



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Peter Goldmark - Commissioner of Public Lands

Carbon Sequestration in Wood

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COMMISSIONER OF PUBLIC LANDS
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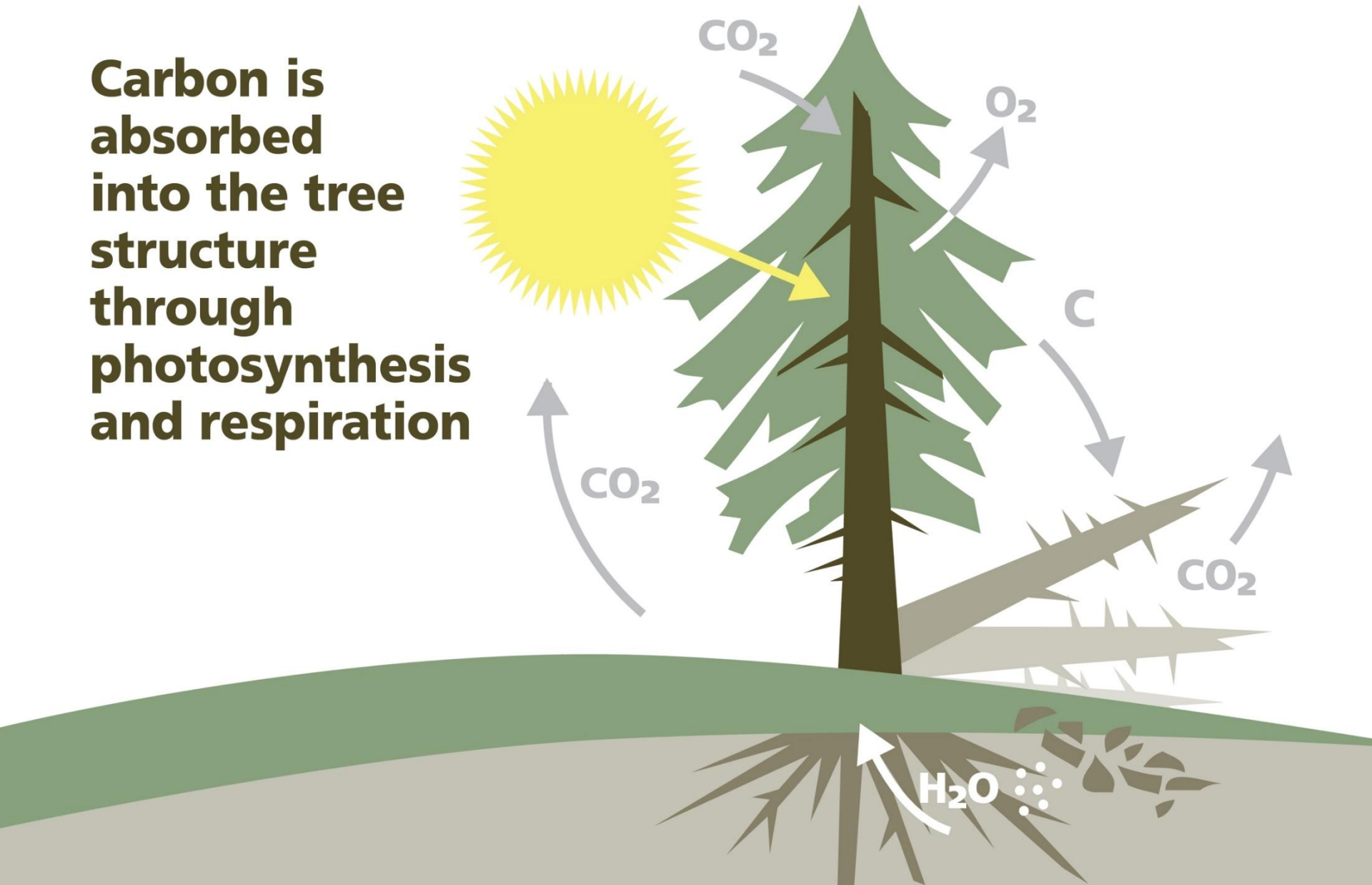
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A Washington State Carbon Policy?

