

Raising The Bar: An Overview of NCX's Next Generation Harvest Deferral Methodology



Today's Presenters



Dr. Nan Pond
Director of Certification, NCX

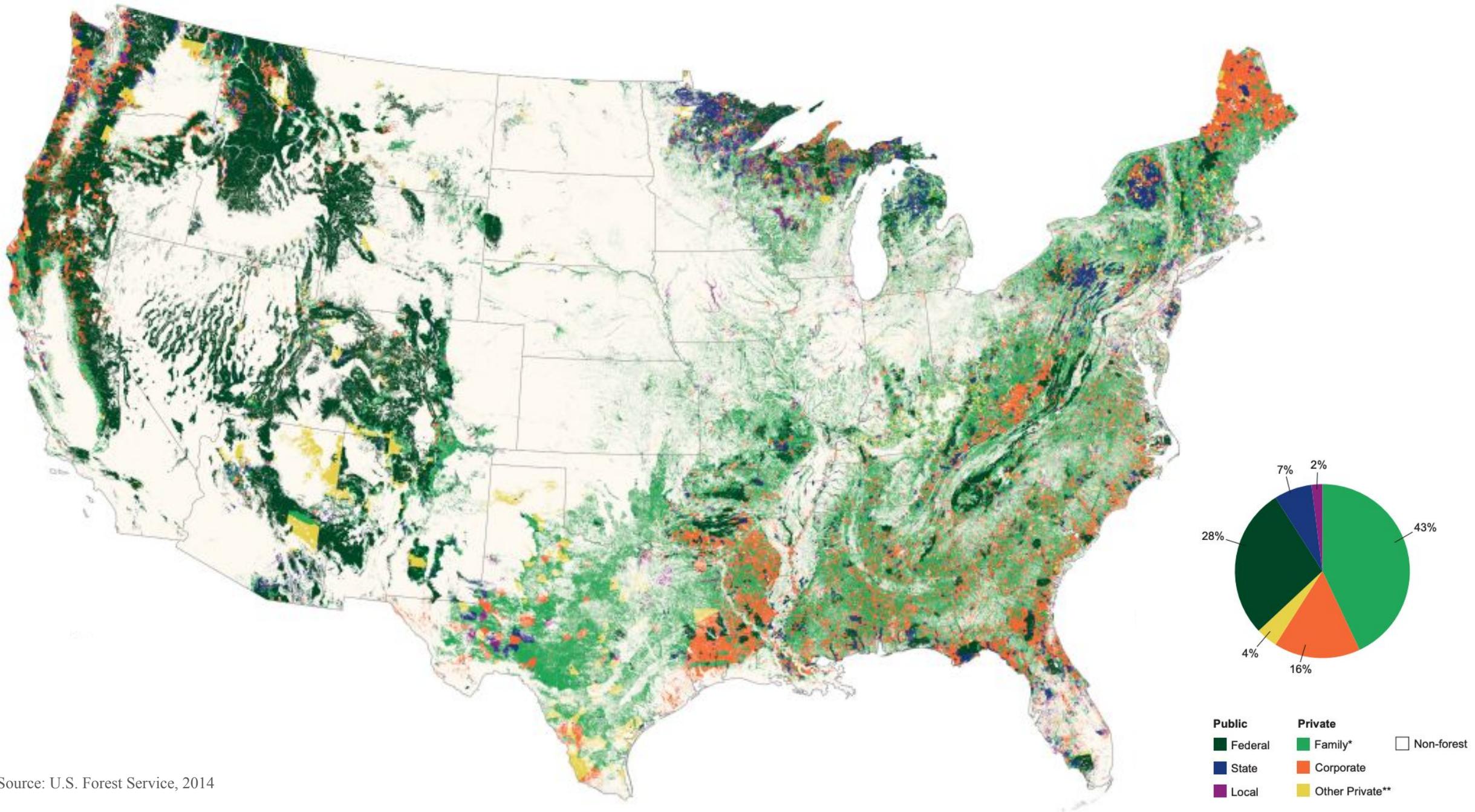


Dr. Spencer Meyer
Head of Science, NCX

Agenda

- NCX's approach to carbon crediting
- Why we updated our methodology
- What's New for latest version
- Accessibility and reproducibility
- Quantification details





