10th from 9 am – 3 pm, via Zoom Webinar. The purpose of this meeting was to begin developing a common understanding of budget proviso goals 3, 4, and 5 and to review and discuss preliminary management scenarios. Representatives from BluePoint Planning, the firm hired to facilitate the work group in partnership with DNR staff, opened the meeting with an overview of the agenda:

1. Welcome & Updates
2. Work Group Bibliography and Resource List
3. Discussion of Budget Proviso Goals 3, 4, and 5 ([c 474 §3130 3](#))
4. DNR Presentation: Baseline Scenario
5. DNR Presentation: Scenario Ideas
6. Additional Scenarios and Creative Solutions
7. Next Meeting and Next Steps

Work group members and DNR staff gave brief self-introductions to the group. DNR staff gave an update on the status of the carbon and wood basket study contractors; both contractors have been selected and will attend the next work group meeting to introduce themselves. BluePoint staff introduced the resource bibliography for work group members to submit relevant resources for all work group members to read.

BluePoint Planning staff then facilitated a discussion with work group members about the themes and questions about the budget proviso Goals 3, 4 and 5 that emerged from the online whiteboard exercise performed in the first work group meeting. Each attending work group member shared their thoughts and concerns about the themes and questions. The major themes and takeaways from this discussion are summarized below and the raw notes are attached at the end of this summary.

Staff from DNR gave two presentations: Baseline Management Scenario and Scenario Ideas, each of which was followed by a discussion among work group members. The purpose of the Baseline Scenario presentation was to show current DNR forest management practices; the Scenario Ideas presentation introduced four draft management scenarios to discuss and build upon with the work group. Following the two presentations, work group members discussed new scenario ideas and considerations, which are listed later in this summary.

Questions about defining relevant terms and concepts were raised throughout the meeting. Questions that were not addressed fully in the meeting will be addressed at the next work group meeting.

After a review of the next steps, BluePoint closed the meeting. All meeting materials, including the presentations and recording, are posted on the Washington DNR Carbon and Forest Management [Work Group website](#).





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Attendees

Work Group Members

- Matt Comisky, American Forest Resources Council
- Heidi Eisenhour, Jefferson County
- Russ Pfeiffer-Hoyt, Washington State School Directors Association
- Randy Johnson, Clallam County
- Hannah Jones, Firelands Workers United
- Ed Murphy, Sierra Pacific Industries
- Bryan Pelach, Washington Conservation Action
- Jason Spadaro, Washington Forest Protection Association
- Paula Swedeen, Conservation Northwest
- John Talberth, Center for Sustainable Economy
- Pat Tonasket, Confederated Tribes of the Colville Reservation
- Steve Hinton (Alternate for Ryan Miller), The Tulalip Tribes

Washington DNR Staff

- Cathy Chauvin
- Florian Deisenhofer
- Daniel Donato
- Csenka Favorini-Csorba
- Glynis Gordon
- Mona Griswold
- Joshua Halofsky
- Kristoffer Larson
- Sharon Lumbantobing
- Brianna McTeague
- Denise Roush-Livingston
- Marvin Sibrian

Facilitator (BluePoint Planning)

- Nora Bayley
- Mindy Craig
- Lauren Schmitt
- Chris Mendoza, Mendoza Environmental (sub-consultant to BluePoint Planning)

Work group meetings are public, meaning that members of the public may join the meeting to observe. No public comment is allowed. 19 members of the public attended the third work group meeting.

Meeting Highlights and Themes

- DNR staff gave an update about the carbon and wood basket study contractors. The contractor selected for the carbon study is [ESSA](#); the contractor selected for the wood basket study is [Evergreen Economics](#). Representatives from both contractors will attend the next meeting of the work group on February 14 to introduce their firms and answer questions from work group members.
- At the second work group meeting, members requested a way to share resources and studies. BluePoint and DNR developed a work group bibliography and introduced it at the meeting. All work group members can submit resources for other members to view through a Google Form with the title, author(s), and theme of the resource, or by sending an email with the same information to cfmworkgroup@bluepointplanning.com. The bibliography and links will be





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accessible to all work group members. The link to the bibliography was sent out to all work group members on Thursday, January 11th.

