



Carbon and Forest Management Work Group

Meeting 8: July 10, 2024 | 9:00 am – 3:00 pm

Meeting Summary and Notes

Meeting Overview

The 8th Washington Department of Natural Resources (DNR) Carbon and Forest Management Work Group meeting took place on Wednesday, July 10th from 9 am – 2 pm, via Zoom Webinar. The purpose of this meeting was to review the wood supply study preliminary findings, become familiar with the economic modeling methodology and approach, and review the legislative progress report outline.

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 and Meeting Overview
2. Wood Supply Study Presentation (Evergreen Economics)
3. Economic Modeling Methods Presentation (Evergreen Economics)
4. Interim Legislative Report
5. Next Steps

After a brief overview of the meeting and updated meeting schedule, Ted Helvoigt, President, Evergreen Economics, presented the draft Washington Wood Supply Study written by Evergreen Economics. Following the presentation, each work group member had a chance to ask questions in a round-robin.

Greg Latta, Evergreen Economics, then presented the economic modeling methods that Evergreen will use for their economic modeling of the scenarios developed in previous meetings. Each work group member had a chance to ask questions again in a round-robin. Mr. Latta then presented on carbon accounting methods to give background on the methods and assumptions used in the economic modeling; work group members each had a chance to ask questions on the carbon accounting methods.

Finally, Cathy Chauvin, Environmental Planner, DNR, outlined the requirements and contents of the interim legislative report to be submitted to the Washington Legislature by December 2, 2024. Work group members asked a few clarifying questions about the content.

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

Attendees

Work Group Members

- Matt Comisky, American Forest Resources Council
- Heidi Eisenhour, Jefferson County
- Randy Johnson, Clallam County
- Hannah Jones, Firelands Workers United
- Ed Murphy, Sierra Pacific Industries
- Bryan Pelach, Washington Conservation Action
- Russ Pfeiffer-Hoyt, Washington State School Directors Association
- Jason Spadaro, Washington Forest Protection Association
- Paula Swedeen, Conservation Northwest
- John Talberth, Center for Sustainable Economy





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- Pat Tonasket, Confederated Tribes of the Colville Reservation

Not in attendance: Ryan Miller, Steve Hinton, Tulalip Tribes

Washington DNR Staff

- Cathy Chauvin
- Duane Emmons
- Csenka Favorini-Csorba
- Kristoffer Larson
- Sharon Lumbantobing
- Makenna Milosevich
- Denise Roush-Livingston
- Ben Welna

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. 10 members of the public attended the 8th work group meeting.

Meeting Highlights and Themes

- Meeting Schedule Update: DNR has modified the work group meeting calendar to align with the modeling results and meet the Budget Proviso deadline of June 2025. Important details include the following:
 - There will be at least two more work group meetings in 2024: November 13 and December 11. The focus of these meetings will be to review the carbon modeling results presented by ESSA, and to discuss and give feedback on those results.
 - There will be at least two work group meetings in 2025: April 9 and June 11. The focus of these meetings will be to review the final analysis results from ESSA, review the draft and final analysis results from Evergreen Economics, and finalize the recommendations to the legislature.
 - The work group calendar is available on the DNR [work group website](#).
- Wood Supply Study Presentation: Evergreen Economics presented the draft Washington Wood Basket Study (June 17, 2024) that begins to examine how changes in DNR forest management might affect the timber industry and local economies. Important details include the following:
 - Evergreen presented the preliminary results of the Wood Supply Study, including projected harvests, projected forest inventory, and projected forest carbon stored, and the economic contribution of forest industries in Western Washington.
 - Work group members reviewed the draft study prior to the meeting and were invited to submit questions in advance of the meeting. Evergreen addressed the submitted questions during the presentation. Each work group member had a chance to ask more questions after the presentation.





