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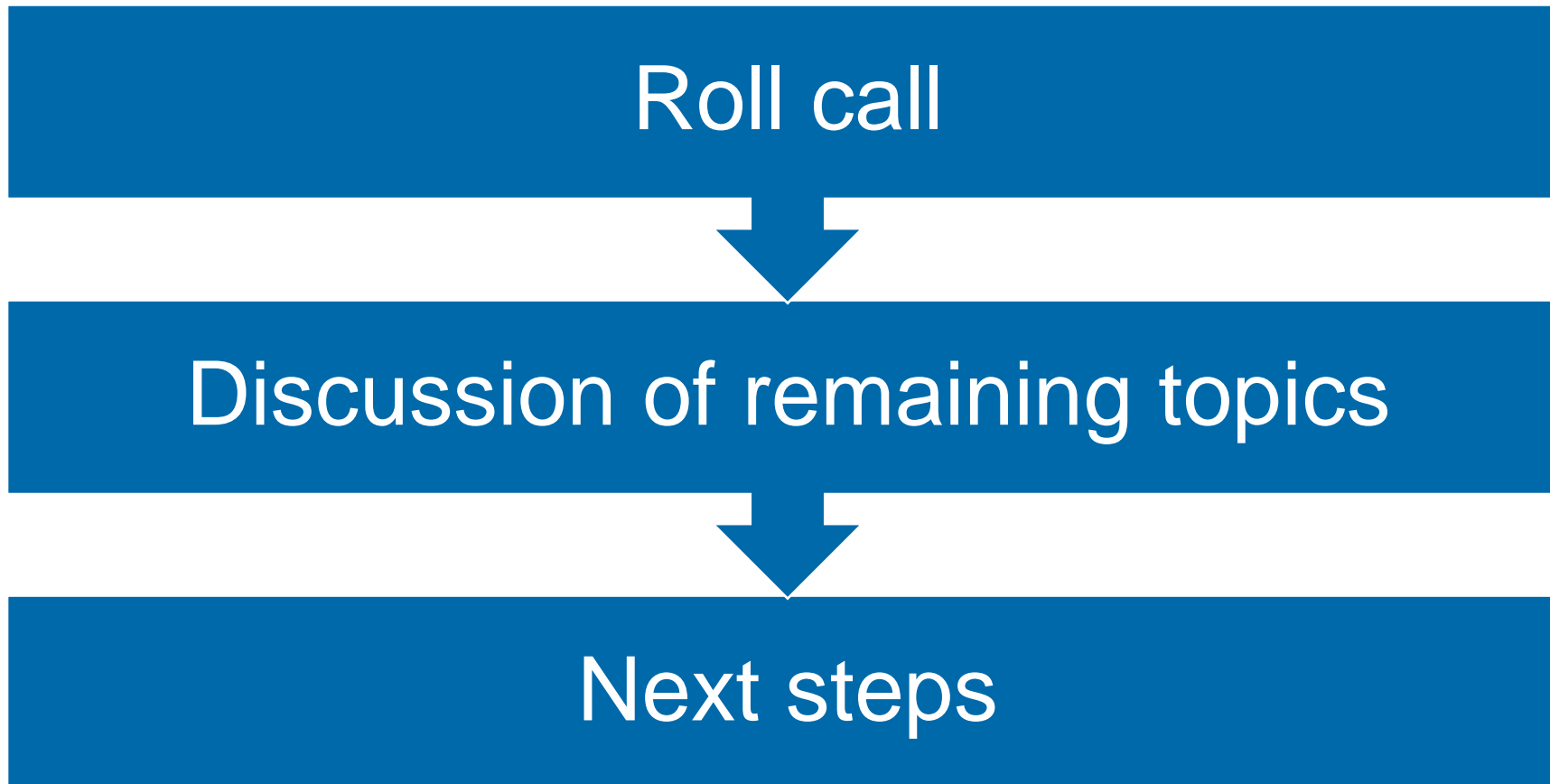
**Avoided Wildfire Emissions
Forecast Methodology
Version 1.0**

Workgroup Meeting 3

March 31, 2022

Housekeeping

- Workgroup members have the opportunity to actively participate during the meeting
 - Please keep yourselves muted unless / until you would like to speak
- All other attendees/observers are in listen-only mode
- Observers are free to submit questions in the GoToWebinar question box
- We will follow up via email to answer any questions not addressed during the meeting
- The slides and a recording of the presentation will be posted online