- Sooner or later, it's coming
- Forests and forest landowners play a positive role, which should be recognized
- Forest landowners stand to gain from addressing climate change



**Carbon is
absorbed
into the tree
structure
through
photosynthesis
and respiration**



Forest Carbon Storage

5%
Branches
& needles

10%
Standing dead &
down wood

53%
Tree bole

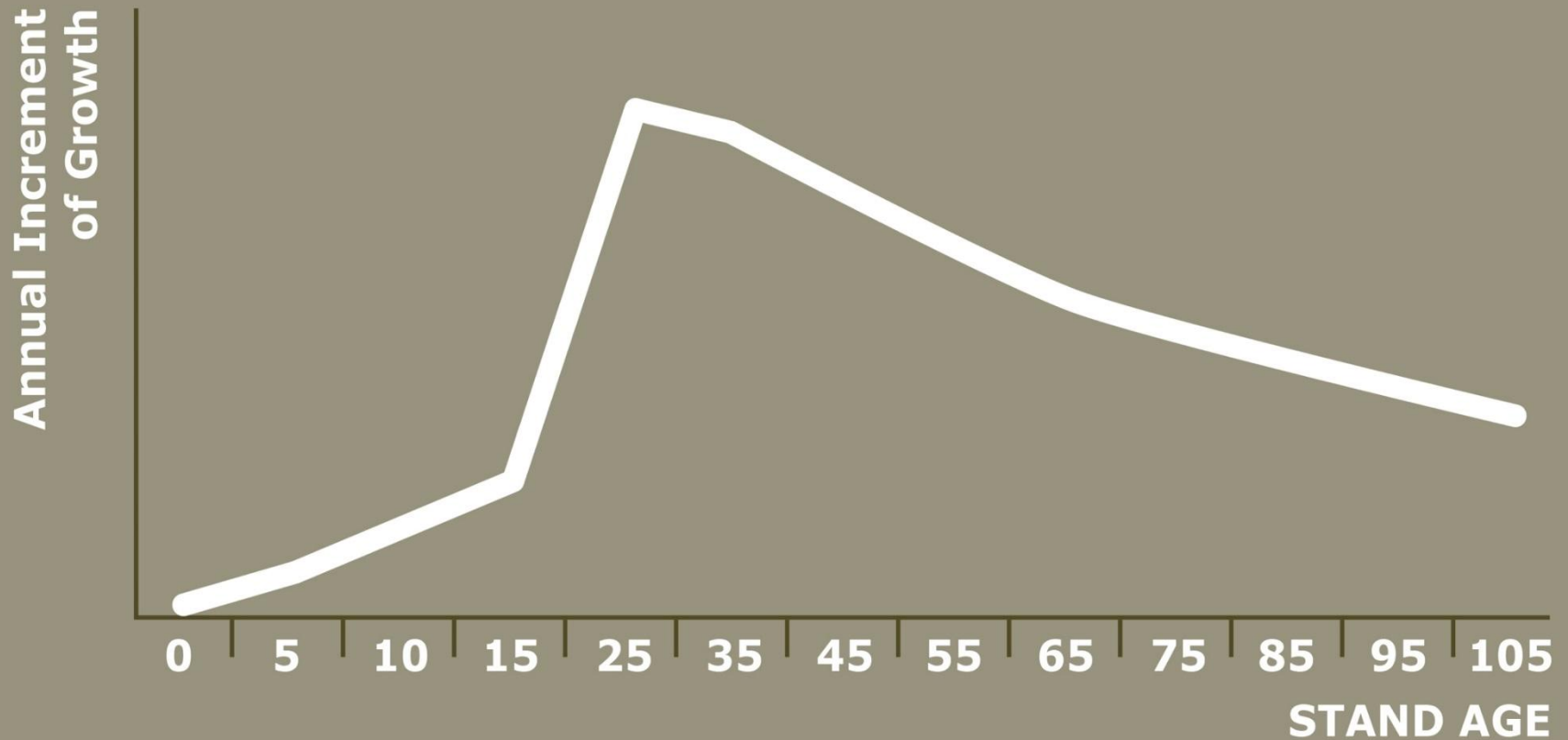
13% Roots

4% Duff