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- Economic Modeling Methods Presentation: Evergreen Economics presented the economic modeling methods that they will use when analyzing the management scenarios determined in previous meetings by the work group. Important details include the following:
 - The presentation covered wood demand, existing wood supply, existing mills, maintaining infrastructure, and national markets, including the U.S. South.
 - The Western Washington model used for this study includes forest stands, the road network, primary and secondary mills, and exports.
 - Evergreen also presented the carbon accounting model used in the economic modeling and outlined the typical approach taken for determining carbon amounts in harvested wood products.
- Interim Legislative Report
 - The Budget Proviso requires a report to be submitted to the legislature in December 2023. DNR submitted this progress report last year and committed to a second progress report on December 1, 2024 and a final report in late 2025.
 - DNR has begun working on the second progress report and shared an outline with the work group. The report will include major work group accomplishments since December 2023, including the status of modeling efforts. The report will not include ESSA's preliminary analysis results or the recommendations, which will be included in the final report.
 - The work group will have a chance to review the draft report at the end of September, 2024.
- Next Steps
 - The next scheduled meeting of the work group will be on Wednesday, November 13, from 9 am to 3 pm. The focus of the meeting will be to review the preliminary carbon modeling results presented by ESSA.
 - Work group members may be asked to participate in an interim meeting in September or October on the date originally scheduled for a meeting during those months. More information will be communicated via email with the work group if that meeting is needed.



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Detailed Notes

Meeting Schedule Update

There will be at least two more work group meetings in 2024: November 13 and December 11. The focus of the November 13 meeting will be to review the preliminary carbon modeling results presented by ESSA. The focus of the December 11 meeting will be to discuss and give feedback on the carbon modeling results.

There will be at least two work group meetings in 2025: April 9 and June 11. The focus of the April 9 meeting will be to review the final analysis results from ESSA and initial analysis results from Evergreen Economics. The focus of the June 11 meeting, the final meeting of the work group, will be to review the final analysis results from Evergreen and to finalize the recommendations to the legislature.

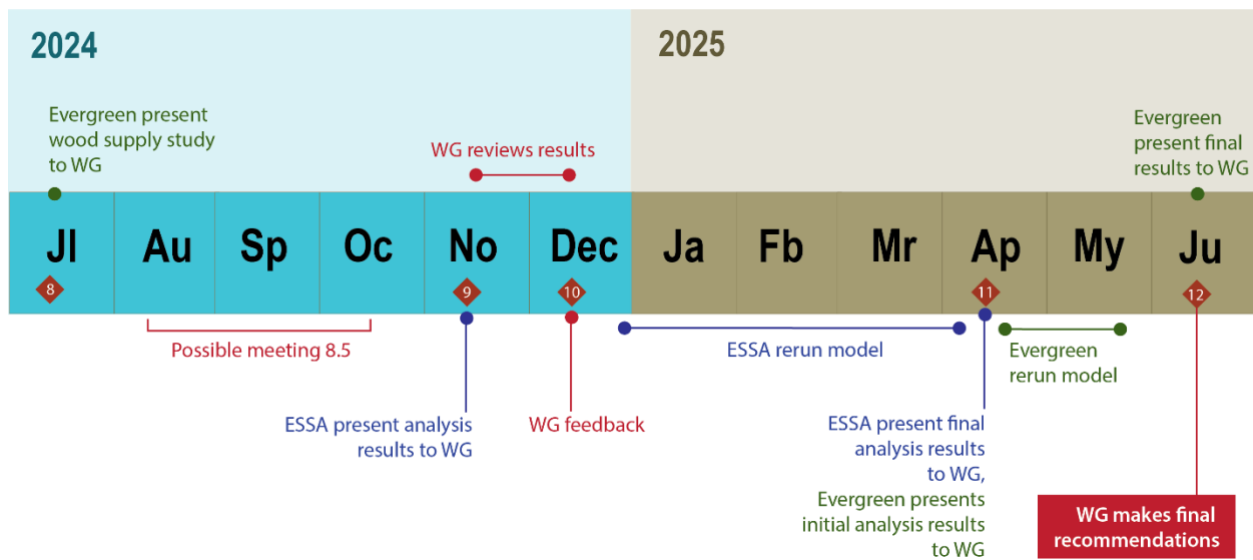


Figure 1 - 2024-2025 Timeline of Meetings for the Work Group

Work group members may be asked to participate in an interim meeting in September or October 2024 on the date originally scheduled for a meeting during those months. More information will be communicated via email with the work group if that meeting is scheduled.

