



University of Idaho

College of Natural Resources

A BRIEF LOOK AT FOREST OFFSET PARTICIPATION IN THE UNITED STATES

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**10th Forestry and Agriculture GHG Modeling Forum
November 9, 2021**

US FOREST CARBON OFFSET PARTICIPATION



I Project Types

- Depiction of Improved Forest Management

I Summary of project documentation for all *(forest)* projects in the U.S.

- Maps – Tables – and Such *(lots of such)*
 - Current topics of interest *(to make you fluent enough for carbon cocktail parties)*
 - Avoided Emissions vs Removals
 - DEBs
 - Vintages



FOREST CARBON PROJECT TYPES

I Avoided Conversion (AC)

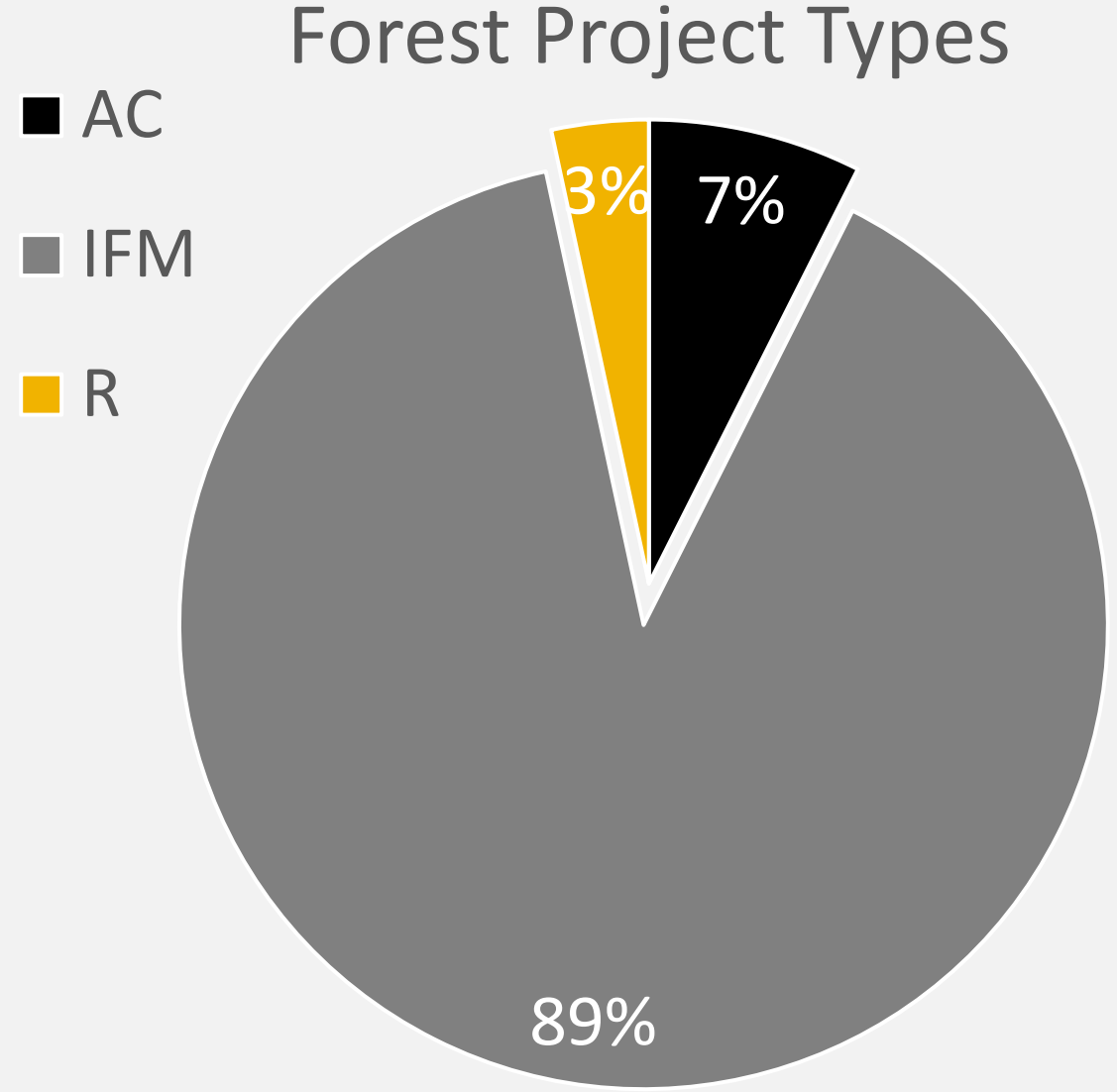
- Forests prevented from being converted to non-forested land

