



Carbon and Forest Management Work Group

Scenarios



Meeting 6
April 10, 2024, 9 a.m. – 3 p.m.

At the March 10 Meeting

- Work group voted to model half of the scenarios with climate change and half without.
 - Half will be modeled with representative concentrated pathway (RCP) 4.5: emissions peak in 2040 and then begin to decline.
- Work group can select up to eight unique scenarios.
- Four scenarios have been selected, leaving four slots open.



Scenarios at a Glance

Scenarios being voted on today (in voting order)

| Scenario | Passed in March Meeting | Placed in Parking Lot in March Meeting | New Scenario |
|---|-------------------------|--|--------------|
| Scenario 1: DNR Current Operations | ✓ | | |
| Scenario 2: Lengthen Harvest Rotation | ✓ | | |
| Scenario 3: Shorten Harvest Rotation | ✓ | | |
| Scenario 4: Significantly Increase Thinning | ✓ | | |
| Scenario 8: Lengthen harvest rotation and significantly increase thinning | | | ✓ |
| Scenario 9: Increased emphasis on silviculture | | | ✓ |
| Scenario 10: Multiple dials | | | ✓ |
| Scenario 6: Increase deferrals, Option A | | ✓ | |
| Scenario 7: Increase Deferrals, Option B | | ✓ | |
| Scenario 5: Thinning Only | | ✓ | |



New Scenarios



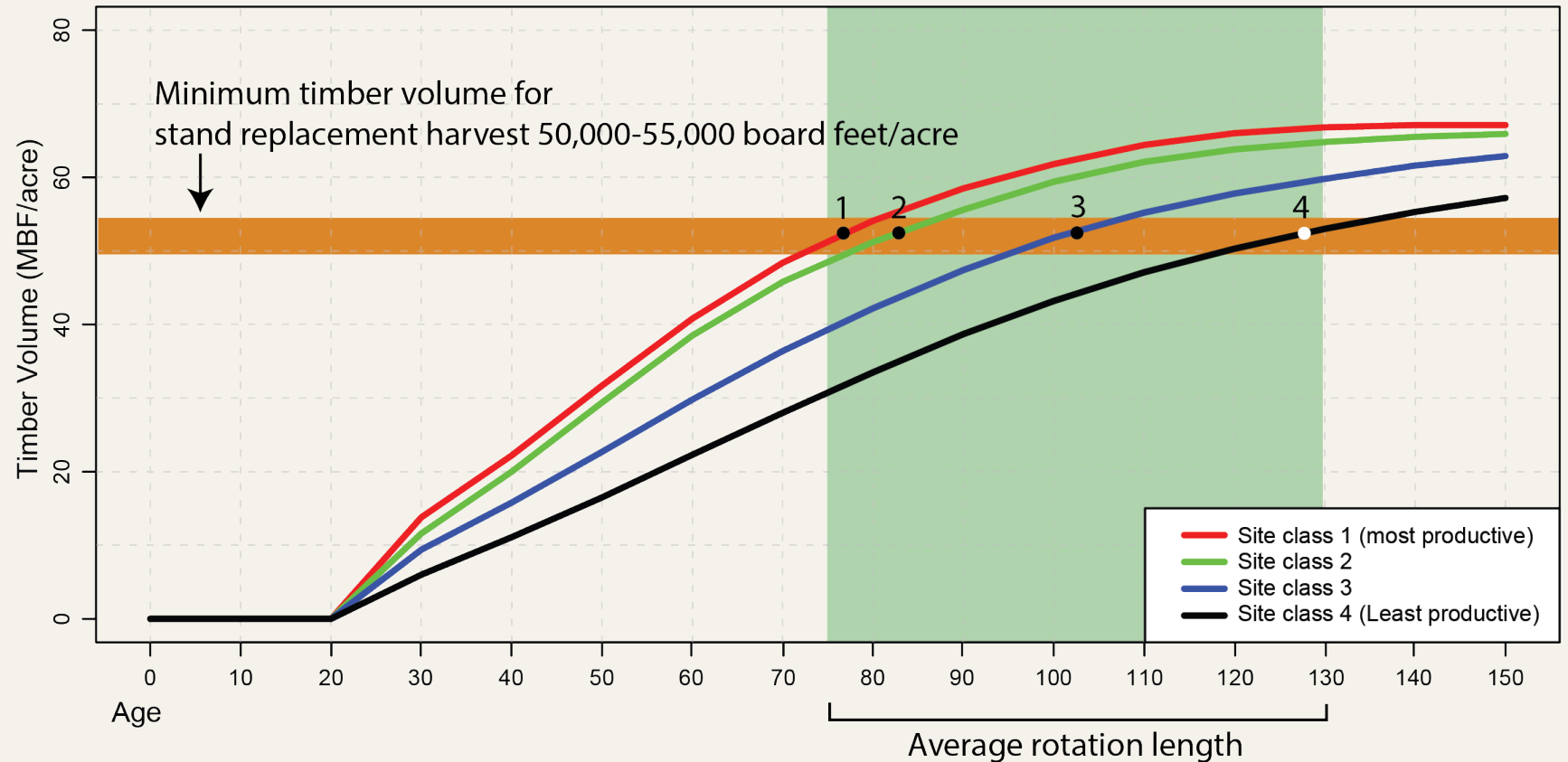
Scenario 8: Lengthen Harvest Rotation and Significantly Increase Thinning*