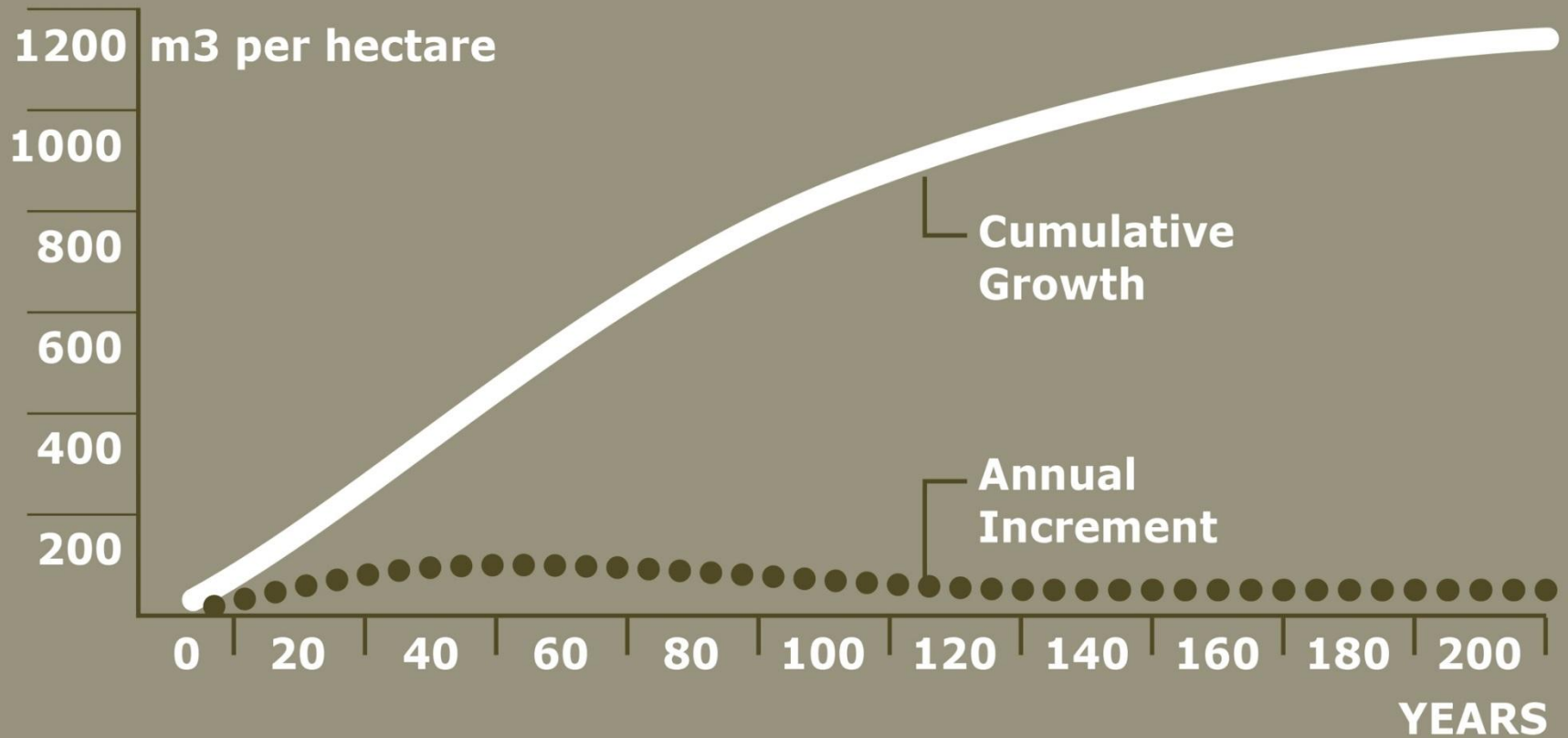
15% Soil



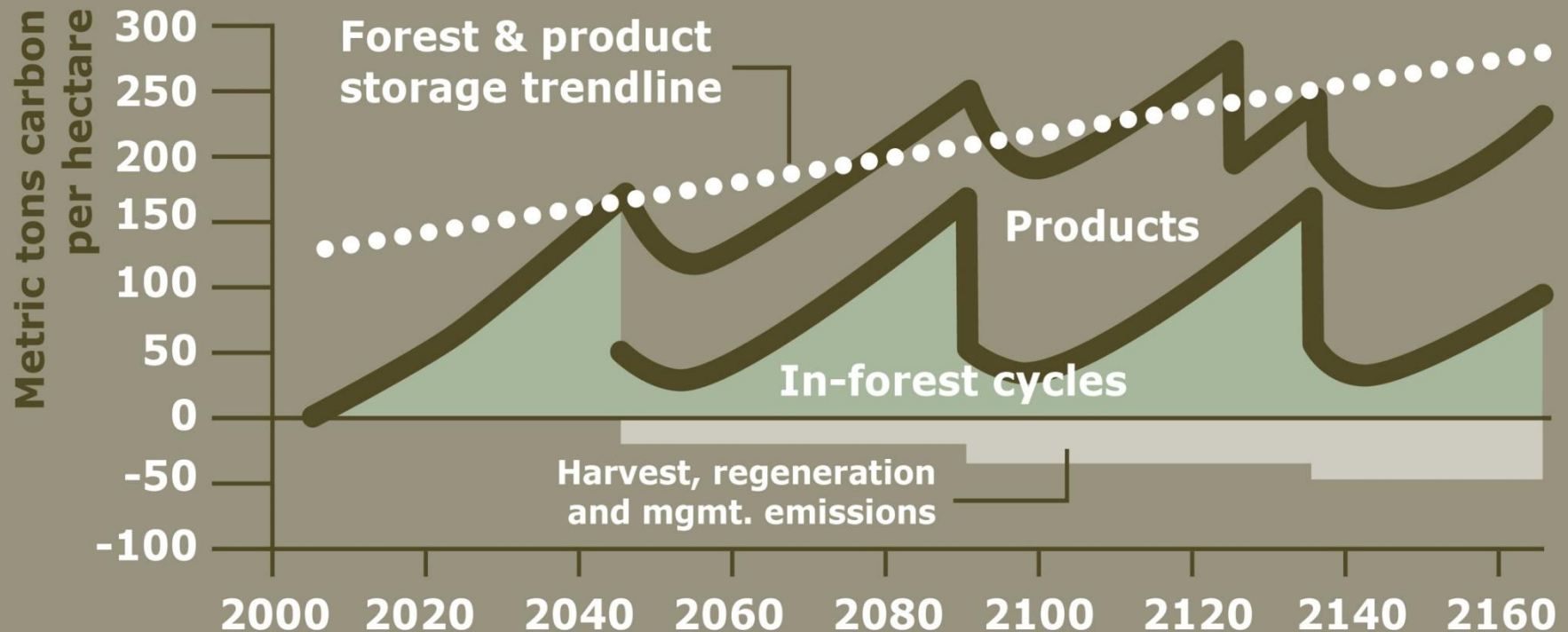
Douglas Fir Growth Rate



Cumulative Growth & Annual Increment Pacific NW Douglas Fir Forest

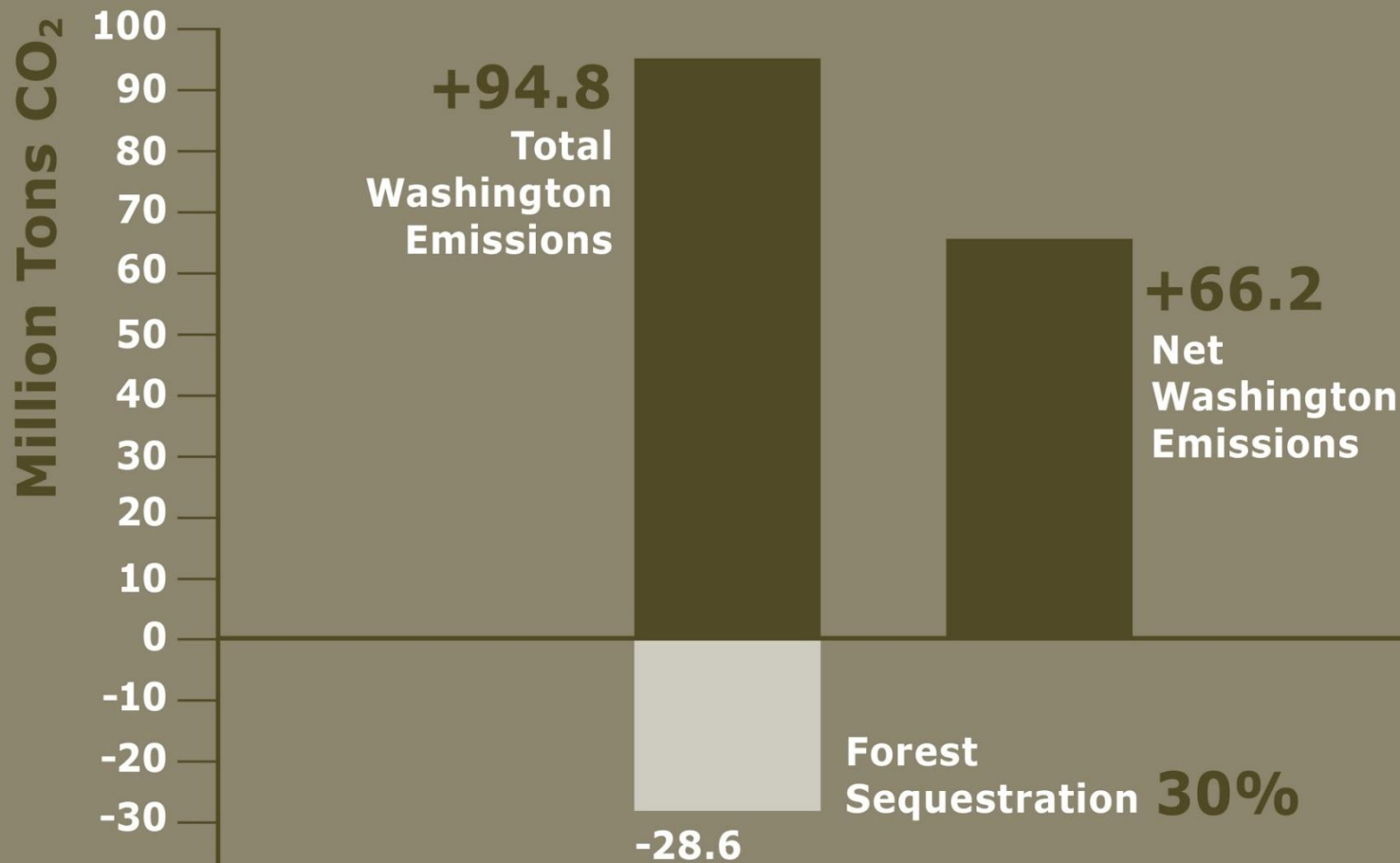


In-Forest & Forest Product Carbon Storage w/Periodic Harvest



Long-term storage in WA Douglas fir commercial forest 100-150 t/hectare.
Long-term storage in long-lived wood products 50-100+ t/hectare.

Each year Washington's forests sequester 30% of gas greenhouse emissions



Threats to Washington's Forest Carbon Sink

- Land-use conversion
- Insects, disease
- Fire



Enlarging Washington's Forest Carbon Sink

- Forest management
- Forest products
- Reduce threats



Emission Control Strategies for Washington's Forest Sector-2020



An Emerging Carbon Policy?

- Cap and trade or carbon tax?
- Potential complimentary policies
 - Land use
 - Energy
 - Transportation





**Cap on Categories of
greenhouse gas emissions**

**Reduced
over time**

**Future greenhouse
gas emissions**

**Allowances for each ton of
greenhouse gas emissions**

**% Distributed free
% Sold at auction**

- **Price per ton of CO₂ established**
- **Generates public revenue**

Cap & Trade

OFFSETS

Credit for
excess
reduction or
sequestrations
from outside
the cap can be
sold to cover
emissions
(offsets)

