

# AB 1504 Forest Ecosystem and Harvested Wood Product Carbon Inventory

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# CA Policy - 2006 Global Warming Solutions Act (AB 32)

- 1990 levels by 2020
- Air Resources Board (ARB):
  - Annual monitoring/verification
  - **Maximum technologically feasible/cost-effective emissions reductions**
  - Scoping Plan w/ 5 yr updates - Forest target = 5 MMT CO<sub>2</sub>e
- Board of Forestry and Fire Protection (BOF):
  - *2008 Strategic Plan and Report to the CA ARB on Meeting the AB 32 Forestry Sector Targets*
  - Noted that 5 MMT CO<sub>2</sub>e estimate had high uncertainty, +/- 38%
  - Improving forest inventory and monitoring = BOF high priority

# CA Policy - 2010 AB 1504

- Formalizes BOF responsibility to meet/exceed 5 MMT CO<sub>2</sub>e forest target annually by 2020.
- Emphasizes the critical and unique role California's forests play in the state's carbon balance.
- Emphasizes maximum sustained production of high-quality timber products + ecosystem services including C sequestration

# CA Policy - Additional efforts/legislation

- 2014 FCAT formed
  - Forest Carbon Plan
- 2015 Executive Order B-30-15, Governor Brown
  - 40% below 1990 levels by 2030
  - 80% below 1990 levels by 2050
- 2016 SB 32
  - Codifies Governor Brown's executive order
  - ARB: Scoping Plan update to reflect 2030 target
- 2016 SB 859
  - ARB: Complete statewide GHG inventory by end of 2018

# AB 1504 Inventory – Forest Ecosystem & Harvested Wood Product (HWP) Carbon Stocks

- Evaluate progress in meeting/exceeding AB32/1504 target
- Carry out BOF 2008 Strategic Plan goal to improve inventory
- CAL FIRE, USFS PNW, UNIV. of MT
- 1<sup>st</sup> report = mid-2017
- 2<sup>nd</sup> report = early 2018
- Will continue beyond 2020

# AB 1504 Inventory – Forest Ecosystem Carbon Stocks

## FIA based

- Ground-based, permanent plot re-measurement system of the same trees over time
- Captures and quantifies growth well
- Directly accounts for mortality and changed conditions
- Repeatable
- Low errors
- Consistent with forest carbon inventory data and reporting nationally
- Initial measurement 2001 – 2010 ← baseline period
- First full re-measurement by 2020
- Carbon stock each year = ten-year rolling average (*i.e. 2015 carbon stock is average carbon stock between 2006 to 2015*)

# AB 1504 Inventory - Forest Ecosystem Carbon Stocks

## *Includes:*

- Public and private ownerships
- Forestland remaining forestland
- Land converted to forestland
- Forestland converted to other land-uses
- C stocks
- Gross growth
- Mortality by cause
- Removals
- Net change
- Other select GHGs

## Forest Ecosystem Carbon Pools

Aboveground	Belowground
Live trees	Live tree roots
Dead trees	Dead tree roots
Live understory veg	Live understory veg roots
Dead understory veg	Dead understory veg roots
Down wood	Soil organic carbon
Litter	

## *Does not include:*

- Urban forests = IPCC settlements
- Shrublands (i.e. chaparral) = IPCC grasslands



# AB 1504 Inventory – Harvested Wood Product Carbon Stocks

- Production approach
- Timber harvest data
- Product ratios
- End-uses/associated half-lives
- If possible, actual/potential avoided fossil fuel/other GHG emissions (informational only)
  - by-product utilization (slash, bark, sub-merch)
  - substitution for more energy-intensive materials (cement, steel)

## Harvested Wood Product Carbon Pools

Products in-use

Products at the landfill

Products burned with energy capture

Products burned without energy capture

TBD Actual avoided emissions



# 1<sup>st</sup> 1504 report highlights

- Expected within the next few months
- Updated calculations
  - Foliage biomass (not included previously; hardwood and softwood)
  - Snags (includes decay rates)
- Continued improvements/refinements expected in future reports
  - Duff/litter
  - SOC
  - Land-use conversions

# Room for improvement – future studies

## 2018 Logging utilization study – BOF, CALFIRE, USFS TPO

- Logging residuals
- Potential effects of increased utilization
- Actual utilization of by-products

## 2018 Biomass study – USFS PNW

- Further refines biomass equations relied upon for carbon estimates

## 2018 Mill energy-use study – BOF, CAL FIRE, USFS TPO, Univ. MT

- CA Timber Industry carbon footprint

# Room for collaboration – Technical Inventory Committee

- Refine data sources for Forest/HWP carbon inventory  
Example: CA-specific data for HWP inventory.
- Provide recommendations for improving the AB 1504 inventory/streamline efforts with other statewide inventories
- Address management scenario analysis, if still needed
- Address additional questions of interest to BOF/FCAT/ARB  
Example: Project-scale monitoring where neither FIA nor remote sensing methods are adequate.  
Example: Address the important role of remote sensing technology.

# Questions?

*Welcome to a warmer future*  
**+9.0 °C, Ambient CO<sub>2</sub>**