Lengthen
Harvest
Rotation

Rotation length
~75-130 years

Current
operations
rotation length
50-80 years

Sample Yield Curve for Douglas Fir in western Washington

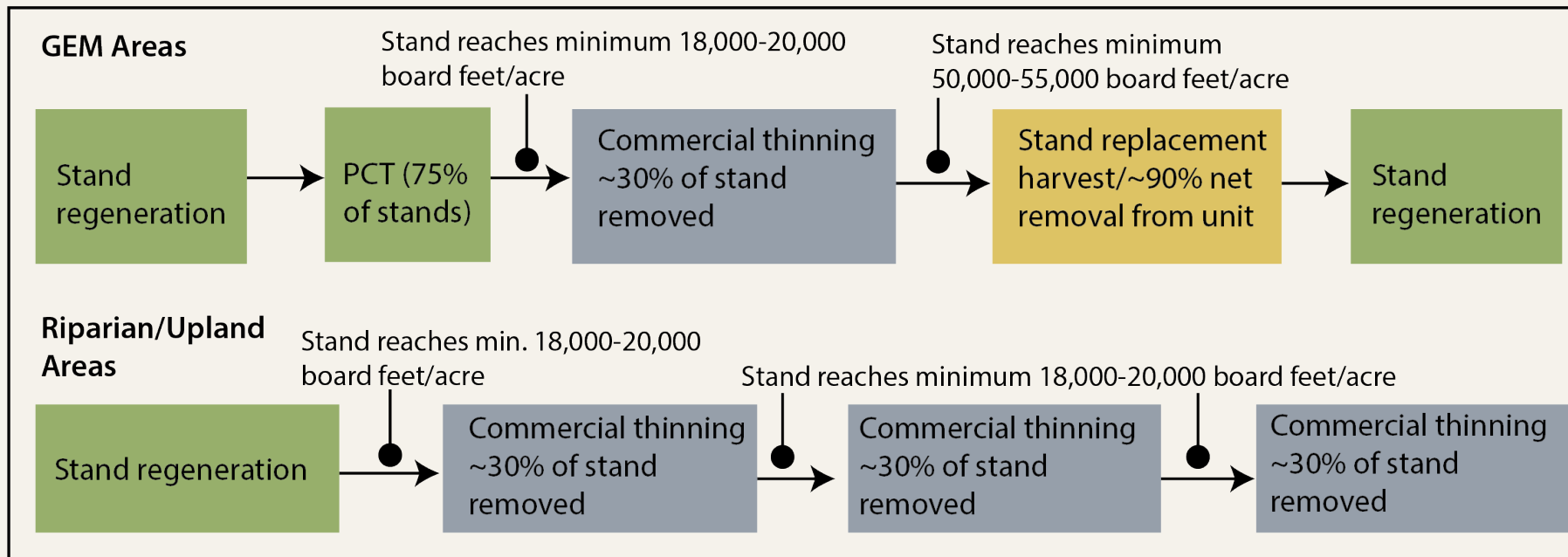


* Name corrected from "Longer rotations and significantly increase thinning" in scenario document



Scenario 8: Lengthen Harvest Rotation and Significantly Increase Thinning*

Significantly increase thinning



- Added PCT
- Removed two-decade waiting period between thinnings
- Thinning in riparian and upland areas must follow HCP* requirements

* State Trust Lands Habitat Conservation Plan



**Vote on Scenario 8:
Lengthen Harvest Rotation and
Significantly Increase Thinning**



Scenario 9: Increased Emphasis on Silviculture

- Roughly 80 percent of the seedlings DNR plants will be grown from improved seed stock (current percentage roughly 60 percent)
- Increase planting density by site class:
 - Site Class 1: 435 (up from 400)
 - Site Class 2: 400 (up from 360)
 - Site Class 3 and 4: 360 (up from 320)



Scenario 9: Increased Emphasis on Silviculture

- Increase site preparation from 75 to 90 percent of planted acres.
- Increase release treatments from 75 to 100 percent of planted acres.
- Conduct PCT on 75 percent of forest stands
- Require one commercial thinning entry per harvest rotation in GEM areas.