Introductions



Jon Remucal
Marissa Schmitz
Jordan Mao



Thomas Buchholz
David Saah



Dogwood Springs
Forestry

John Nickerson



Jeff Ravage



Seth Baruch

Introductions

Name (alphabetical)	Organization
Aaron Green	Colorado State Forest Service
Andrew Dunn	HQPlantations Pty Ltd
Bruce Springsteen	Placer County Air Pollution Control District
Christian Eggleton	FRST
Dan Porter	The Nature Conservancy
Ed Murphy	Sierra Pacific Industries
Elliott Vander Kolk	Sierra Nevada Conservancy
Harry Statter	Firewise Landscapes Inc / Frontline Wildfire Defense
Jens Stevens	US Forest Service

Introductions

Name (alphabetical)	Organization
John Battles	University of California, Berkeley
John Cleland	Renew West
Mark Finney	US Forest Service
Matt Hurteau	University of New Mexico
Phil Saksa	Blue Forest Conservation
Steve Eubanks	(Independent)
Tad Mason	TSS Consultants
Tadashi Moody	California Department of Forestry and Fire Protection

Funding support



Shoulders we're standing on...

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Today's Discussion

Methodology Components

Eligibility

- Defining the project
- Ownership
- Start Date / Crediting period (40 years)
- Project Location
- Additionality
 - Performance Standard Test
 - Legal Requirement Test
 - Enhancement Payments
- Regulatory compliance
- Permanence

Project Area

Defining GHG boundary

Quantification

- Delineating the project area
- Quantifying project emissions/removals
- Programmatic risk deduction

Monitoring / Reporting / Confirmation

- Sampling
- Confirmation field visit

Section 2

The GHG Reduction Project

2.1 Project Definition

Activity or set of activities that result in reduced wildfire emissions from forestlands relative to business-as-usual

Fuel treatments

- Mastication
- Broadcast / prescribed burning
- Thinning
 - Thin from below
 - Crown thinning
 - Selection cut
- Pruning
- Mechanical removal of surface fuels

2.2 Project Proponent

Who can be issued FMUs?

Project proponent:

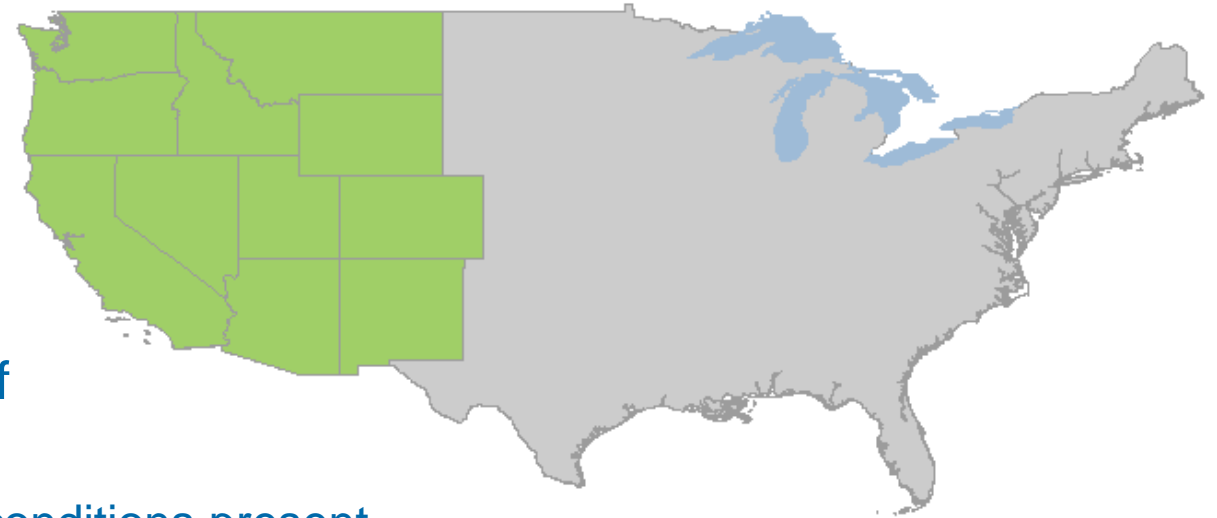
- Entity that:
 - Has a Climate Forward registry account
 - Submits the project to the registry
 - Is responsible for reporting and confirmation
- Generally is the entity responsible for:
 - Organizing
 - Planning
 - Implementing or overseeing the implementation
- Not required to be underlying landowner of treatment areas
 - Must provide agreements with landowners whose lands are being treated
- Can aggregate treatments across ownerships, including across ownership types