- Work group members continued discussion of budget proviso goals 3, 4, and 5, to continue developing an understanding of the key terms and intent. Major themes of the discussion included the following:
 - The complexity and linked nature of the budget proviso goals.
 - A desire to better understand the scope of the work group and the budget proviso.
 - The importance of rural economies, workforce development, and local jobs and how those can help reach the intent of the budget proviso.
 - Requests for resources to learn more about rural economics and the timber industry in different regions of Western Washington.
- The Baseline (changed to “business-as-usual” during the meeting to more accurately reflect the data) Scenario presentation described current DNR forest management practices and land classifications, including different stand harvest types and intensities, as an introduction to the Scenario Ideas presentation that followed. Work group members:
 - Asked for more clarification about what defines a baseline for DNR management practices and requested to change the name to something more accurate.
 - Discussed adding a “legally required forest practices” scenario as a truer baseline.
 - Requested more information on DNR land classifications and deferrals.
- The Scenario Ideas presentation provided four “straw dog” scenarios and three variable “dials” to fuel a discussion of the types of forest management scenarios that the carbon and wood basket study contractors will model to inform the work group’s recommendations to the State Legislature. The work group may recommend up to 16 total management scenarios to the contractors for modeling (including the baseline scenario and bookends). Many scenario ideas were raised and discussed as potential, including the following:
 - Defining an effective and useful baseline scenario.
 - Establishing “bookend” scenarios at either end of the forest harvesting spectrum.
 - Creating scenarios that go beyond the scope of the budget proviso or are not currently feasible to better understand the outcomes of those management options.
 - Developing hybrid scenarios that consider multiple dials.
 - Looking at scenarios that dig deeper into silviculture practices.
 - Evaluating scenarios through a lens that increases forest resiliency to climate threats such as wildfires and droughts.
- The next meeting of the work group, scheduled for February 14, 2024, will focus on further refinement of the scenarios introduced and discussed in this meeting. Also at this meeting, the carbon and wood basket study contractors will introduce their firms and there will be time for Q&A with the contractors.



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Detailed Notes

Discussion of Budget Proviso Goals 3, 4, and 5

This section of the meeting began with a presentation of the themes raised by work group members in working group meeting #1 about budget proviso goals 3, 4, and 5 in the online whiteboard exercise. The [list of all of the notes](#) made during that exercise can be viewed on the [work group website](#). The purpose of this review was to continue developing an understanding of the key terms and intent of the budget proviso and also to determine where gaps in knowledge or data exist.

Each participating work group member had a chance to speak in a round-robin discussion about the themes and if anything was missing or should be added. A summary of the responses and themes is listed below.

Round-robin themes and questions

- Managing for carbon is more than just longer rotations; many strategies exist.
- Workforce development is a key component of jobs. How to leverage work group work to enable forestry that supports local jobs?
- Rural poverty is a big issue and should be addressed. How can management options directly combat rural poverty? What is the potential impact of management scenarios on the economic needs of rural communities?
- Consider the objectives in the budget proviso to be equal, not separate objectives.
- Work group members should be more familiar with the scope and intent of the budget proviso as a whole.
- Need to agree on the terms of the goals and themes as a group before going forward.
- Proviso scope – the work group shouldn't go beyond the budget proviso and should not be about more than carbon and forest management. Only talking about DNR-managed forest lands.
- What are the climate impacts of predictable revenue?
- Consider feasible alternatives to management alternatives.
- Market stability is an issue to consider with predictable revenue management options.
- Where are the best places for increased intensive management? Decreased?

Data requests

- DNR timber supply by region.

DNR Presentation: 'Baseline' Management Scenarios

The baseline (changed to business-as-usual during the meeting to more accurately reflect the data) scenario presentation described current DNR forest management practices and land classifications, including different harvest types and intensities. This presentation is available on the [work group website](#). The purpose of this presentation was to provide background on DNR forest management





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practices and to explain the variables that can be changed in the management scenarios developed by the work group.

The first section of this presentation covered DNR land classifications: general ecological management (GEM) areas, upland, riparian, and deferrals. Work group members requested more information about land classification distribution among DNR-managed lands and deferral lengths. All questions, verbal and sent in the chat, were recorded and will be addressed at the next work group meeting.

The second section of the presentation explained current DNR stand establishment and forest management practices, which include reforestation and stand management. The final section described the forest thinning and stand replacement techniques DNR uses on its lands: commercial thinning and variable retention harvest, respectively.

Work group members raised questions after the presentation regarding what DNR considers to be the baseline of their forest management practices. DNR staff clarified that the baseline is business-as-usual or continuing to perform all current forest management activities. A management scenario that considered what is legally required to manage a piece of timberland would be a “legal” baseline and could be included in the scenarios given to the carbon and wood basket study contractors. Work group members requested to discuss the potential baseline scenario and its components at the next meeting.