I Improved Forest Management (IFM)

- Forest management that increases and maintains a certain level of carbon stocking

I Reforestation R

- Converting non-forested land into forested land





US FOREST CARBON OFFSET PARTICIPATION

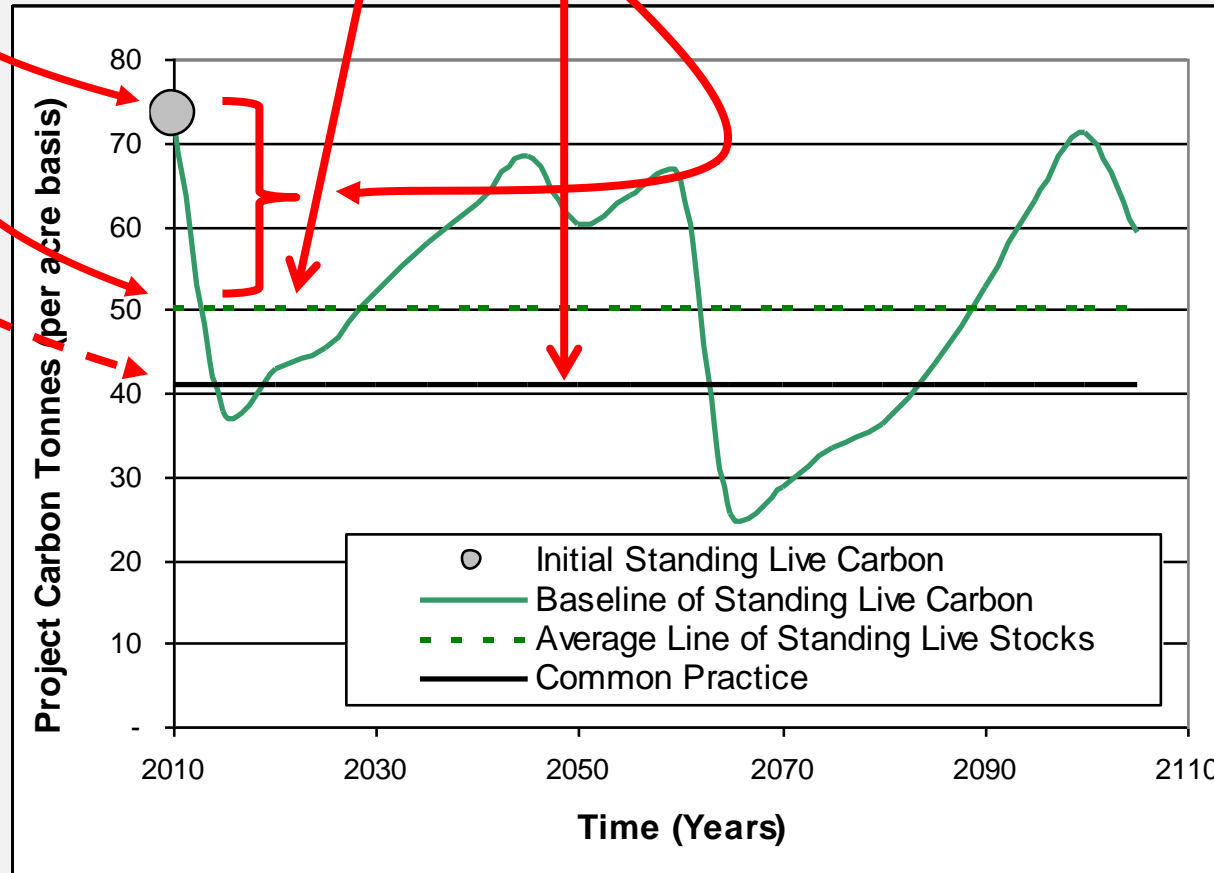
Avoided Emission Offsets:

Initial credits issued, usually larger number because of previously established timber

Removal Offsets:

Credits that are issued yearly due to yearly growth of the project area

1. Conduct forest 10 year forest health assessment for carbon above Common Practice
 2. Determine a 300 Common Practice baseline for project
 3. Conduct forest 10 year forest health assessment for carbon above Common Practice (legal and economically viable of course)
 4. Determine a 300 Common Practice baseline for project
 5. Conduct forest 10 year forest health assessment for carbon above Common Practice
 6. Determine a 300 Common Practice baseline for project
- Must be above this Common Practice Line**