Section 3

Eligibility

3 Location

- Western U.S.
- Limited based on data availability
- Private or public lands
- May be on locations where prior AWE projects took place (subject to quantification of net climate benefits)
 - New AWE project on same location uses fuel conditions present at the time it is initiated, including as impacted by previous projects
 - Altered conditions from prior treatments (and other activities/disturbances within the project area) are part of the baseline for new projects
- May be on locations where other C projects exist (e.g., stacked with an IFM project), but need to seek Reserve approval and guidance to prevent double-counting



3 Start Date & Crediting Period

Project start date

- Date that fuel treatment activities are first initiated
- May be up to 12 months prior to release of final methodology

Project listing deadline

- Submitted for listing within 1 year of the project start date
- If start date is prior to release of the methodology, may be submitted up to 1 year after the methodology release date (but still subject to field data collection requirements)

Crediting period

- **40 years**
 - Allows enough time for treatment impacts to play out under different site conditions
 - If treatment impacts are shorter lived than 40 years, the baseline and project conditions within the modeling will converge to reflect this (i.e., benefits from project will become minimal/non-existent in later years of projections)

3.3 Additionality

Projects must yield surplus GHG removals “additional” to what would have occurred in the absence of the project

Performance standard

- Methodology draft currently states that projects are additional if in areas where substantial fuel treatment activities have been absent for the past 3 years
- Likely to be updated to indicate projects are simply additional to the extent they reduce GHG emissions below what would have occurred under the baseline.

3.3 Additionality

Enhancement payment stacking

- Submitting a project based on a practice that is also funded by the government or other parties via grants, subsidies, payments, etc., on the same land.
 - Would practice have still happened in the absence of carbon project revenues?
 - If project has all fuel treatment costs covered by a grant or subsidy, it would have taken place even if a carbon project wasn't being registered → likely not considered additional
- Projects are not expressly prohibited receiving enhancement payments
- BUT if payments based on quantified climate benefits generated (\$/tCO₂e), then possibly:
 - Considered non-additional, or
 - Require quantification adjustments
- **If considering stacking, seek Reserve guidance as soon as possible**

Example: California Climate Investment funds

Is this guidance a potentially unreasonable barrier to participation?

3.3 Environmental & Social Safeguards

- Relies on existing laws/regulations as basic environmental safeguard
- Encourage but not require coordination with nearby landowners
 - Allows projects at scale → benefits of the whole greater than the sum of its parts
- Requires project proponents to report on potential adverse impacts to environmental and social issues, including air and water quality, endangered species, environmental justice.
- Are there more specific safeguards that should be considered?

3.6 Ownership & Double-Counting

Ownership

- Credits issued to the project proponent on the basis of the implementation of fuel treatments and their influence on future fire behavior within the project area.
- Project proponent owns the credits issued for the benefits quantified, regardless if they are attributable to fuel treatment sites or other, non-treated areas within the project area (wildfire shadow areas).

Double-counting

- Avoid crediting for same GHG benefits recognized under another project
- However, stacking projects may be allowed where no double-counting would occur—requires approval and guidance from Reserve
- Potential areas of double-counting:
 - Harvested wood products from fuel treatments
 - IFM fuel treatment risk rating reduction
 - Others?