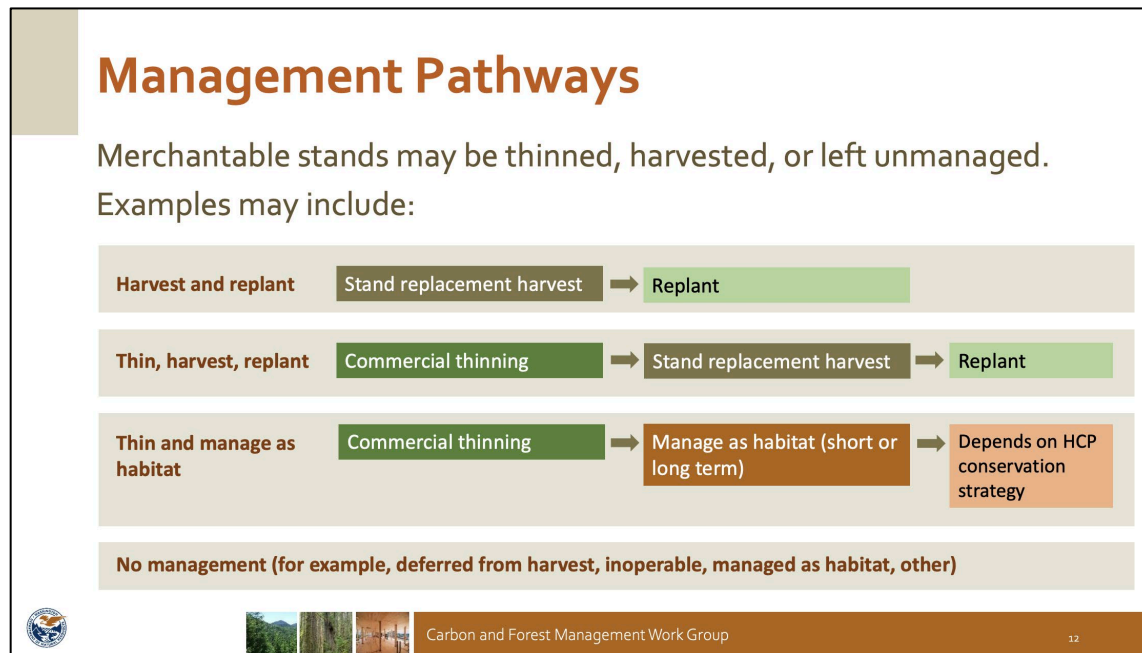


Figure 1 - Slide from the Baseline Scenario presentation

DNR Presentation: Scenario Ideas

The Scenario Ideas presentation provided four straw dog scenarios and three dials to begin the discussion of the types of forest management scenarios that the carbon and wood basket study contractors will model. The modeling will then inform the work group’s recommendations to DNR. DNR staff created the four straw dog scenarios as examples; they do not represent the only options. The Scenario Ideas presentation can be viewed on the [work group website](#).

The following factors were held constant across the four straw dog scenarios:





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- Riparian, upland, and GEM land classifications
- Age ranges and minimum 1000 Board Feet (MBF) for light and moderate thinning
- Minimum age and MBF for variable retention harvest.

DNR used three variables, called dials, to manipulate the details of the straw dog scenarios. Each scenario turns only one dial at a time. The three variables are:

- Harvest rotation length
- Proportion of thinning to stand replacement harvest
- Deferral of structurally complex, carbon-dense forest

The four straw dog scenarios and the variables changed are:

0. Business as usual
 - No change
1. Shorten harvest rotation from current 60-80-year average
 - Variable: Harvest rotation length
2. Lengthen harvest rotation from current 60-80-year average
 - Variable: Harvest rotation length
3. Defer additional acres of structurally complex, carbon-dense forest
 - Variable: Proportion of thinning to stand replacement harvest
4. Significantly increase thinning compared to current practices, prior to final harvest
 - Variable: Deferral of structurally complex, carbon-dense forest



Scenario 0:	Scenario 1:	Scenario 2:	Scenario 3:	Scenario 4:
Baseline	Shorten harvest rotation from current 60 to 80-year average	Lengthen harvest rotation from current 60 to 80-year average	Defer additional acres of structurally complex, carbon-dense forest	Significantly increase thinning compared to current practices, prior to final harvest

Figure 2 - Slide from Preliminary Management Scenarios presentation

Following the Scenario Ideas presentation, work group members asked clarifying questions about the four straw dog scenarios from DNR. Several requested more data on DNR acreage and forest land classifications; DNR staff clarified that the purpose of the modeling is not to look for the total acres number for deferrals but to look at current DNR forest management practices and identify possible changes to those practices. They also clarified that the scenario options from the presentation are not the only options for the focus of the scenarios.

The work group may recommend up to 16 management scenarios to the contractors for modeling (including the DNR baseline and bookend scenarios). Work group members each spoke and recommended ideas and asked questions to begin developing the framework for scenario development. Work group members suggested “bookend” scenario ideas that represent the extreme ends of the forestry management spectrum, and also suggested scenarios to use as a baseline.

Below is a list of scenario suggestions from the work group. Please note that these scenarios are drafts and do not represent a final scenario or necessarily feasible scenarios.

Additional Modeling Scenario Suggestions from Work Group (All Ideas Presented, no Consensus from Work Group)

1. Increase silviculture treatment (for example, pre-commercial thinning, vegetation management)
2. Longer rotation and increased thinning (for example, more pre-commercial thinning; larger trees potentially support timber supply)
3. Longer harvest rotations – slightly longer and significantly longer
4. Shorten rotations and increase deferrals (for example, apply different treatments to different lands). What is final harvest after multiple thinning?
5. Defer other types of forests (not structurally complex forest)



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6. No harvest – what happens to carbon sequestration and storage without harvest? (Replacement of revenue through other means)
7. State law management practice – legal baseline (maximizing revenue within bounds of state law; variation – sale of state lands managed by industry with revenues to state)
8. Maximize revenues with variable rotation length
9. Remove all complex forests from harvest (will require strategies to offset mill and revenue losses)
10. Extend rotation in polyculture forests; harvest some species earlier in rotation

Not a Modeling Scenario per se, but a “Lens” for Further Discussion

1. Drought resilience improvements
2. Wildfire resilience approach – reduce carbon loss by reducing wildfire risk (climate and wildfire, for all scenarios or separately)

Bookends Ideas for Modeling

1. No harvest
2. Legally required baseline
3. Maximize revenues within bounds of state management forest practices

Questions for Modelers from the Work Group

1. Does the modeler have the ability to run pre-commercial thins?
2. How is the complexity of climate scenarios being incorporated into predictions?
3. What metrics will be used to measure carbon flux? Over what time periods?
4. Will each of the land base classes be measured separately?
5. Will the land base classes be evaluated by an ecosystem / ecotone or geophysical partition?
6. Will we be able to take into account fire risk?