US FOREST CARBON OFFSET PARTICIPATION

- Regulatory and Voluntary



ARB	
Projects	149
Acres	5,338,811
Credits Issued	180,745,973

Total	
Projects	192
Acres	5,794,736
Credits Issued	192,754,683



CLIMATE ACTION RESERVE

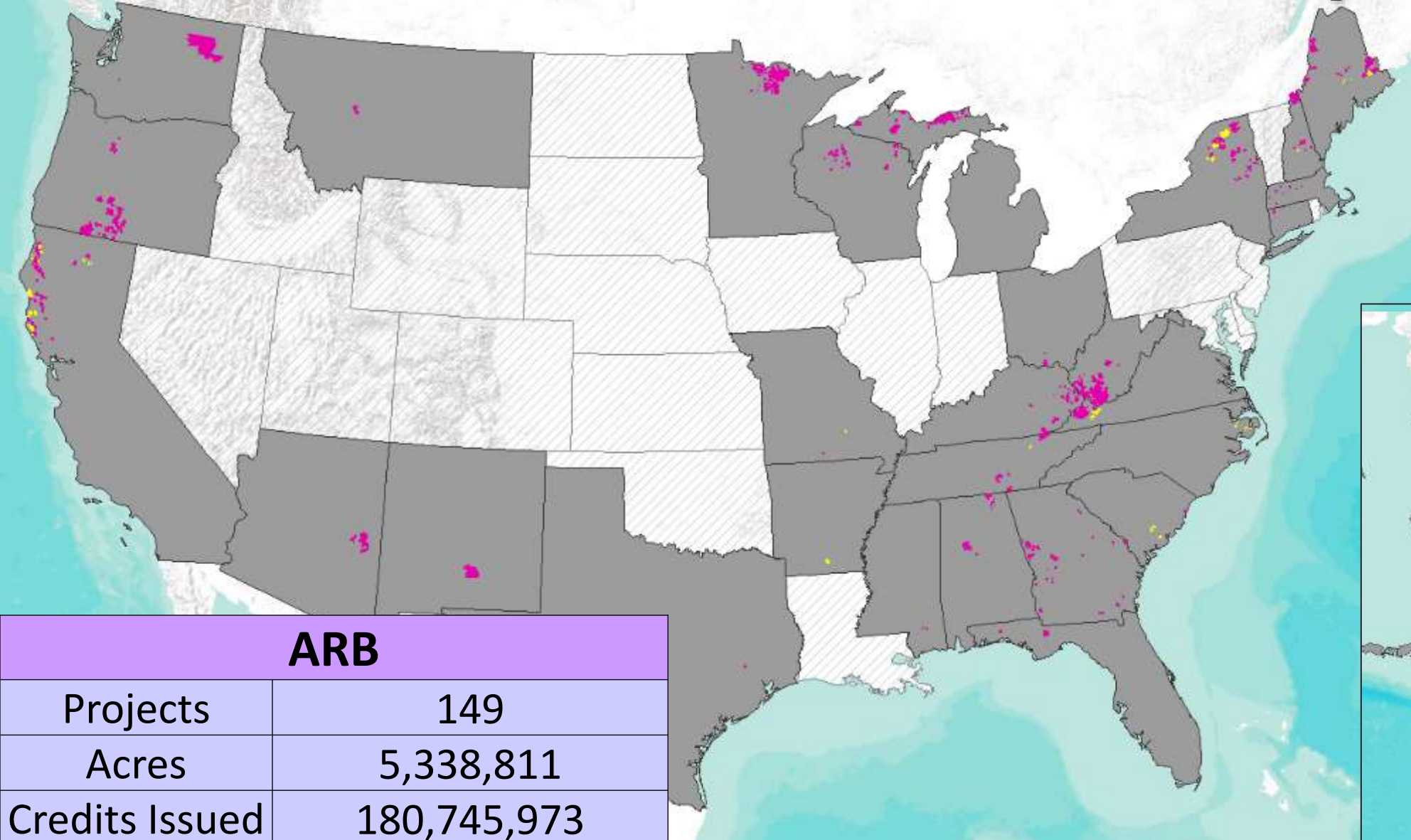


Verified Carbon Standard
A VERRA STANDARD

Voluntary			
	CAR	ACR	VCS
Projects	11	23	9
Acres	43,966	320,799	91,160
Credits Issued	3,066,334	8,755,048	187,328