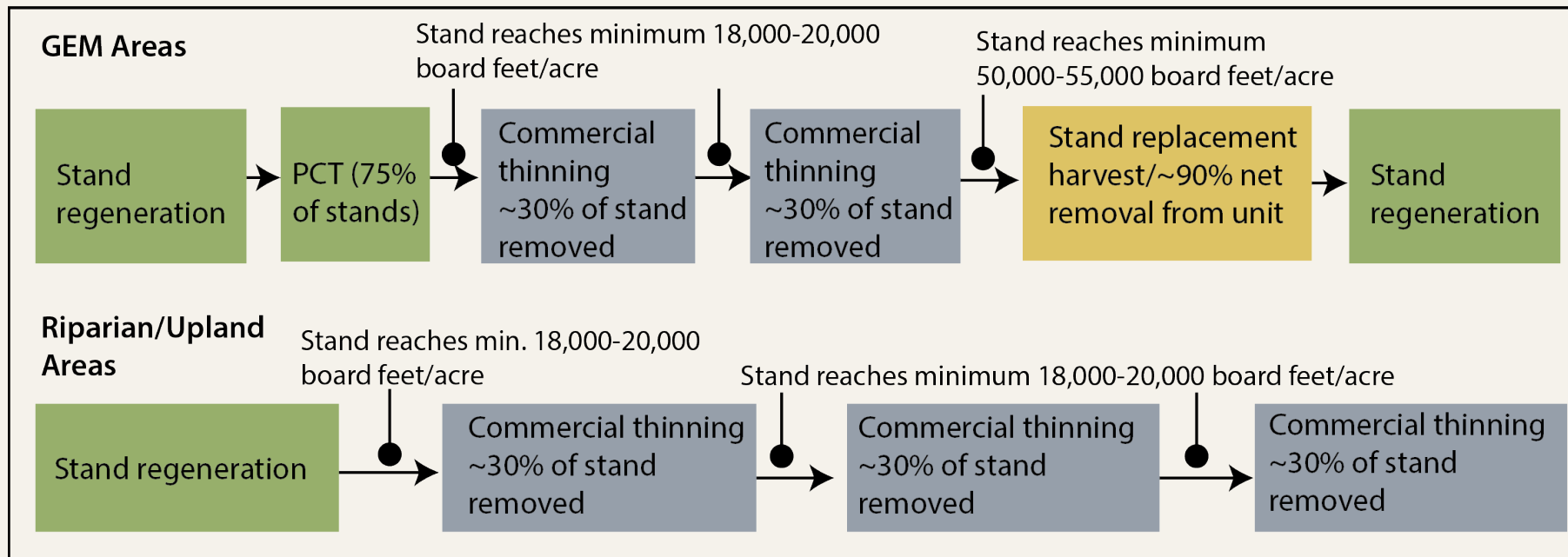


Vote on Scenario 9: Increased Emphasis on Silviculture



Scenario 10: Multiple Dials

Lengthen harvest rotation (Scenario 2) and significantly increase thinning (Scenario 4)



- More than one thinning entry per harvest rotation in GEM areas.
- In spotted owl management units, thin stands that are not in habitat condition.



Scenario 10: Multiple Dials

In GEM areas, defer 100% of the following forest types:

- Less complex forest stands as selected by the work group
- Older, “carbon-dense,” structurally complex forest as DNR defines them within its *Policy for Sustainable Forests**

*Only definition of structurally complex forest recognized by DNR



Structurally Complex Forest