Section 6

Quantification

Standardized Data

Base data required to be used by all projects for quantification

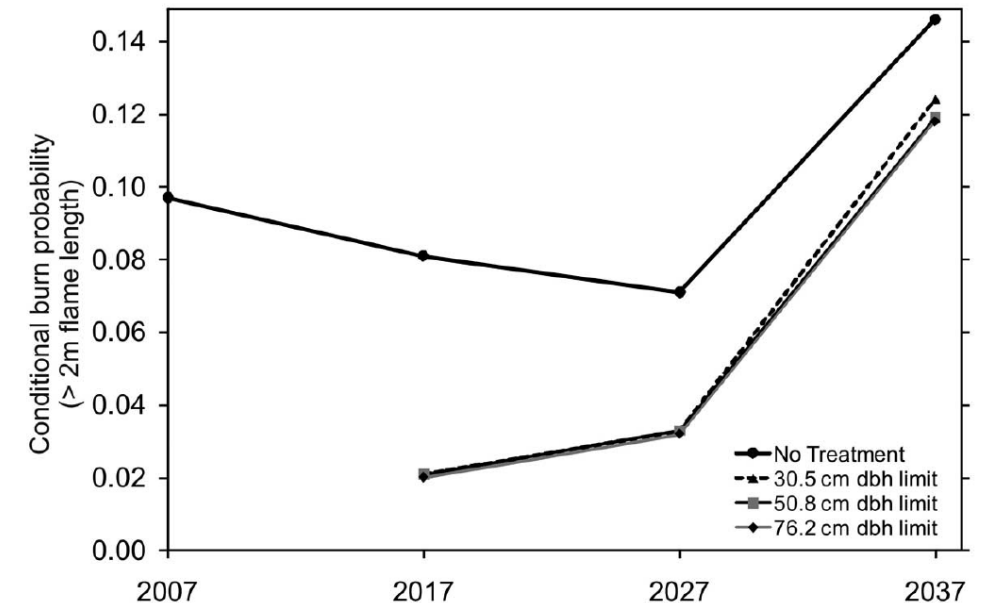
Data	Description	Potential source(s)	Comments
Ignitions	Historical ignition points	USFS [Short, 2021: Spatial wildfire occurrence data for the United States, 1992-2018	
Tree inventory	Imputed tree-level inventory list	USFS TreeMap [Riley et al. 2019]	Available but not updated annually, 30x30m resolution based on FIA plot inference
(Stands)	Stand polygons, used to aggregate inventory data from pixels and simplify growth and yield modeling	CA: CALVEG; Landfire pixels, aggregate pixels by defined code	Potential to remove this requirement and model only unique plot conditions within project area
Weather	Temperature, humidity, wind speed; from at least 2 stations	RAWs; gridMET climatetoolbox.org/data	Some RAWs points are sheltered, but generally represent extreme conditions
Surface fuel models	Surface fuel models for pre- and post-treatment; current datasets frequently not a good match	Landfire; potentially added soon to TreeMap	Surface fuel models often require project-level review to ensure appropriateness
Fire probability map	Pixel based probability map	Western US (USFS); CA (USFS, CAL FIRE)	Existing data would be updated to focus on past 10yr history
Delayed regeneration data	Ecosection- and/or forest type-specific dataset (LUT) of % stands not showing forest cover 20yrs after stand replacing fire	Available for CA from 2018	Same analysis yet to be applied to remainder of Western US

6.8 Performance Decline

Fuel treatments have limited efficacy periods—accounted for in project modeling

10% programmatic ex ante risk discount is applied to all projects to address:

- Goal of crediting on conservative basis
- Uncertainty associated with estimating future climate benefits from treatments today
- Uncertainty associated with probabilistic occurrence of future wildfires



Section 7 / Section 9

Monitoring / Confirmation

Photo Plots

Photo plots must show that vegetation data being used by the models are representative of actual conditions on the project site

Plot attribute	Project proponent	Confirmation body
Location	Georeferenced datapoints; plots stratified by treatment type	Confirm location, statistics
# of plots	Based on treatment size	Confirm plot number in accordance with procedures
Imaging	360 degree fisheye pre- and post- treatment	Confirm image match
Image interpretation	<ul style="list-style-type: none"> • Dominant overstory and understory vegetation specie(s) • Fire behavior fuel model choice • Canopy base height estimate • Canopy height estimate • Overstory closure estimate 	Confirm choice (random selection of 20% of plots; 90% match for each metric)

7.1 Monitoring / 9.4 Confirmation

Plot attribute	Project proponent	Confirmation body
Vegetation	Species (overstory and understory)	Review random selection of 20% of plots ≥90% match for each metric
Fire behavior fuel model	Selection from Scott and Burgan (GTR-153)	
Canopy base height	In feet, to nearest 5'	
Canopy height	In feet, to nearest 10'	
Overstory canopy closure	Assign to closure class (0-25%, 25-50%, 50-75%, 75-100%)*	

* Can also use remote sensing-based assessment, with confirmation body estimate within 10% of project proponent estimate

If 90% match not achieved:

- Perform on-the-ground adjustments to the treatment area(s)
- Adjust data inputs for modeling to reflect pre-treatment conditions better
- Adjust data inputs for modeling inputs to reflect post-treatment conditions better

Other Questions or
Comments?

Next Steps

Logistics

- Submit comments/feedback by April 15
- Reach out any time to discuss methodology topics or process
- Reserve staff and drafting group determine if additional workgroup meetings are needed, otherwise produce draft for public comment
- Public comment period of 30 days (likely May), followed by any further modifications to the methodology in response to public comments
- Internal review by Reserve senior management
- Pending outcome of final review, release of methodology!

Contact Information

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