CALIFORNIA AIR RESOURCES BOARD (ARB)



Legend

- ARB Early Action
- ARB Compliance





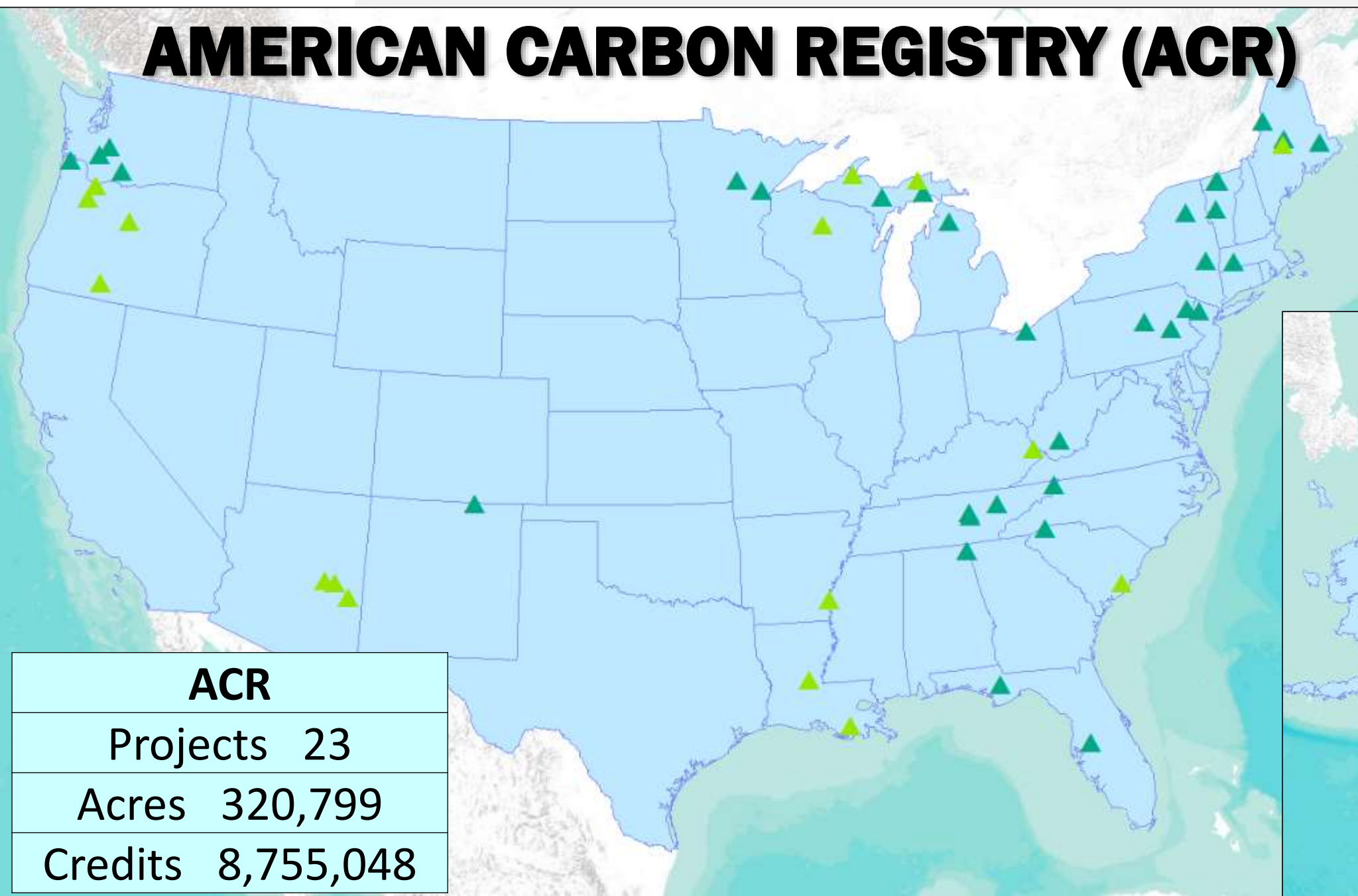
ARB	
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AMERICAN CARBON REGISTRY (ACR)