Work group members asked several questions about the carbon modeling methods that the contractors are going to use. DNR staff responded that the carbon modeling method has not been fully decided by the contractors yet and that they will give a presentation on the different options at the February work group meeting.

Next Steps

The next meeting of the work group will be held on February 14, 2024, from 9 am – 3 pm. The proposed topics for the February meeting are:

- DNR presentation on the modeling timeline and expectations.
- Introductions and presentations from the carbon and wood basket study contractors, including time for Q&A with the contractors.
- Further refinement of the scenarios and ideas introduced and discussed in the January meeting.





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The list of management scenarios developed by work group members will be sent out to work group members for review. DNR staff will work to sort and further develop those scenarios for the discussion at the next work group meeting.

The bibliography introduced at this meeting is available for all work group members to submit resources for other members to view. The link to the bibliography was sent out to all work group members on Thursday, January 11th. To submit resources to the bibliography, work group members can either fill out a Google form with the title, author(s), and theme of the resource, or, they can send an email with the same information to cfmworkgroup@bluepointplanning.com.

Work group members made multiple requests for more data on DNR-managed forests and the economic elements of the Budget Proviso goals. All questions, verbal and sent in the chat, were recorded and will be addressed at the next work group meeting.



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Raw Notes: Verbal and Written Communication

These notes include verbal and written questions and comments from the Zoom chat log.

- Comments from the Zoom chat are denoted with (chat) at the beginning of the comment or question.
- Questions and comments from the work group members are denoted with **WGQ** (work group question) at the beginning of the comment or question.
- Responses from DNR staff or BluePoint Planning staff are noted with **DNR** or **BPP**, respectively.

1. Welcome

- a. WGQ: Work group members not given input on the agendas, want to be involved in shaping the agenda
 - i. Would look like more email communication where work group members give input before it's finalized.
 - ii. BPP: Place at end of the meeting to talk about what should be on the agenda next time.
 - iii. BPP: Please let us know if there are topics that should be discussed or want to hear more about.
 - iv. (chat) If the workgroup is going to start providing feedback/input to the agenda, I would like to ask that draft agendas be provided at least 72 hours in advance of a meeting.
- b. WGQ: Quorum of work group?
 - i. BPP: Yes – missing 2 members.

2. DNR Updates

- a. Contractors selected - ESSA for carbon contract and Evergreen Economics for wood basket contract
 - i. In the process of developing the contracts for both.
 - ii. Will be at the next meeting to introduce themselves.
- b. WGQ: Evergreen economics has forestry experience?
 - i. Not prepared to talk about qualifications today but sent email and we will get back to him.





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3. Bibliography

- a. BPP/DNR will create a master list with the entries from the work group either by form or by email.
 - i. No questions on the bibliography.

4. Budget proviso goals

- a. WGQ: only using what was added on the Mural at the first meeting? Not all issues captured.
 - i. Not intended to be final, a way to refine the list and figure out priorities.
- b. Round Robin
 - i. Appreciate comments about issues with Mural, wasn't able to attend 2nd meeting. Hard to receive materials day before the meeting.
 1. On another work group talking about carbon, talking about small landowners can be included in the conversation. Starting to get into the conservation but a lot more to do.
 2. Managing for carbon is more than just longer rotations – many strategies exist. But, labor-intensive doesn't always make sense financially. More hands-on management can help it work. Jobs – workforce development is key component of jobs. Baseline is critical – what boundaries putting around.
 - ii. Did good job of capturing questions and comments. No major gaps. No focus on how to address issues of rural poverty. How to design management options that directly combat rural poverty? Also, best use of public money? How can funding be used to maximize economy?
 - iii. Missed last meeting but read notes. Was involved when language was added to the proviso. Summary of objectives – in budget proviso – consider as equal objectives (“and”) instead of separate things. Linked goals. Thought that a few things were missing.
 - iv. What are the definitions of themes terms, need to agree on those before going forward?
 1. How to approach that?
 - a. Like the bibliography, reading assignments are good idea.
 2. (chat) In terms of understanding intent and scope, it is probably best for group members to be familiar with not only the work group's 5 goals, but the actual language of the proviso from which the goals are derived.