The work group calendar is available on the DNR [work group website](#).

Wood Supply Study Presentation

Evergreen Economics presented their draft Wood Supply Study that begins to examine how changes in DNR forest management might affect the timber industry and local economies. The results shown in the presentation and the draft study are preliminary and will be updated and improved over the next few months.

Preliminary results included projected harvests, projected forest inventory, projected forest carbon stored, and the economic contribution of forest industries in Western Washington. The study will consider two main components, in addition to evaluating the management scenarios and DNR’s “business as usual” baseline:





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- 1) Potential timber supply – what is the highest level of harvest that can be maintained?
- 2) Existing infrastructure – what level of harvest is required to maintain current milling capacity?

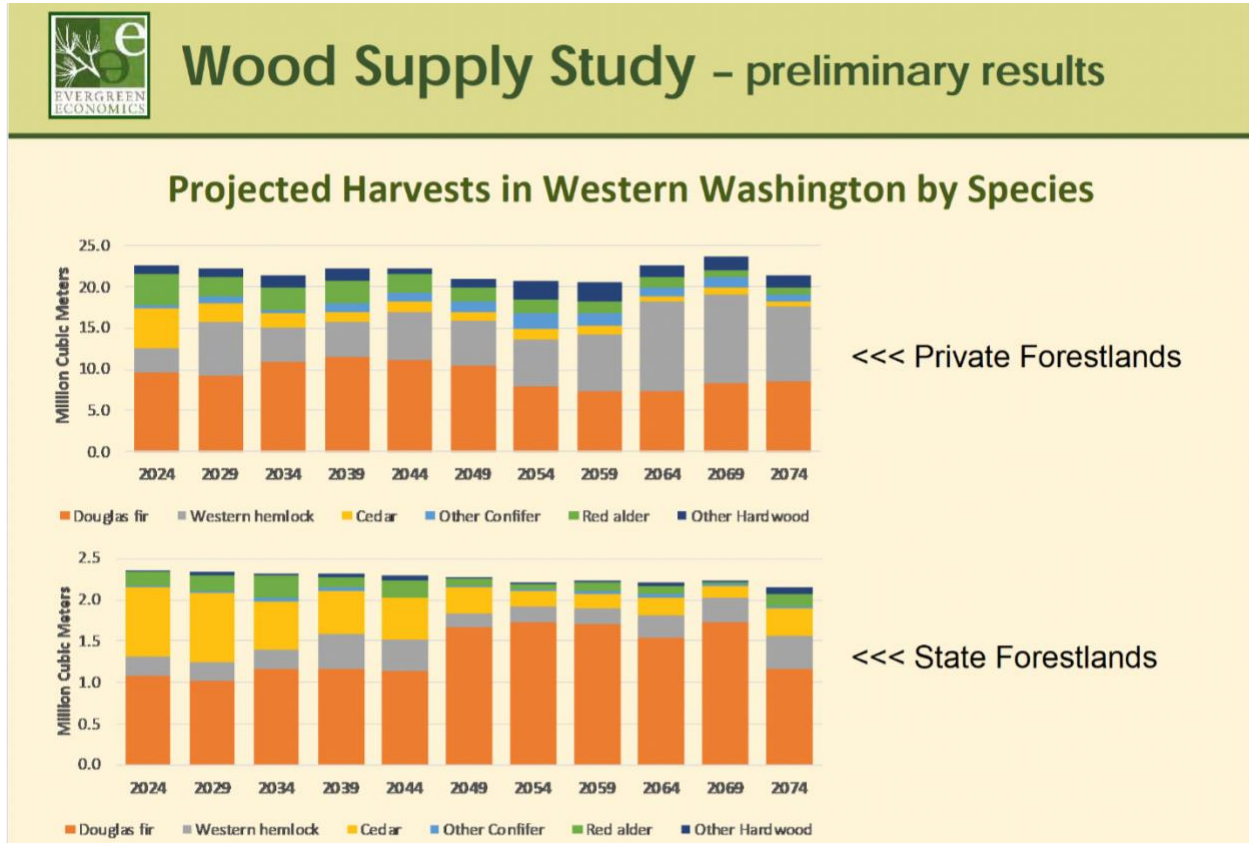


Figure 2 - Slide from Wood Supply Study Presentation, "Projected Harvests in Western Washington by Species"

Work group members reviewed the draft study prior to the meeting; their questions were addressed during the presentation and each work group member had a chance to ask questions after the presentation. Questions and comments made by work group members will be considered and incorporated into the draft when feasible.