Legend

-  ACR Listed
-  ACR



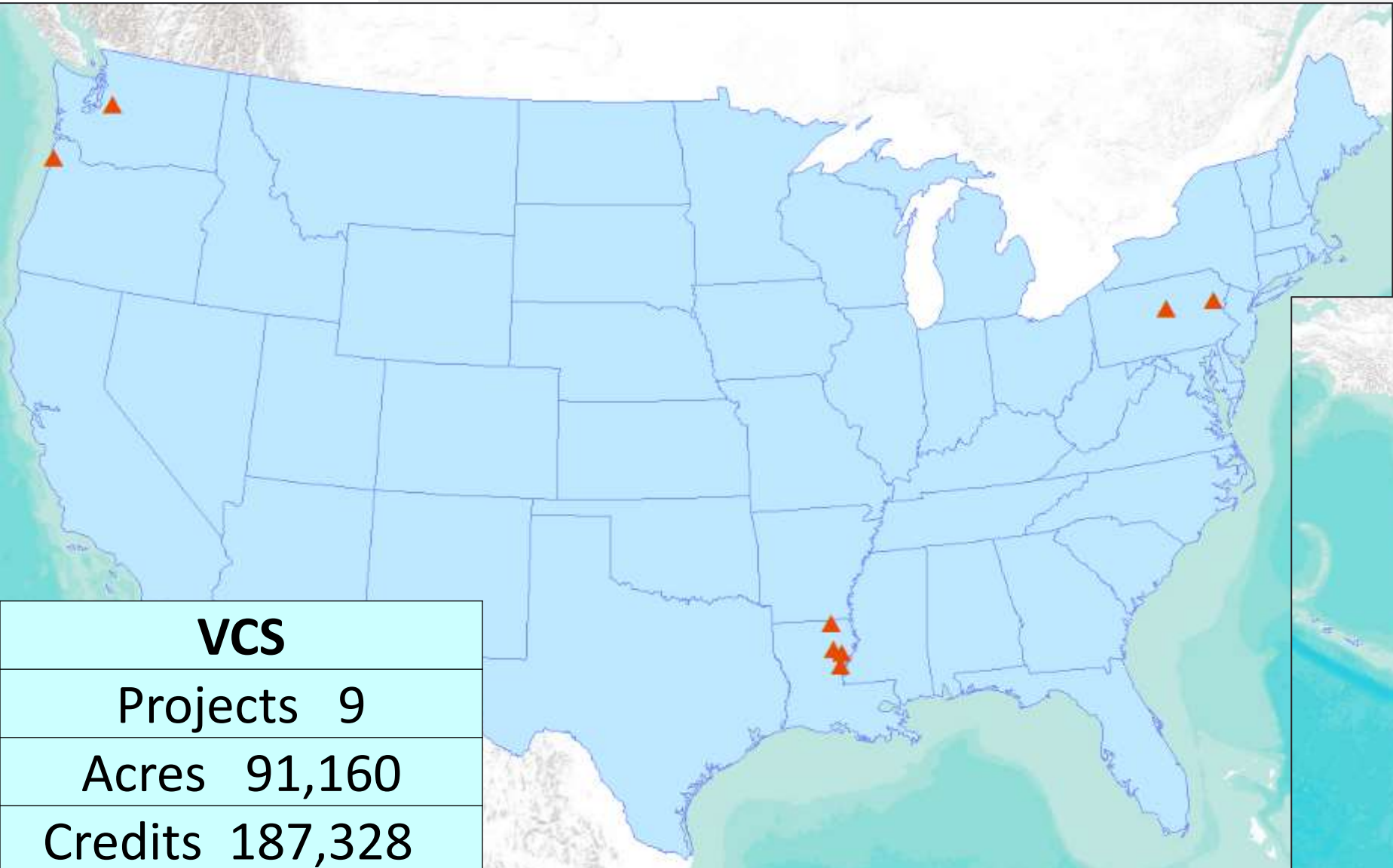
ACR

Projects 23

Acres 320,799

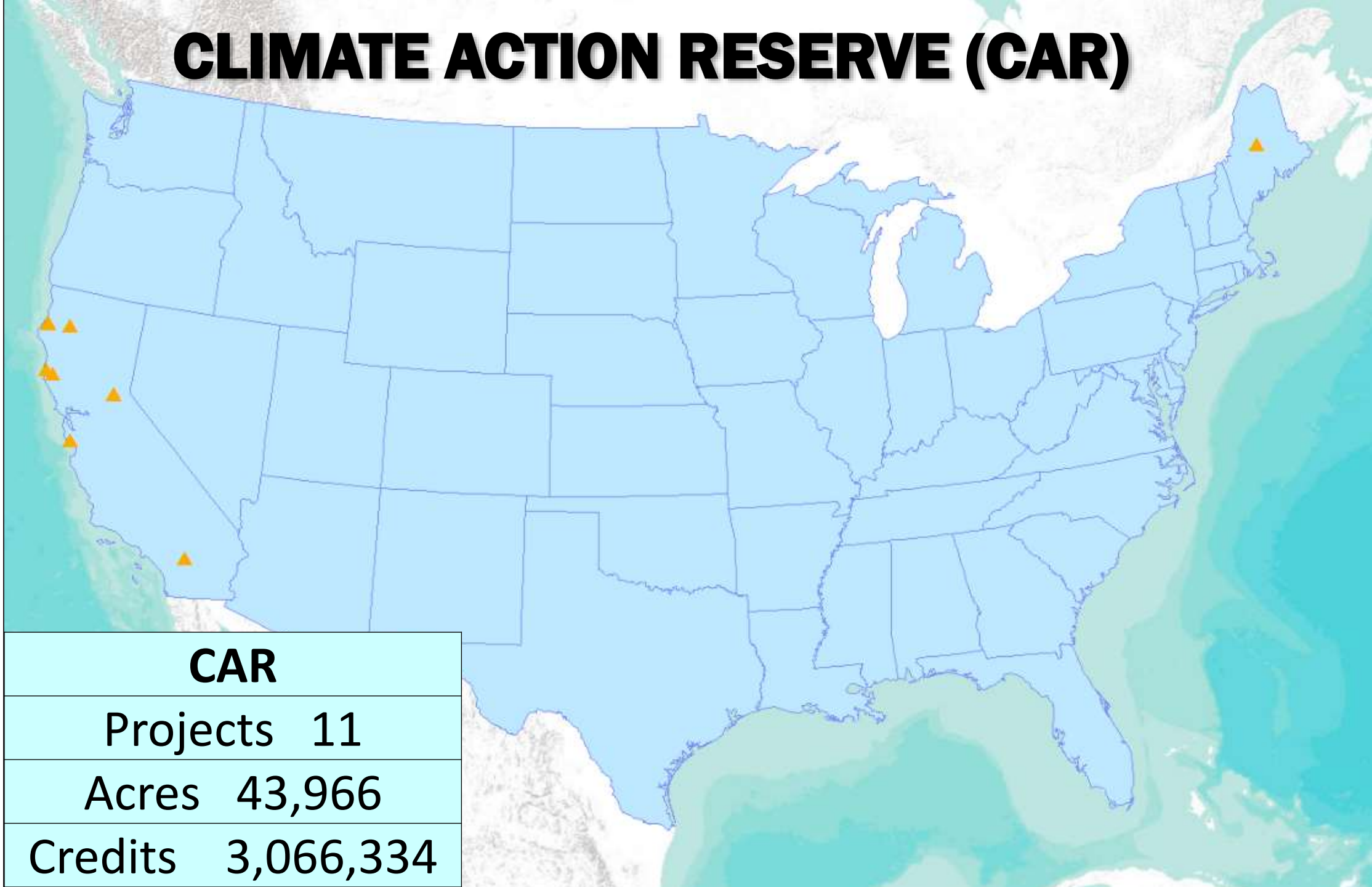
Credits 8,755,048

VOLUNTARY CARBON STANDARD (VCS *OR* VERRA)



VCS
Projects 9
Acres 91,160
Credits 187,328

CLIMATE ACTION RESERVE (CAR)