For scenario development, using the definition of structurally complex stand in the 2006 *Policy for Sustainable Forests (PSF)*:

A forest in the 'botanically diverse' 'niche diversification' or 'fully functional' stage of stand development. Forests in these phases have varying sizes of trees, understory vegetation and lichen, downed wood and snags, etc.



Stand Characteristics

Botanically diverse → Niche diversification → Fully functional

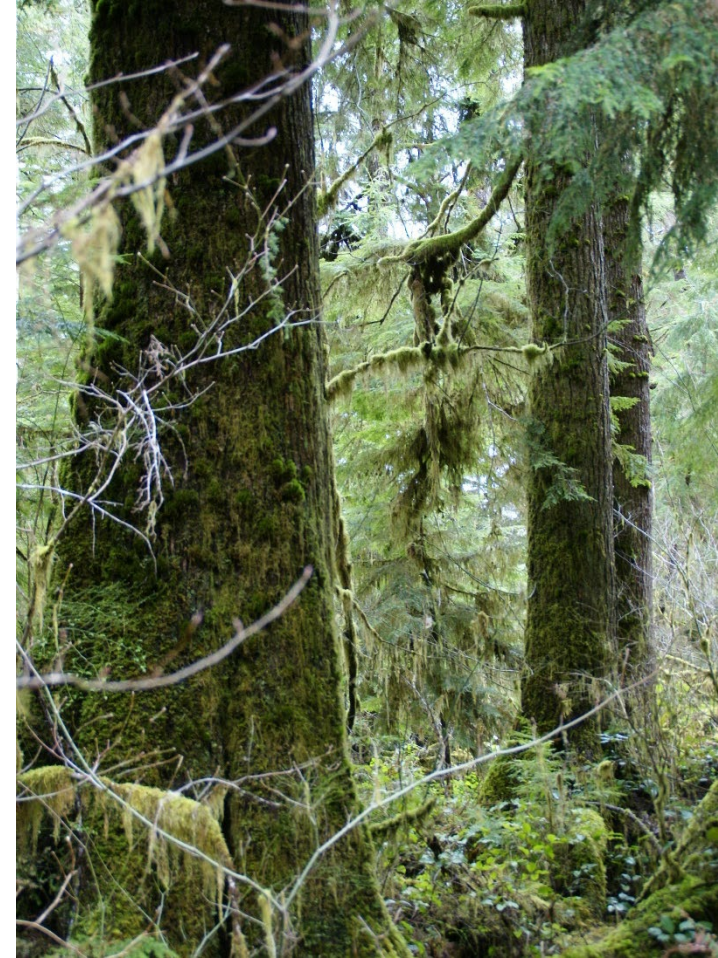
- Snags, large pieces of down woody material, and gaps in upper tree canopy form as original trees die out.
- Understory develops and diversifies in species and tree diameter.
- Shade-tolerant trees eventually reach upper tree canopy.