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- v. Original mural idea – thought it was more for getting used to Mural and ideas, not using those ideas later. Several things to still figure out. Baselines too broad, proviso didn't push towards anything broader than carbon and forest management.
 - 1. What is work group trying to solve? Shouldn't go beyond the proviso, more for the legislature to figure out.
- vi. Predictable revenue goal – question – how climate impacts predictable revenue, given new threats to timber supply. Difference in management approaches and ability to manage risks. Scope of work group – entering unprecedented times, require flexibility and creativity that might be new. What's within the purview of this group to make alternate suggestions that might be outside of the scope of the group to enact? Definitions – local industry? What is the potential impact on economic needs in rural communities, can the work group actually help that?
- vii. Recompete program – family wage jobs are defined by other groups. Stakeholders – beneficiaries such as schools, teachers. Want to define leakage, better understood. Feasible alternatives – thinnings on steep ground? Economically feasible? Timber supply – critical to county, affects employment.
- viii. Consistent revenue doesn't mean low levels of revenue. High sustainable revenue instead of just predictable. Financial tools exist to help with this. Decrease harvest demand – goal should be to increase demand which means price goes up, and goal is to increase revenue. More uses for products = more potential jobs. Junior taxing districts shouldn't be stakeholders, should be beneficiaries. Market opportunities – big issue for market is lack of stability and reducing supply of timber over time.
- ix. Want to get more to creating, focus work to come up with 3-5 actions or recommendations. Talking about state managed forests lands – can limit/confine scope of conversation. Want to understand current timber supply by region, and infrastructure opportunities by region, at different scales. How to leverage work here to enable forestry that supports local jobs. Want to know – potential workers are there, by region? Do people even want to work in wood products industry? Interested in discussion around longer rotations – what is the potential cost?
- x. Stakeholders who don't have actual stake in rural communities make political decisions that will supposedly help communities. Previous efforts have failed at that. General theme – do less, when not fully realistic. Where is work group headed? Feels like decision has been made about longer rotations. Why not doing more? Where can increased intensive management happen? Disconnect with understanding larger business world. If doing less, then what is the purpose of the work group?

c. Discussion





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- i. Think outside of the constraints. One of youngest work group members, want to be creative. Hard to find people, need to take workforce development seriously.
 - 1. Want to use this early time in work group to define and develop concepts.
 - ii. So far – defined item 1 in the proviso (5 goals). But more to it than that – items 2 and 3 need defining and discussion. One thing – what is cost to trust beneficiaries? Concerned that summarizing item 1 and come to goals that are overly simplistic. Doesn't feel all concerns on sticky notes was reflected from the goals.
 - 1. Single solutions to complex issues don't work. Need to take a step back and recalibrate on what is happening. How to identify appropriate methods for achieving goals without understanding everything.
 - 2. BPP: Understanding what goals mean, not defining the goals. Can't achieve goals without considering the other parts of the proviso.
 - 3. DNR: Item two is the wood supply study. Understand that work group members need to develop an understanding of the current supply, that is the job of the contractors.
 - 4. Chris: Can include mural comments, tried to combine certain issues in single bullets if possible. Email if other things to add. Timeline limits conversations and discussions.
 - iii. "Satisfy depts trust management authority" – should be basis for what work group is doing. Fiduciary trust obligation related to this work.
 - iv. Comments on predictable revenue with financial tools – Idaho model, takes forest revenue into investment 5-year pot so revenue can be invested/generate additional revenue, also distributing revenue in smoother manner. Timber sales = regional.
 - v. Want to push back on idea that more logging will deal with economic issues. Economy is more than just timber. Increasing timber past a certain point creates more volatility, uncertainty.
 - vi. Want to highlight that State Supreme Court decision – indicates that DNR must serve beneficiaries, but also must comply with state laws and also consider all citizens.
 - vii. State Court decision – was 8-0 loss.
5. DNR presentation – Baseline scenario
- a. (chat) What percentage of DNR's ownership is currently in each of the land classifications (GEM, Upland, Riparian and Deferred from Harvest)?



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- b. (chat) Also, deferrals, for how long?
- c. WGQ: more trees = more carbon?
 - i. DNR: getting stand established as soon as possible is important.
- d. WGQ: baseline concept – want to clarify – carbon world vs timber harvest planning world. Is baseline = all of the things DNR do? If using fertilization, can't put ground into carbon project b/c carbon footprint from fertilizer creation negates use of increasing tree growth to increase carbon storage. Baselines defined as scenario that reflects what is legally required to manage a piece of timber land. DNR decisions are not all legal mandates. Baseline scenario to reflect state of Washington forest practice rules. I.e. don't include HCP in baseline. If work group is tasked with understanding carbon effects, need to know the legally required baseline along with the business-as-usual scenario.
 - i. DNR: don't want to conflate baseline scenario with baseline scenarios for carbon offsets. This baseline is business-as-usual for DNR. Have to evaluate carbon for what DNR is currently doing. Could add legally required forest practices as a scenario. But, get into issue of additionality.
- e. WGQ: Want to look at what DNR is currently doing, and if there are recommendations on how to improve upon that. Procedural question – questions, list in chat or document? Want to know - percent of DNR ownership in each land use classification? Rates of sequestration? How to improve on what DNR is doing now? DNR silvicultural budget isn't big enough.
 - i. (chat) We appreciate having your questions in the chat, so we can capture your specific words and work with the DNR team for responses after the meeting.
 - ii. (chat) As with the two prior meetings, we will develop a questions response document and post it.
 - iii. DNR: Can send answers for many of the questions later after the meeting. Land use classifications – almost half of DNR lands are in GEM, uplands, referral, and riparian – but some land classifications overlap somewhat.
 - iv. DNR: What to do better?
 - v. (chat) My questions for future conversation:
 - vi. 1. % of DNR acres in each land use classification; 2. what are growth rates, carbon sequestration rates, carbon stocks, carbon flux in each of the land use classifications; 3. Does DNR seed orchard develop improved seed, if so, what generation of improvement; 4. what % of DNR lands are PCT'd; 5. what % of DNR lands are CT'd?; 6. Is DNR silvicultural funding sufficient for DNR to realize potential or maintaining forest health, fire resiliency, increasing growth/sequestration, etc.; 7. Do DNR's commercial thinnings provide positive revenues? Are thinnings constrained to those that generate positive revenues? Are lack of markets or value for small diameter trees a limiting factor in conducting thinning?; 8. Does DNR consider other silvicultural treatments