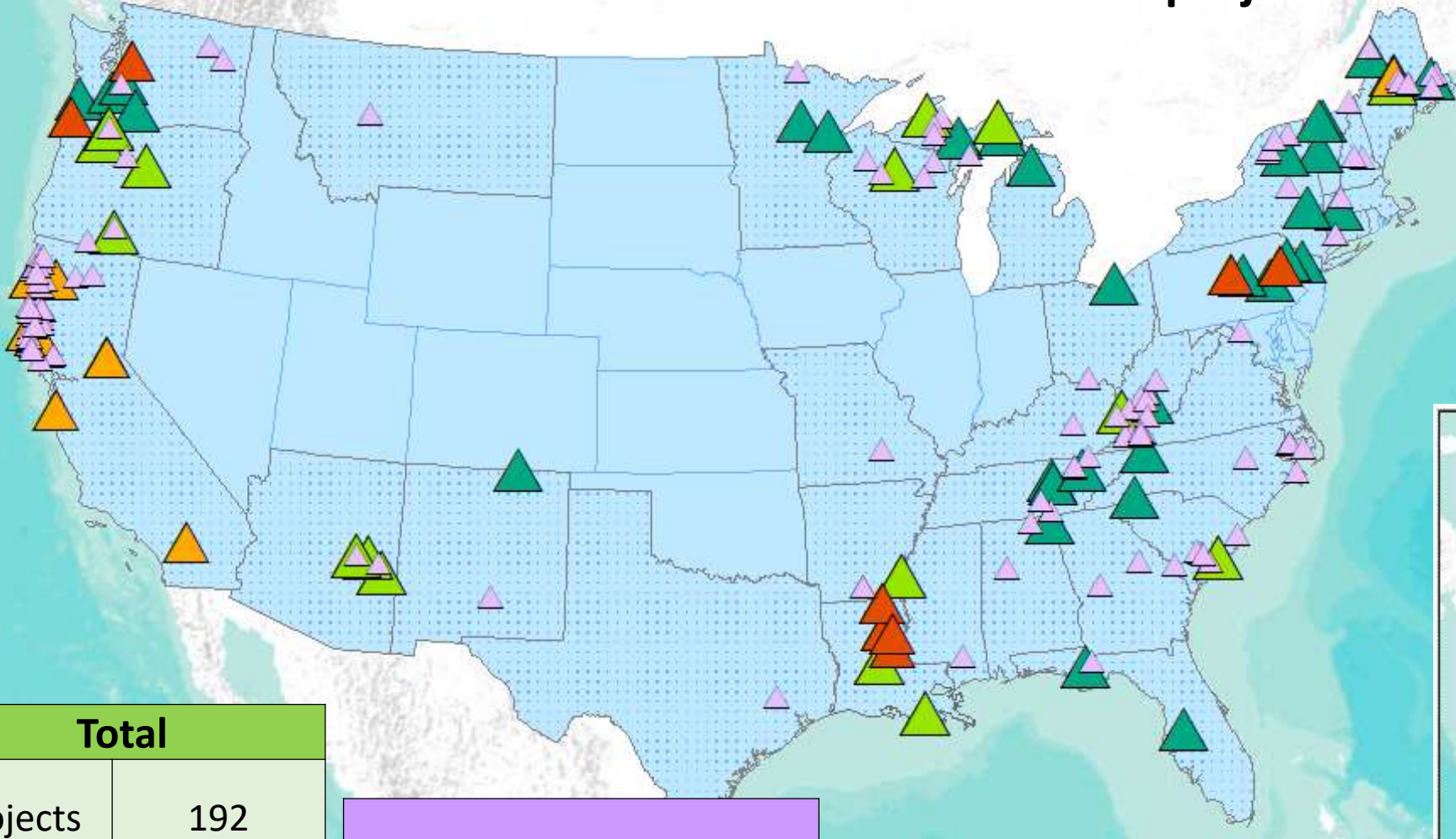
CAR

Projects 11

Acres 43,966

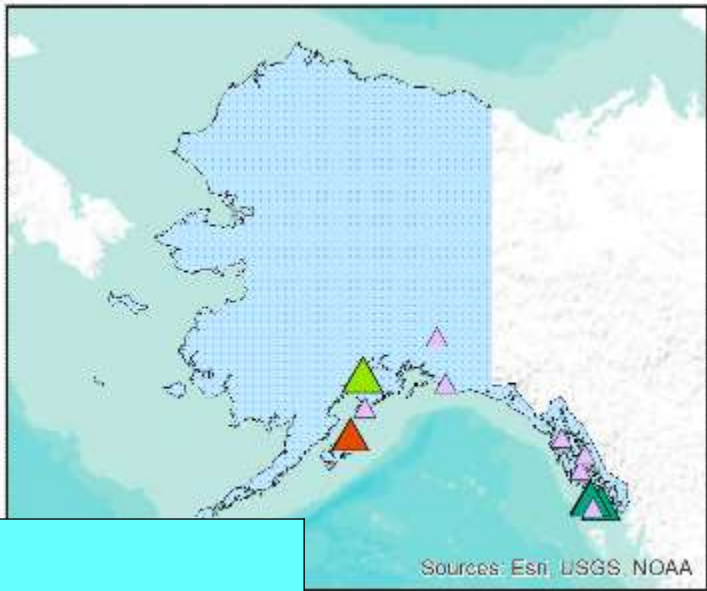
Credits 3,066,334

29 out 50 States have forest carbon projects



Legend

- ▲ ARB
- ▲ CAR
- ▲ ACR Listed
- ▲ ACR
- ▲ VERRA



Sources: Esri, USGS, NOAA

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US FOREST CARBON OFFSET PARTICIPATION