| Stages | | Stand-level Variable and Associated Threshold Value | | | | | | | | | | |
|-----------------------|------------------------|---|--------------|---------|-----------------|---------------------|---------------------|----------|------------------|-------------------------|-------|-------|
| Summarized | Detailed | QMD | Canopy Layer | RD | Stand Age | Management Activity | | | | Snag Ratio ¹ | CWD | |
| | | | | | | BioThin Age | Years Since BioThin | Thin Age | Years Since Thin | | | |
| Ecosystem Initiation | Ecosystem Initiation | <2 | | | | | | | | | | |
| Competitive Exclusion | Sapling Exclusion | >=2 | | | | | | | | | | |
| | Pole Exclusion | >5 | | | | | | | | | | |
| | | or | | | | | | >0 | >=0 | | | |
| | Large Tree Exclusion | >11 | | | | | | | | | | |
| | | or | >11 | | | | | | | >0 | >=0 | |
| | Understory Development | | >=2 | >1 | | | | | | | | |
| or | | >=2 | | >=MaxRD | | | | | | | | |
| or | | >=2 | | | >MaxRD Age | | | | | | | |
| Structurally Complex | Botanically Diverse | | >=2 | >1 | | | | | | | | |
| | | or | >=2 | >1 | | >=MaxRD Age+60 | | | | | | |
| | | or | >=2 | >1 | | | >0 | >=0 | | | | |
| | | or | >=2 | >1 | >=MaxRD | | | | | | | |
| | | or | >=2 | | >=MaxRD | >=MaxRD Age+60 | | | | | | |
| | | or | >=2 | | >=MaxRD | | >0 | >=0 | | | | |
| | | or | >=2 | | | >=MaxRD Age+60 | >0 | >=0 | | | | |
| | | or | >=2 | | | | >0 | >5 | | | | |
| | Niche Diversification | | >=2 | >1 | | >=MaxRD Age+80 | | | | | >0.07 | >2400 |
| | | or | >=2 | >1 | | >=MaxRD Age+80 | >0 | >0 | | | | |
| | | or | >=2 | >1 | | | >0 | >5 | | | | |
| | | or | >=2 | | >=MaxRD | >=MaxRD Age+80 | | | | | >0.07 | >2400 |
| | | or | >=2 | | >=MaxRD | >=MaxRD Age+80 | >0 | >0 | | | | |
| | | or | >=2 | | >=MaxRD | | >0 | >5 | | | | |
| | | or | >=2 | | | >=MaxRD Age+80 | | | | | >0.07 | >2400 |
| | | or | >=2 | | | >=MaxRD Age+80 | >0 | >0 | | | | |
| | Fully Functional | | >=2 | >1 | | >=MaxRD Age+160 | | | | | >0.07 | >2400 |
| | | or | >=2 | >1 | | >=MaxRD Age+160 | >0 | >0 | | | | |
| | | or | >=2 | >1 | | | >0 | >40 | | | | |
| | | or | >=2 | | >=MaxRD | >=MaxRD Age+160 | | | | | >0.07 | >2400 |
| | | or | >=2 | | >=MaxRD | >=MaxRD Age+160 | >0 | >0 | | | | |
| | | or | >=2 | | >=MaxRD | | >0 | >40 | | | | |
| | | or | >=2 | | | >=MaxRD Age+160 | | | | | >0.07 | >2400 |
| | | or | >=2 | | | >=MaxRD Age+160 | >0 | >0 | | | | |
| | | >=2 | | | >MaxRD Age | >0 | >40 | | | | | |
| | | >=2 | | | >=MaxRD Age+160 | >0 | >=0 | | | >0.07 | >2400 | |
| | | >=2 | | | >=MaxRD Age+160 | >0 | >0 | | | | | |