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(fertilization, veg management, site prep, etc.) and fire resiliency treatments that can assist sequestration? If so, are economics limiting factors in conducting such treatments?; 9. Are there recommendations that would assist DNR in improving sequestration on DNR forest lands.

- vii. (chat) Other topics recommended for discussion: 1. Discuss relationship between carbon stocks and sequestration strategies on DNR lands and relative reliance on one strategy vs. another and the associated overall carbon impacts (e.g. need for harvested wood products, carbon benefits of substitution in built environment, housing affordability, jobs and economics, milling infrastructure, carbon leakage, forest mortality, wildfire risks, etc.); 2. When looking at carbon storage in forest (stocks) and sequestration we also need to understand these many other factors.
 - f. WGQ: confusion about DNR land categories. Any classifications where permanently protected from timber harvest? From regulatory perspective, proper baseline to understand impacts of certain activity, model “with and without” certain activities. Need to model scenario where DNR doesn’t log its land, to understand the impacts.
 - i. DNR: Each deferral is a different policy. Depends on the type of deferral.
 - g. WGQ: Would be helpful to know acres by site class in western Washington lands. In terms of productivity classes. Also – hearing emphasis on rate of carbon sequestration. Rate is important but also should include carbon storage. Somewhat of a misperception that managing for high rate of carbon sequestration means most carbon stored.
 - h. WGQ: Should follow up on conversation about baseline scenarios. DNR policies have put land off harvest without getting credit for it from carbon standpoint. Want to explore if board could eliminate board policies to get credit and then go back to the board policies.
 - i. WGQ: Will DNR silviculture staff be online for the afternoon?
 - i. Yes
6. DNR presentation – preliminary management scenarios
- a. Scenarios are intentionally broad and ambiguous to help work group better determine what should be analyzed.
 - b. Clarifying questions?
 - i. (chat) Can you clarify the land base on which you calculate your current rotation age? Is it averaging the lands you don’t harvest much on for spotted owls and your GEM lands, or is it the lands on which DNR primarily harvests for revenue? I ask because a few years ago, DNR staff said practices were tending down to 40 years on GEM lands.



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- ii. (chat) DNR could still be working through its inventory to get to a shorter rotation and have an average of 65 over an annual period. And it does seem like that going to the estate model should help answer that question.
- iii. (chat) According to DNR Annual Reports, the timber sale average age is reported at around 65 years of age
 - 1. DNR: Stands set for deferral, and then younger stands harvested. Difficult to talk about rotation age.
- iv. (chat) Will the contractors use the DNR Forest Estate Model as a starting point?
- v. WGQ: Looking at scenarios in isolation – will we have metrics to go with these?
 - 1. DNR: Process will be – determine scenarios, then hand off to contractors. Won't be looking at these in isolation. Staggered process.
- vi. WGQ: Seem likes scenarios can only happen on GEM lands. Will metrics/answers include deferred land base?
 - 1. DNR: Not looking for total acre number of structurally complex forests to be deferred. Looking at DNR current practices and possible changes to current practices. Not going for absolute numbers.
 - 2. WG: Need scenarios to be in relationship to the land that is deferred and not deferred.
- vii. WGQ: Scenarios focus on ways to log, but charge is to look at beneficiary revenue. No economic focus to scenarios. DNR revenue sources could be dials to change. Why just pick timber to focus on?
 - 1. DNR: Scenarios are about DNR current practices and what can be manipulated. Don't represent the only options. Additional revenue options won't come in until the 2nd phase of the project. Not just timber focused. What to propose that is not a change in forest management?
 - 2. WG: But could change leasing. Could be captured under additional deferrals – different mechanisms.
- viii. (chat) 1) Do we have a good idea of what models and ESSA will be using for this work? 2) Does the modeler have the capability to run precommercial thins? 3) how is the complexity of climate scenarios being incorporated in our predictions? 4) What metrics will be used to measure carbon flux? Over what period? 5) Will each of the land base classes be measured separately? 6) will the land base classes be evaluated by an ecosystem/ecotone or geophysical partition? 7) will we be able to take into account fire risk?
- ix. WGQ: What models are being used? If DNR doesn't set a harvest rotation age. Curious for what starting point is for modeling for the contractors.
 - 1. DNR: Contractors can answer those questions.