Work group members asked about making sure all data is included in the modeling and breaking down the data into more detail, specifically the data from IMPLAN, the economic modeling software. Evergreen emphasized that they are not modeling the likely actual future but the likely potential of what is possible to grow under a certain set of assumptions. Work group members also asked how climate change will be incorporated into the study. None of the economic models being used for this study (the Western Washington model, the LURA model, or the IMPLAN model) will include climate change assumptions.

The draft [Washington Wood Supply Study](#) and the [wood supply study presentation](#) are available on the [work group website](#).



Economic Modeling Methods Presentation

Evergreen Economics presented the economic modeling methods that they will use when analyzing the management scenarios determined in previous meetings by the work group. The presentation covered wood demand, existing wood supply, existing mills, maintaining infrastructure, and national markets, including the U.S. South.

The Western Washington model used for this study includes forest stands, the road network, primary and secondary mills, and exports in order to get a full picture of the economic activity and impact of the timber industry in Western Washington. The presentation also acknowledged several questions sent in by work group members; each work group member again had a chance to speak and ask questions about the presentation and modeling methods.

Work group members requested to see the data on the exports and mill locations used in the model, which Evergreen will provide. They also asked about including carbon cost in the calculations. Evergreen will provide estimates of carbon emissions from harvesting and hauling.