More on Deferrals

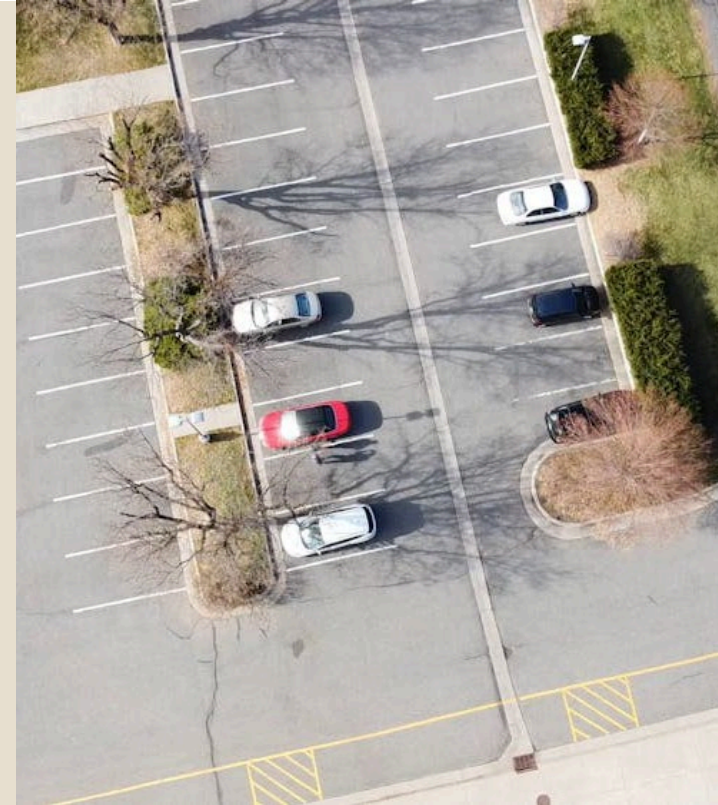
- Deferred from stand replacement harvest indefinitely
- May be thinned for forest health or other ecological objectives
- Forests not already deferred for other objectives
- Excludes the 2,000 acres being deferred under Section 1 (b) of this budget proviso.



Vote on Scenario 10: Multiple Dials



Parking Lot Scenarios



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| Scenario 9: Increased emphasis on silviculture | | | ✓ |
| Scenario 10: Multiple dials | | | ✓ |
| Scenario 6: Increase deferrals, Option A | | ✓ | |
| Scenario 7: Increase Deferrals, Option B | | ✓ | |
| Scenario 5: Thinning Only | | ✓ | |

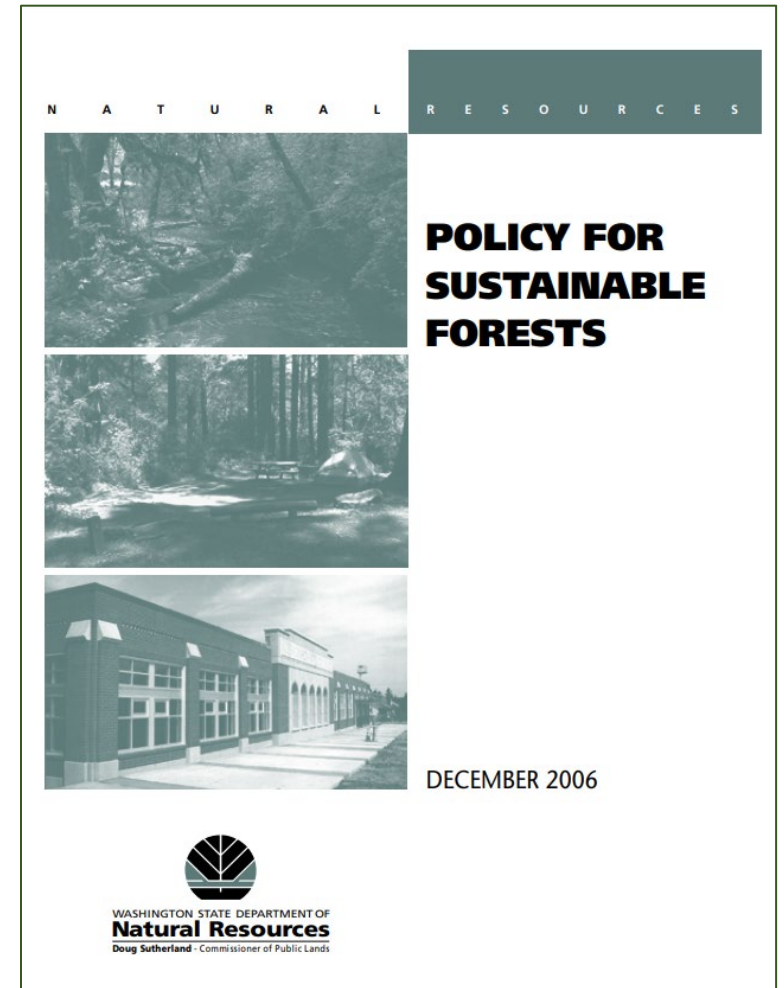
Parking Lot Scenarios (in voting order)