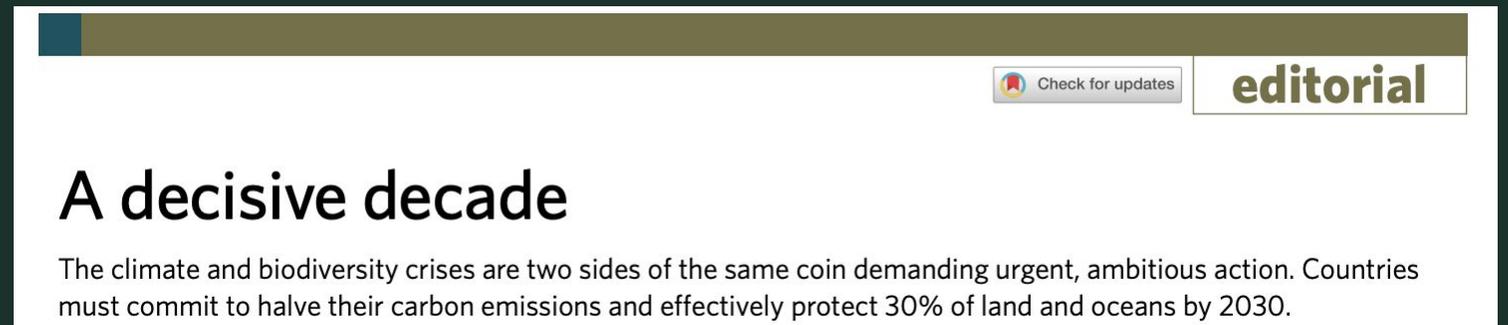
Source: U.S. Forest Service, 2014

Why We Updated Our Methodology

Valuable feedback from public comment period in April of this year

Summary white-paper available - link in follow-up email after this!

Clarify our focus on speed and scale in this decisive decade

A screenshot of a scientific article header from the journal Nature Ecology & Evolution. The header includes a "Check for updates" button, the word "editorial" in a box, the title "A decisive decade", and a short abstract paragraph.

Check for updates

editorial

A decisive decade

The climate and biodiversity crises are two sides of the same coin demanding urgent, ambitious action. Countries must commit to halve their carbon emissions and effectively protect 30% of land and oceans by 2030.

A decisive decade. *Nat Ecol Evol* 5, 1465 (2021). <https://doi.org/10.1038/s41559-021-01582-1>

Unique Aspects of Methodological Approach

- Short-term contracts with ex post-crediting
- annually updated baselines
- baseline as a predictive model
- remote sensing data and models for measurement and monitoring



one-year terms



rapidly
measure + evolve

What's New in our Latest Version

- Restructured accounting to incorporate carbon storage in harvested wood products
- Leakage
- Performance benchmarks
- Uncertainty
- Time-value of carbon
- Bugfixes – clarify eligibility and language for key areas of confusion
- *Explainers available on NCX Learning Hub:*
info.ncx.com/next-generation-methodology

Accessibility and Reproducibility

- GitHub hosting – https://github.com/ncx-co/ifm_deferred_harvest
- R package (creditr) useable to implement the top-level equations in the methodology
- Supplemental data tables – compiled data from USFS publications, FIA, Climate Action Reserve
- Precomputed values for decay integrals
- Change log visible in Git history

Accessibility and Reproducibility

ncx-co / ifm_deferred_harvest Public

<> Code Issues 9 Pull requests Discussions Actions Security Insights Settings

Public Comment: 37 (Will Clayton) #37

Open ncx-gitbot opened this issue 20 days ago · 1 comment

ncx-gitbot commented 20 days ago Member

Commenter Organization: Sky Harvest Resources LLC

Commenter: Will Clayton

2021 Deferred Harvest Methodology Section: 5

Comment: We have measured below ground live carbon to equal 15-30% of above ground live carbon, with variability depending on forest characteristics. At harvest all of this carbon will die and then begin the slow process of decomposition.

Proposed Change: Consistent with the proposed change in section 8.1 (row 9 above), carbon stored in this location should also be considered when calculating the project's net carbon benefit.

ncx-gitbot added public comment miscellaneous labels 20 days ago

ncx-gitbot commented 20 days ago Member Author

NCX response: We are conservatively excluding belowground biomass from our projects for now since the allometric equations for BGB are much more uncertain than for AGB. We support research into this area to better understand BGB since it can be significant pool of carbon.

Accessibility and Reproducibility

History for [ifm_deferred_harvest](#) / harvest_deferral_ifm.md

Commits on Nov 15, 2022

- remove non-descriptive text**
ncx-gitbot committed 7 days ago Verified [108afe3](#)

Commits on Nov 14, 2022

- Clarify definition of project proponent**
ncx-gitbot committed 8 days ago Verified [49f6a5f](#)

Commits on Nov 10, 2022

- Update harvest_deferral_ifm.md** ...
ncx-gitbot committed 12 days ago Verified [f563af4](#)

Commits on Nov 2, 2022

- update methodology text and README**
ncx-gitbot committed 20 days ago [5392b03](#)
- add v1 methodology files**
ncx-gitbot committed 20 days ago [5842226](#)