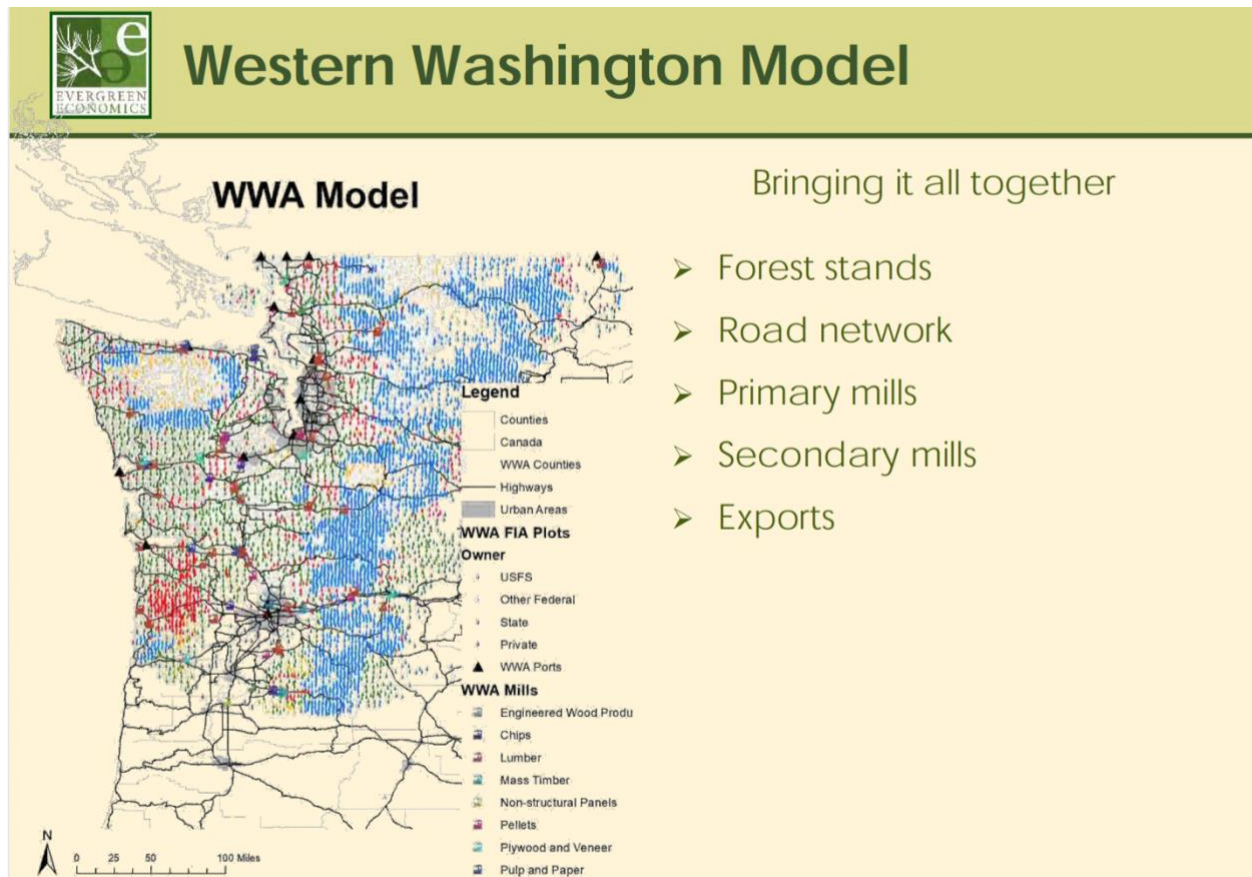


Figure 3 - Slide from Economic Modeling Methods Presentation, "Western Washington Model"

Evergreen also presented the carbon accounting model used in the economic modeling and outlined the typical approach taken for determining carbon amounts harvested from wood products. Work group members asked several questions relating to soil carbon. Evergreen replied that although carbon stocks are important, fluxes are more important in this instance because the analysis is focusing on what is changing under different management scenarios. Evergreen



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emphasized their neutrality in the modeling; they are not trying to make a specific point but are instead neutrally presenting the data and letting the readers interpret it themselves.

Both the [economic modeling presentation](#) (beginning on slide 21) and the [carbon accounting model presentation](#) are available on the [work group website](#).

Interim Legislative Report

The Budget Proviso required a report to be submitted to the legislature on December 1, 2023. In that initial progress report, DNR committed to writing a second progress report that is due on December 1, 2024, and a final report with recommendations in late 2025.

The second progress report will include major work group accomplishments since December 2023, including the status of modeling efforts. The report will not include ESSA's preliminary analysis results or the work group's recommendations, which will be included in the final report.

DNR is the primary author of the report, with one section written by BluePoint and input from both ESSA and Evergreen on the modeling sections. The report will be sent to the following groups once it is finalized:

- Chief Clerk of the House
- Secretary of the Senate
- Specified or "Appropriate" Legislative Committees
- Governor's Office or Office of Financial Management (OFM)
- Legislative Agencies (JLARC, LEAP)

The first draft of the report will be completed by the end of August, and, following an internal review by DNR, the work group will have a chance to review the draft report at the end of September 2024. Following the work group's review, DNR will continue to revise and update the document and will submit the final report on December 2, 2024.

The [legislative progress report presentation](#) is available on the [work group website](#).

Next Steps

The next scheduled meeting of the work group is scheduled for Wednesday, November 13th, 2024 from 9 am to 3 pm. The focus of the meeting will be to review the carbon modeling results presented by ESSA.