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- c. Scenario 1
 - i. Already at minimum, shortening harvest rotation length goes against the Legislature goal.
 - 1. DNR: Not suggestions/recommendations. Need to have something to compare to. Up to 16 different scenarios. Creating data and understanding for what each scenario would do.
 - 2. (chat) The proviso asks us to collaborate on “increasing carbon sequestration and storage in forests and harvested wood products from department managed forestlands.” Reducing harvest rotations does not accomplish any of these goals, including storage in wood products since smaller/younger trees are more likely to go into the short-lived wood products pool. So that is why I was asking why this is on the table.
 - ii. Envisioning that carbon modeling will account for sequestration rates and storage in forests, but also in storage and harvest of wood products?
 - 1. DNR: Yes
 - iii. Helpful to have scenario that intensifies harvests compared to what DNR currently does. Would be helpful to know DNR practices on lands it currently manages.
 - iv. Need to look at entire land base, statewide basis. Need to look at carbon stocks in the built environment, wildfire risks, etc. Suggests that look at both carbon stocks in forests and ways to increase carbon sequestration and storage through more intense silvicultural treatment.
 - 1. DNR: Carbon stored in carbon products will be incorporated in the analysis.
- d. All scenarios discussion
 - i. IPCC stated – Need to include all forest products to properly conduct carbon calculations.
 - ii. Harvest rotations – need long enough timeline to capture changes over time. What would changes do to sustainable harvest level graph over time?
 - iii. Role of pre-commercial thinning. Baseline scenario described everything as commercial thinning. Value in describing it as a unique scenario. (vegetation management).
 - 1. DNR: Important to consider possible barriers but can also propose a scenario that are not currently feasible, i.e. that require extra funding or a policy change. Will have to note that in the report and recommendations.



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- iv. Need to be aware that rotation length changes will affect the quality of the wood. Shorter rotations could be used for short-lived wood products, which wouldn't meet the proviso's goal. Deferral scenario – other types of land that need to be considered for deferrals, to maximize revenues for carbon, etc.
- v. Might be the need to consider more than one scenario – a combination of scenarios, such as longer rotations + increased thinnings.
 - 1. DNR: Yes, can manipulate more than one dial and propose those scenarios for the contractors.
 - 2. (chat) That scenario a work group member just talked about increased carbon in the forest and wood products in our model.
- vi. Some outcomes might suggest more thinning, for example, but then there isn't the workforce to complete that thinning.
- vii. Interested in the longer rotation and increased scenario. Moves away from the either-or thinking. Question – Scenario 4 – does that mean increased thinning, with the implication of replacing other forms of harvest? Or in addition to?
 - 1. DNR: Something to consider.
- viii. (chat) I wish to emphasize and agree with the importance of the work group's comment regarding model consideration of the carbon substitution benefits of both long AND short-lived wood products such as transportation fuels (e.g., hydrogen, cellulosic ethanol, sustainable transportation and aviation fuels, etc.), biochar, etc. I note the proviso does not limit thoughts to long-lived wood products only.
 - 1. DNR: For the contractors to consider.
- ix. Report about the risk of forests becoming a carbon source instead of a carbon sink, due to forest stock loss from wildfire. Are there practices that could make deferral acres and all areas more resilient to wildfires? And combine that will available acres to manage forests to increase carbon sequestration while also providing benefits from wood products.
- x. Also – drought considerations. Difference with structurally complex forests and not structurally complex forests in their resilience to drought?
- xi. (chat) Those substitution benefits have been grossly exaggerated and all rest on the carbon neutrality assumption, where biogenic releases from logging are ignored.
- xii. (chat) I want to note that the bibliography exercise will include several recent papers on product substitution that take a close look at assumptions. The papers conclude that there is a likely a large overestimate in the carbon benefits of substitution because many of the assumptions have little to no empirical basis. We need to be careful in how substitution is modeled given this.



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- xiii. (chat) So where does the revenue aspect fit into these models. "Generating predictable beneficiary revenue; maintaining timber supplies that support local industry; and addressing economic needs in rural counties" from the proviso.

7. Addl. scenarios and creative solutions

- a. Another scenario – “nature’s baseline,” what would happen to the landscape if commercial forestry landscape were taken out of the picture?
 - i. <https://irp.cdn-website.com/0358d1eb/files/uploaded/Natures%20baseline.pdf>
 - ii. DNR: For purposes of this discussion, don’t need to cite sources and justify. High level brainstorming right now.
- b. Will we put forward scenarios that are in compliance with proviso and comply with state fiduciary obligation?
 - i. DNR: This conversation is to get ends of the spectrum and then figure out what could be in between. Won’t know the final analysis until we go through each of the stages with the contractors.
- c. Suggested scenario: sale of all state trust lands to industrial landowner, managed under state forest practice rules, revenue turned over to state to distribute to beneficiaries. Reading the proviso – have ignored revenue aspect of the proviso so far. Can drive answers in any direction if ignoring revenue.
 - i. DNR: Purpose of having things at the end of the spectrum to identify issues and then most likely ultimately remove those scenarios from the recommendations. May have scenarios that seem like they go against the proviso, but full analysis will show that those extreme scenarios go against the intent of the proviso and will not be included.
- d. (chat) I believe state law would require a zero-discount rate, since the economic benefits of the next generation are just as important as ours.
- e. (chat) The scenario the work group member is suggesting sounds like "maximizing revenue from State Trust lands within the bounds of State management practice."
- f. Many discussions this morning about what would be nice to know, research. But, outside the purview of the work group.
- g. Worthwhile to put in scenarios that use forest practice compliant models. Discount rates concept – don’t have alternative investments to make with revenue. By law revenue must be distributed to school construction account. Beyond the scope of the work group to look at how to change laws to make discount rates are easier to use.
 - i. (chat) But the modeling of volume output will require a discount rate. So, there should be some discussion about it.
 - ii. (chat) We will be able to talk about the discount rate with the modelers.