End of commit history for this file

Quantification Details



Harvest Deferral Methodology V2.0

$$\Omega = (u)(1 - l) \sum_{i=1}^N (\Delta_{baseline,i} - \Delta_{project,i}) \quad \text{(Equation 1)}$$

Where:

Ω	total impact (mtCO ₂ , discounted to present value).
$\Delta_{baseline,i}$	discounted impact of emissions in the baseline scenario (mtCO ₂) for spatial unit i
$\Delta_{project,i}$	discounted impact of emissions in the project scenario (mtCO ₂) for spatial unit i
l	market leakage deduction factor
u	uncertainty conservativeness factor
i	index for spatial unit i (e.g., cell, pixel, property)
N	number of spatial units

Quantification Details

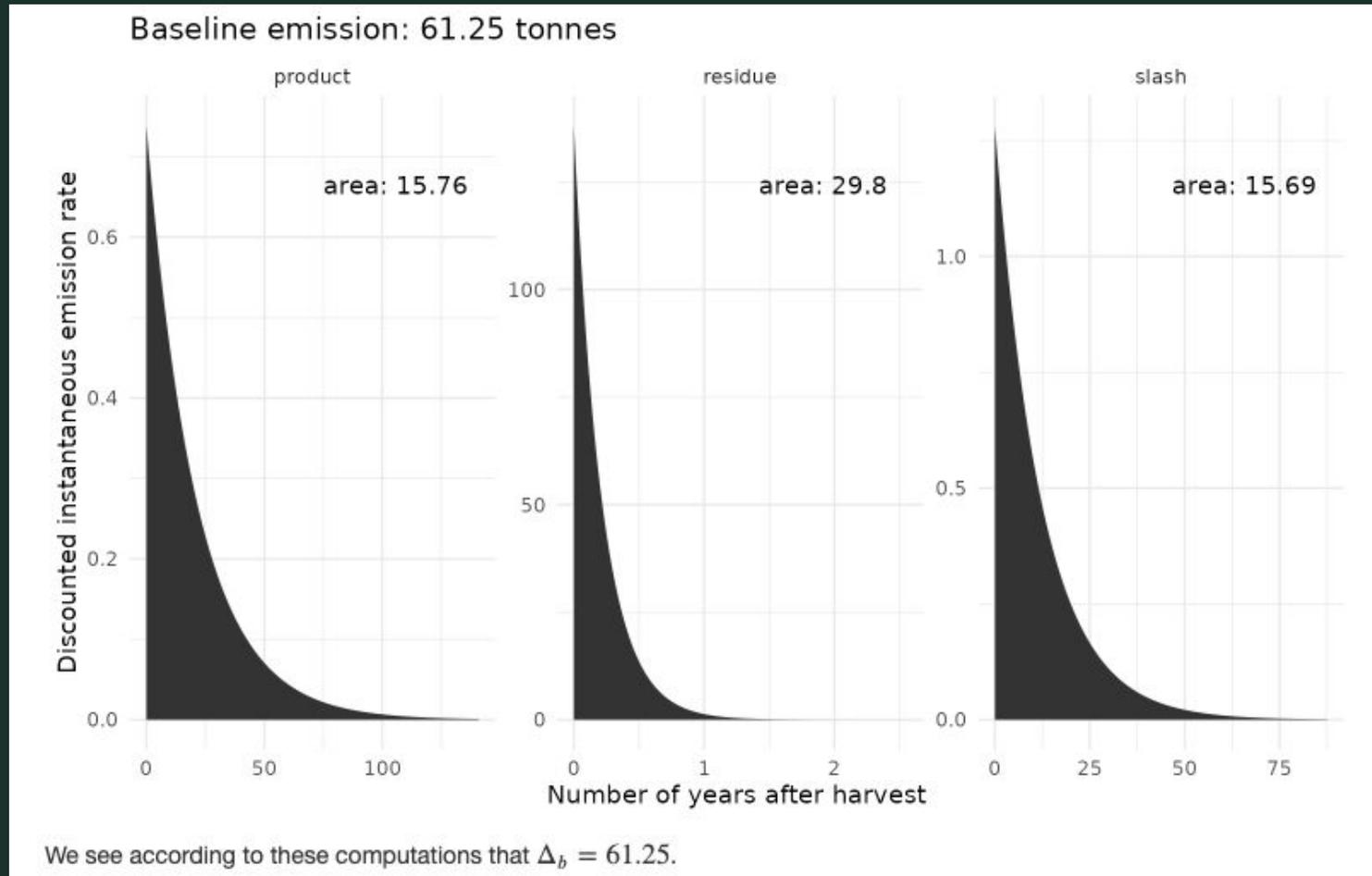
$$\Delta_{baseline} = C\tilde{r} \sum_{p \in P} m_p \int_0^{\infty} F(\lambda_p, \rho, t, d = 0) dt$$