Scenario 6: Increase Deferrals, Option A

- Defer 100 percent of older, “carbon-dense,” structurally complex forests (as DNR defines them within its *Policy for Sustainable Forests*)* in GEM areas from stand replacement harvest.
- May be thinned for forest health or other ecological objectives
- Forests not already deferred for other objectives

*Only definition of structurally complex forest recognized by DNR



Scenario 7: Increase Deferrals, Option B

- Defer 100 percent of older, “carbon-dense,” structurally complex forests (as DNR defines them within its *Policy for Sustainable Forests*)* in GEM areas from stand replacement harvest.
- **Defer 100 percent of less complex forest stands as selected by the work group**
- May be thinned for forest health or other ecological objectives.
- Forests not already deferred for other objectives.

*Only definition of structurally complex forest recognized by DNR

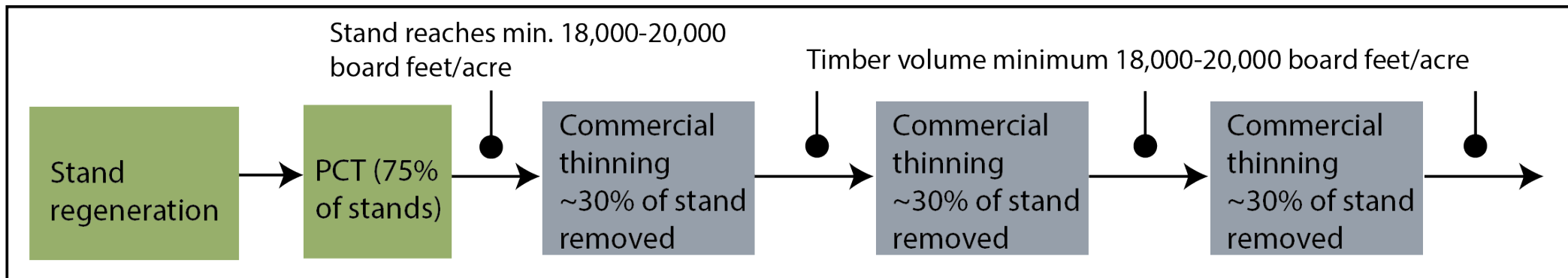


**Vote on Scenarios 6 and 7:
Increase deferrals,
Option A / Option B**



Scenario 5: Thinning Only

- **Dial turned:** thinning.
- Forests in all land classes (GEM, upland, riparian) will undergo commercial thinning repeatedly with no stand replacement harvest.
- Scenario modified to include PCT and remove two-decade waiting period between thinnings.



Vote on Scenario 5: Thinning Only