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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 **WG** at the beginning of the comment or question.
- Responses from DNR staff or BluePoint Planning staff are noted with **DNR** or **BPP**, respectively.
- Responses from the contractors, Evergreen Economics are noted with **EG**.

Welcome

1. April and June 2025 meeting invitations will be sent out after the work group meeting today

Wood Supply Study Presentation

2. (chat) WG: Do your private land assumptions match what has occurred on private lands in Western Washington over the past 20-30 years?
 - a. EG: Not exactly. Public land assumptions are a 10-year average – what levels will look like in the future. With private land, assuming maximizing firms that will harvest for value constrained by +/-5 percent in the long run.
3. WG: Comment on IMPLAN – missing jobs, like truck drivers that are important to milling. How to avoid undercounting?
 - a. EG: Industry vs occupation used in IMPLAN – not all wood product companies have trucking in their company. Next iteration will include more data, can figure out how much trucking is used.
 - b. WG: Very difficult to reconcile all of the data, have undercounted in previous studies
4. WG: Possible for employment wages to be broken down by county or exclude executive staff?
 - a. EG: Broken down by county, average income in certain counties is much higher because warehouses are located in those counties.
 - b. WG: Does study account for contract labor?
 - i. EG: Yes, the study does account for that, within the forestry sector.
5. WG: Timber supply assumptions, approach based on Forest Vegetation Simulator (FVS), but also manual approach? Climate change, to what extent that was baked into the study? Also, land use conversion in private timber supply, wondering how that is factored in. Current Forest Inventory and Analysis (FIA) data shows no net carbon accumulation, why does Evergreen chart show growth over time?
 - a. EG: FVS question – need growth and yield model. For land conversions, not incorporating land conversions, has been an issue, need to determine the assumption. Climate change – very specific approach in FVS, depends on the climate change scenario that is chosen. Think about it as a risk, risk of not accounting for it or accounting for it; have to decide what it's going to look like. Would require Federal government to endorse business as usual scenario.
6. WG: What does Evergreen define as a stand?
 - a. EG: FIA plots are considered like plots.





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7. (chat) WG: Would be good to know the assumed conversion factor (cubic meters to mbf (1000 board feet)) being used here.
 - a. EG: Depends on the tree level, takes a while to do.
8. WG: Interested in why assumptions for low harvest on federal lands are staying consistent?
 - a. EG: Don't feel justified in saying, "they will increase."
 - b. WG: also incorporating DNR carbon inventory data?
 - i. Yes based on FIA data.
9. (chat) WG: In regards to Federal harvests, some of the assumptions are not realistic about harvests. I put this in my list of questions. That would decrease volume.
 - a. EG: Some comments that federal harvest was too high, comments that it was too low - it's an assumption.
 - b. WG: Even under northwest forest plan, harvest diameters are not realistic.
10. WG: Implication of +/- 5percent - lots of implications for wood supply over time if 5 percent is not realistic.
 - a. EG: Doing work based on FIA inventory. Could be that plots are different, harvested since then. Talking about the potential, not the likely or forecasted, for lands in next 100 years, more about what they could do.
 - b. WG: So not modeling likely actual futures, likely potential of what is possible to grow under a certain set of assumptions.
 - c. WG: Planning to separate out jobs and contributions on DNR lands?
 - i. EG: Looking more at the aggregate, may be something that we could do but would involve understanding from DNR, could add in information on each scenario's effect on jobs on DNR lands.
11. EG: Industry has changed a lot in the past 20 years
12. WG: Shifting of demand – how things might affect private land owners. Effect of certain policies have impacted demand in private land base, period of growth will need to happen that will take time.
13. WG: Climate change – impacts of losses from fire will be incorporated?
 - a. EG: Yes, will be included in this instance of the modeling.
14. (chat) WG: I appreciate the Forest Service discussion - just as an example, there is a project on the Mount Baker Snoqualmie called Snoquera that is producing 63 million board feet over the next few years of commercial thinning. It's a small portion of one forest but they were able to get social buy-in and personnel to pull it off. Perhaps won't happen everywhere in western WA, but this serve as a basis for a scenario in which volume of this type is increased by some modest percentage. They have a lot of ground to thin!