Starting carbon in aboveground live biomass

Proportion expected to be removed under business-as-usual harvesting activity

For each harvested wood product pool, summed decay through time, discounted to present value

Quantification Details



Quantification Details

$$\Delta_{project} = E_0 + E_d - s$$

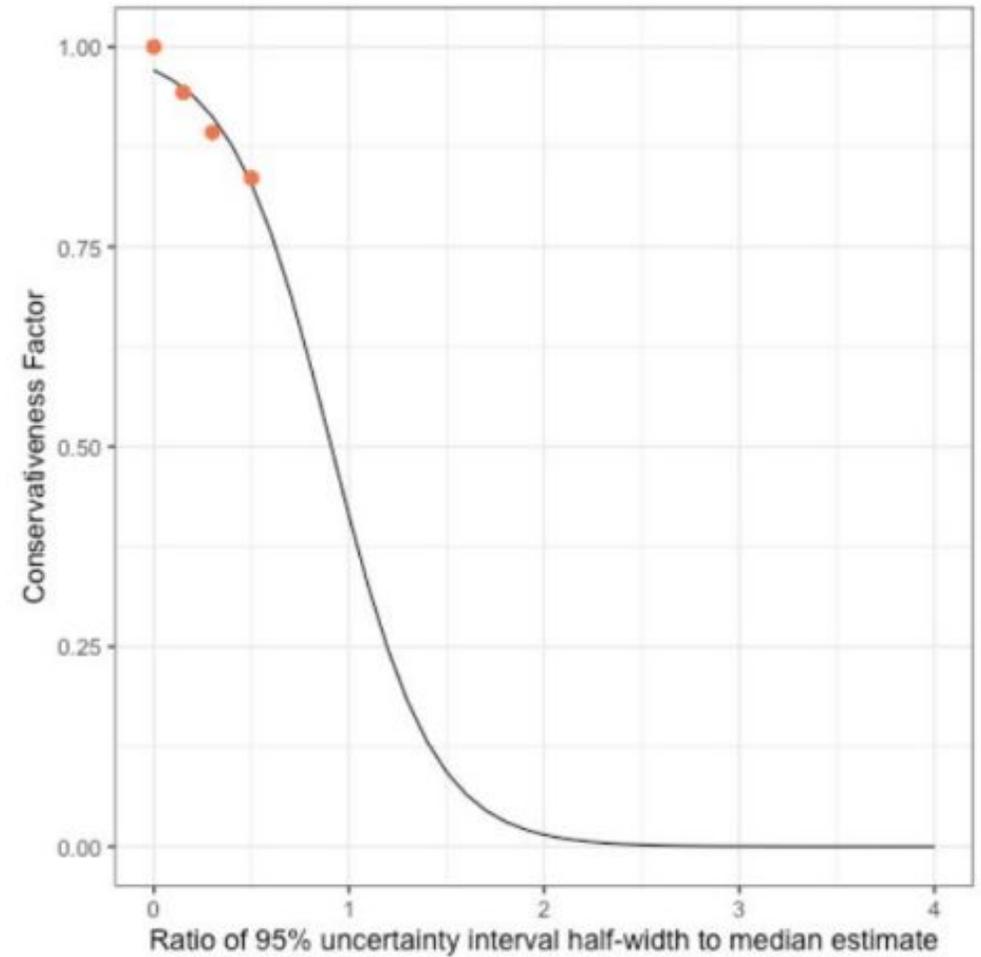
E_0	emissions due to harvests that occur during the project period (<i>project-period harvest</i>)
E_d	emissions due to the deferred BAU harvest, which occurs at $t = d$ (<i>deferral emissions</i>)
s	sequestration due to the growth on component of the aboveground live tree biomass for which harvest was deferred

Quantification Details

Uncertainty Conservativeness Factor

$$u = 1 / (1 + e^{-(3.502478 - 3.851745 * x)})$$

Figure 1. Logistic regression function fit to IPCC-derived stepwise guidelines.



Quantification Details

Leakage

```
206 #' @export
207 compute_raw_credits <- function(
208   t0_tCO2,
209   annual_growth_rate,
210   baseline_intensity,
211   loss_intensity,
212   supersection,
213   annual_discount_rate = 0.03,
214 - leakage = 0.1
215 ) {
216 + emissions <- compute_emissions(
217   t0_tCO2,
218   annual_growth_rate,
219   baseline_intensity,
220   loss_intensity,
221   supersection,
222   annual_discount_rate
223 )
224 credits <- emissions * credits
```

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Audience Q&A

Thank You for Joining Us

PLEASE DIRECT COMMENTS TO

science@ncx.com

WEBSITE

ncx.com