TRADE

Credit for
excess
reduction can
be sold to
cover excess
emissions



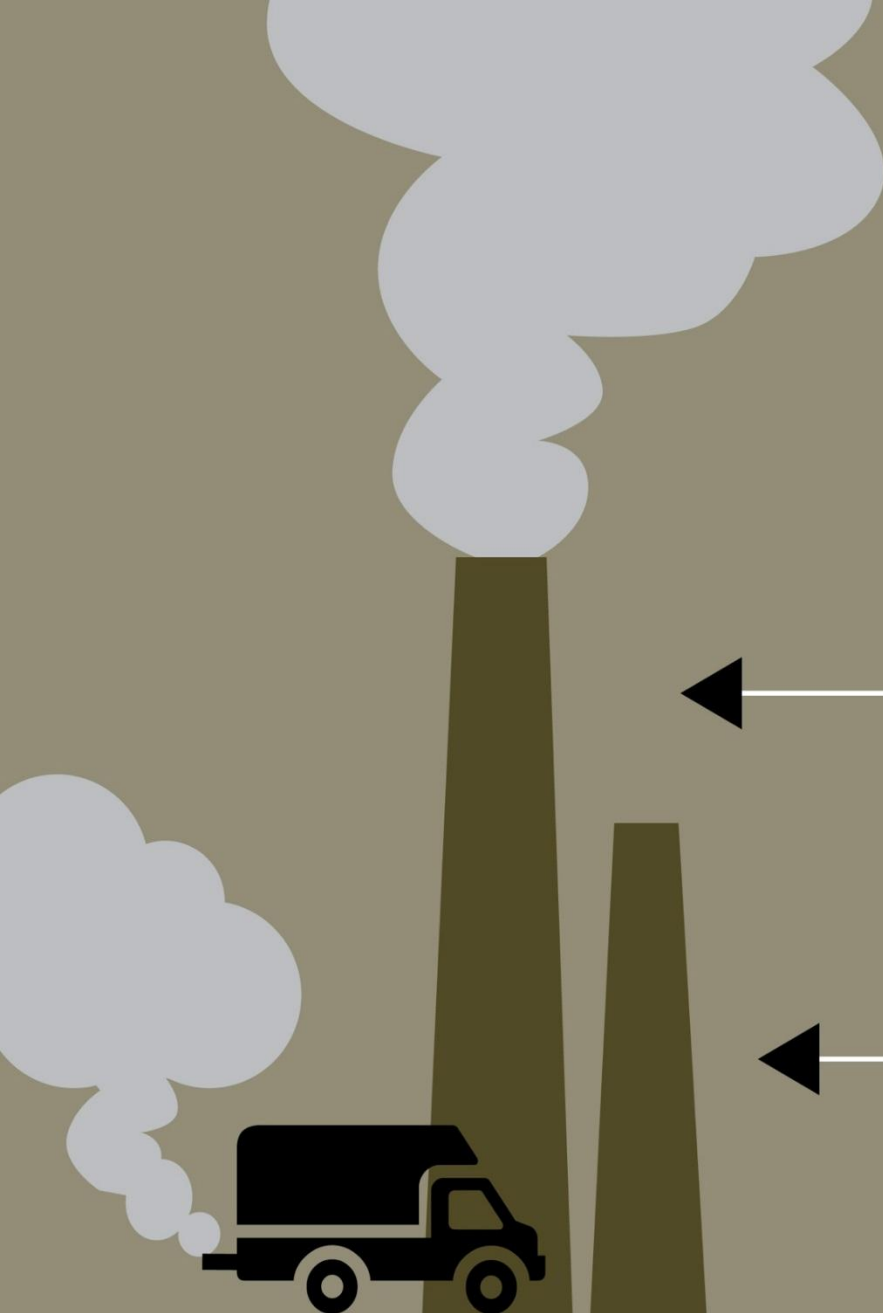
Carbon Tax



**All covered
emissions pay tax
rate per ton**



**Forest sequestration
tax credits?**



Potential Revenue Sources: Cap and Trade

- Public revenue from allowance auctions
- Landowner revenue from offset transactions



Comparing Carbon Values



Potential Revenue

Source: Carbon Tax

- Tax revenue not refunded
- British Columbia's carbon tax is revenue neutral and 100% refunded through tax breaks



How Can Forest Landowners Benefit?

- Maintain forest cover
- Improve forest health and replant after disturbances
- Grow more volume



How Can Forest Landowners Benefit?

- Produce wood for more long-lived products, such as cross-laminated timber
- Participate in bio-energy markets



Washington State Carbon Policy

- Forest sector must participate
- Be prepared!