Economic Modeling Presentation

15. (chat) WG: The challenge is that the FS outputs for the MBS is about 10MMBF per year for the foreseeable future. The GP is about 45MMBF to 50MMBF. And the Olympic is 20MMBF. Now these are their targets for annual sale volume. And the likelihood of them meeting those targets vary by forest, but are not very high. For example the MBS hit a low of 2MMBF recently. And the MBS only can manage about 6percent of its total land base for timber production. And over time that will drop to 4percent. The Olympic will go to zero output by about 2070.
16. (chat) WG: Can you guys give us your data on exports?





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- a. EG: Yes we can supply that data.
 - b. (chat) WG: On the export data. How did Evergreen handle export logs originating from outside the 100-mile buffer but shipped from ports within western Washington or within the 100-mile buffer?
 - i. EG: Not doing it as well as possible, cut out areas around sawmills but should also do that around the ports.
17. WG: Without understanding fiber supply in Oregon, how does this account for supply in Oregon?
- a. EG: Supply circle was drawn around Wilhelmina, trying to reduce the impact. Trying to minimize Wilhelmina's effect on Western Washington.
18. WG: How are you optimizing model for the locations, any verification to tune the model?
- a. EG: When picking points, maximizing social circle, area under demand minus the cost. Not accounting for specific land characteristics. Marginal costs increase as you go away from mills. Have to consider who is competitors – US South.
19. WG: Will we get the mill location data shown on the last slide? Think there might be an error.
- a. EG: Yes can give that information. Some might have closed recently.
20. WG: Scale of forest product manufacturers looking at for this analysis? Or are small-scale operators lost in the wash?
- a. EG: Looking at industry sectors, seven sectors, at the Washington level it's all aggregated, and then at the county level. Don't have information on big players and little players.
21. WG: What is the difference between an indirect and induced impact?
- a. EG: IMPLAN uses an economic base model, it's comprehensive of a region, showing economic activity as it's connected to homes, communities. But, not perfect for looking at the future, IMPLAN is a static model.
 - b. EG: Direct effects: Immediate results of the spending. Indirect effects: local industries' purchases of inputs from other local industries. Induced effects; Reflect the spending of wages from residents on goods and services.
22. WG: Mechanism by which high volume and lower cost of production affects mills in the northwest?
- a. EG: If not producing wood at the same rate and cost of the south, our costs will go up.
23. WG: Regarding forecasting demand for wood products, benefits and cost of carbon. High carbon cost, transportation cost, for transporting wood from the south to other regions. Any inclusion of the cost of carbon in calculations?
- a. EG: Have done CLT demand studies in the west, would have to have rail modeled better, would have to include different scenarios.
24. WG: Thought that the US imported lumber from locations outside of the US? Currency has an impact on economic modeling too.
- a. EG: Shifting things around, high tariffs on lumber would impact prices on other things. Bigger the model is, more modifying has to happen. Trying to capture unforeseen tradeoffs.
25. WG: Interested in life cycle analysis, how that fits into everything else.



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- a. EG: Life cycle analysis not part of what they are being asked to do. Have a description of life cycle analysis in future slides.
- 26. WG: A lot of discussion is driven by carbon – carbon driving changes in consumption, might be significant shifts in total lumber demand. Would like to see the slide decks to review later.
 - a. BPP: Slides will be posted after today’s meeting.
- 27. (chat) WG: Relatedly, impacts from climate change - fires, hurricanes, individual purchasing power will be affected as the impacts already baked in get worse.
- 28. WG: Is transportation included in the model?
 - a. EG: Yes, forest-to-mill transportation is included in the model.