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- h. Opportunity to play with carbon storage and how it will affect revenue. Need to bookend that. What is most profitable scenario with rotation lengths? Don't limit to one scenario.
- i. Scenario – remove all structurally complex forests from harvest.
- j. What other strategies could we use to offset loss of volume to the mills? What strategies could create that volume? Would be interesting to model.
- k. How to create scenarios that are at the bookends and then show things in the middle? Multi-factor optimization – solve proviso problems and work group member interests. Where in the process to start doing that? Need to come up with scenarios that optimize multiple issues.
 - i. DNR: Nothing works in a vacuum – every change will have an impact on something else. Think about it as a series of 'if, then' questions. If DNR does X, what are the implications? If DNR does Y, what then? But, can't have all of the 'ifs' together. Not about separating out revenue or not talking about it.
 - ii. (chat) I will put the presentation that we gave into the bibliography. Also want folks to know we are working on a refined model that allows us to create more nuanced scenarios and has better input data. I keep raising it because I think our results show what could potentially be feasible.
- l. Agree with DNR comments – would like to see both bookends of the spectrum, regardless of if they are feasible scenarios. Scenario 2 + scenario 4 combination. Or, 2a + 2b, breaking 1 scenario into two parts.
- m. Fire – going to be an increasingly large issue. How to build into scenarios?
- n. Want to caution against using “maximize revenue” as a bookend. More about timber harvest.
- o. Legislative proviso language designed to balance many interests important to Washington. Want to understand risks involved in each scenario, especially wildfire.
- p. (chat) Also want to caution that there is no legal requirement in Trust management to maximize revenue. Optimize, prudent management of the corpus, but not maximize.
- q. (chat) Yes, wildfires burn hotter and faster on intensively managed forestlands on the westside than natural forests, so this is definitely a consideration. Plantations are putting communities at high risk.
 - i. (chat) Could you please provide the scientific evidence for this statement?
 - ii. (chat) Post-fire studies from Oregon and other places. Will put those studies in the document list.
 - iii. (chat) Very important study on wildfire risk and intensively managed landscapes: <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/eap.1710>



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- iv. (chat) I concur that we should absolutely run a scenario that tests Wildfire prevention on its own. I'm not sure how we characterize those practices, Although I have some confidence it would have some significant overlap with a pre-commercial thinning scenario.
 - r. Want to be as specific as possible about the factors that are being changed. And awareness as a group for how changeable each factor is. Limitations to revenue are sometimes from practices and laws put in place – want to encourage creativity. Responsibility about which things we have more choice around, and have more creativity around.
 - s. Managing DNR lands for solar energy – include that possibility in the scenarios. Good revenue possibilities for leasing that land.
 - i. DNR: Might be outside of the work group's scope. Will stick to forest lands.
 - t. Any DNR lands that are available for a-forestation?
 - i. DNR: Outside of the scope of the proviso. Focused on older, structurally complex forests.
 - ii. (chat) They have a point. It would increase carbon sequestration and storage.
8. Close/Next meeting
- a. Will catalogue all of the scenarios from the meeting and will include them in the summary notes sent out to the work group.
 - i. Will continue to talk about them, and have more chances to ask questions at the next work group meeting when the contractors attend.
 - b. Next meeting topics
 - i. February – contractors attending.
 - ii. Appreciate bibliography option – but, having access to many papers won't advance the discussion much. Presentation on the different interpretations on the science, the source of the tensions in the work group? Outside scientists, panel? Come to better common understanding on the science.
 - 1. Could be a topic for March or April. And, understanding where the disagreements are.
 - iii. Could work group members invite speakers? Could take time to look at data, as a group. Not just hearing about research but looking at the data.
 - 1. Email project team with suggestions/ideas. And add to the bibliography.
 - iv. Send things within the next week. Will share the bibliography form and the excel file for work group members to view.



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- v. Might run into questions about the modeling exercise itself – many different approaches to modeling. Want to know more about the modelers and their approach.
 - 1. DNR: Feb meeting – contractors should be able to present on their modeling approach. ESSA is not proposing only one model, proposing two models.
 - vi. Feb – contractors + continuing talking about the scenarios.
 - vii. Deeper discussion on scenarios for revenue generation? When will that happen? Alternatives for revenue generation.
- c. Summary sent out next week.
- d. Rough draft of the agenda will be sent out as well for review by the work group.