Carbon Cycle Presentation

- 1. WG: Stocks – is carbon stored in the soil included?
 - a. EG: Only important to the extent that what we are doing changes the soil stocks. Focusing on tree carbon in this study, everything else is inferred.
 - b. DNR: Flux between is what is important in this instance, looking at what changes, but stocks are important because that’s where the carbon is stored when it’s not in the atmosphere.
 - c. WG: Figure is a closed loop but doesn’t show deforestation.
- 2. (chat) WG: This is a dated and inaccurate figure. There are many less carbon substitutes for wood that are displaced by mass timber production and the wood products cycle itself is carbon intensive, generating major quantities of GHG pollution. Neither effect is represented here.
- 3. (chat) WG: Logging debris decays and produces emissions, in addition to the breakdown of pre-existing dead wood in stands caused by logging. Do your or ESSA’s models capture this?
- 4. (chat) WG: But with wood products the emissions are a certainty. This does not make sense to call carbon stored in trees a risk.
 - a. (chat) WG: I agree. In wet westside forests, high carbon stocking in natural mature and old growth is not a risk, but indeed where large amounts of carbon are stored for hundreds of years.
 - b. (chat) WG: Thousands of years actually, since decaying wood puts carbon into the soil. Midwestern study documented carbon accumulation in the soil from natural forests for 8500 years!
 - c. (chat) WG: There are studies showing lower soil carbon levels in plantations after harvest versus older unharvested stands in west coast forest.
 - d. (chat) WG: Yes, because each harvest cycle bleeds out soil organic carbon that would otherwise stay put.
- 5. WG: Product substitution – is that not part of the model?
 - a. EG: It will come up later, part of the model.
- 6. WG: Substitution goes the other way as well. Can’t just say one and not the other.
 - a. EG: Will tell you what the products that are produced, not going to say that it’s substituting something for another, so you can interpret it. Sticking with just tree carbon.



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7. WG: Will know a portion of the logs harvested over time, but won't know for each ton of carbon stored in wood products, what the cost of it is?
 - a. EG: Needles included over time, don't have emissions from transporting products – missing parts of the supply chain.
 - i. (chat) WG: LCA gives us an emissions factor for each cubic meter harvested: <https://link.springer.com/article/10.1007/s10668-024-04523-7>
8. WG: Rates of decay of wood products – 2019 report that emissions from wood products are undercounted.
 - a. EG: Harvested from wood products component is often an after-analysis process. Can consider using that.

Legislative Report

1. WG: This report is going to the legislature – which group of legislators?
 - a. DNR: Generally submitted to the legislature, so it's on their website, but also specifically sent to natural resources committees.
 - b. WG: Would be nice to see the list of who it is being sent to
 - i. DNR: Yes we can get that to you.
 - ii. (chat) DNR: Legislative reports are sent to:
 1. Chief Clerk of the House*
 2. Secretary of the Senate*
 3. Specified or “Appropriate” Legislative Committees
 4. Governor's Office or Office of Financial Management (OFM)
 5. Legislative Agencies (JLARC, LEAP)
2. WG: Envision report including quantifying impacts on trust revenues?
 - a. DNR: This report will not cover that – this report is just a progress report, no recommendations. Final report, won't really get into trust revenue, very complicated. But could say, overall, it will have some impact on revenue. Won't be at the level of specific trusts.
3. (chat) WG: I would echo that. Volume is not a great surrogate for revenue. Fixed and variable costs of the Department will greatly influence revenue to beneficiaries. Not to mention the ability of DNR to implement any changes to management.

Next Steps

1. WG: Reading budget proviso – wondering where certain parts of the budget proviso are included – increase in harvested wood products is being addressed. Seems like today was about the opposite. Where does this fit into the process?
 - a. DNR: It will be part of the analysis of the two models, once we have results we can look at, can see that analysis.
2. Next work group meeting: November 13, 2024, focused on carbon modeling results from ESSA.
3. Wood Supply Study feedback – need it sooner rather than later.
4. WG: Timeline question – where receiving initial recommendations?
 - a. BPP: April meeting – place to start making initial recommendations. June 2025 – that is what the proviso goes through, the fixed point, legislative deadline.