Issued credits:

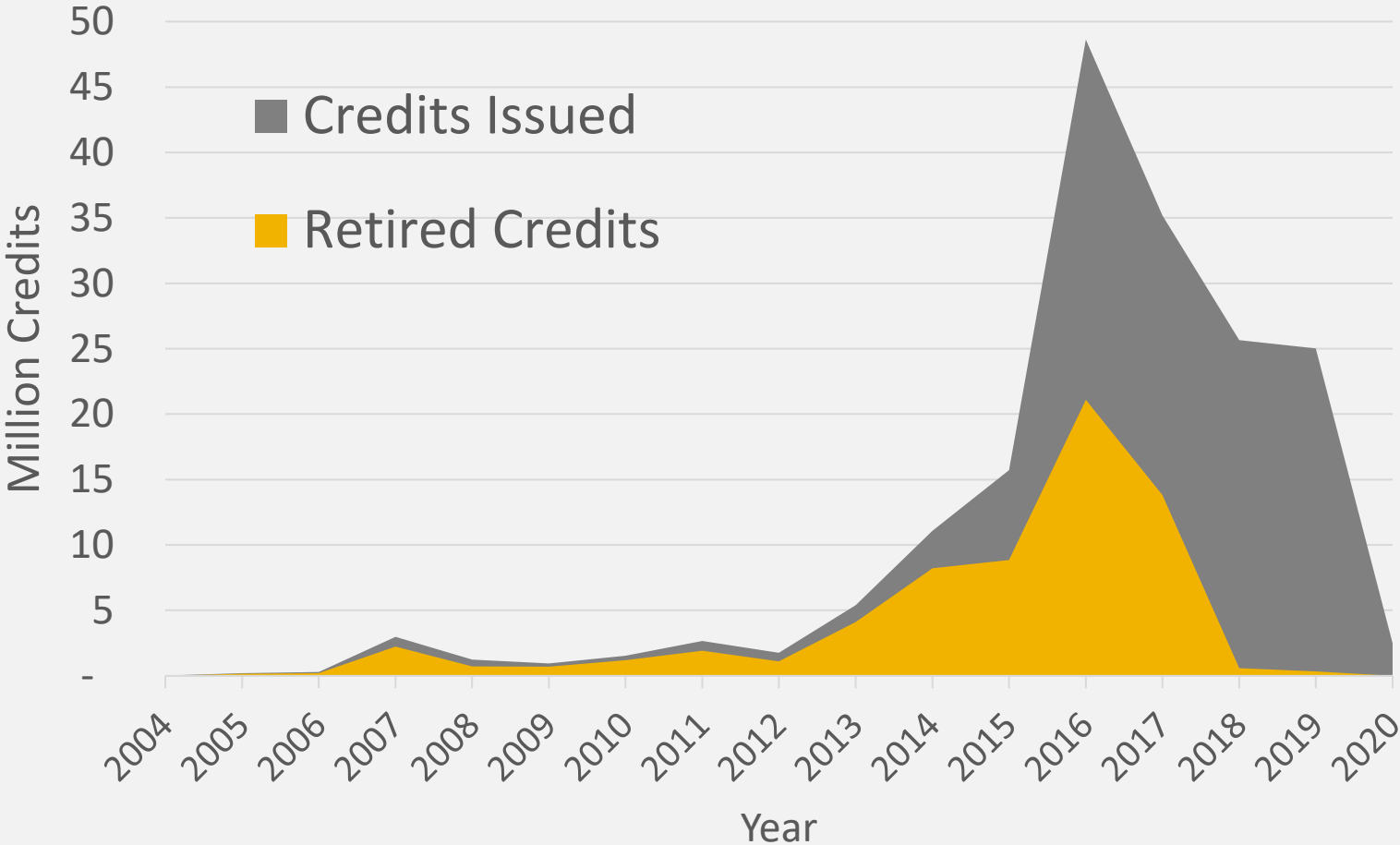
represents one metric ton of CO2 from the atmosphere

Retired credits:

purchased credits that are taken off the market, so the purchaser can claim to have reduced emissions

ARB Issued and Retired Credits

ARB is California Air Resources Board

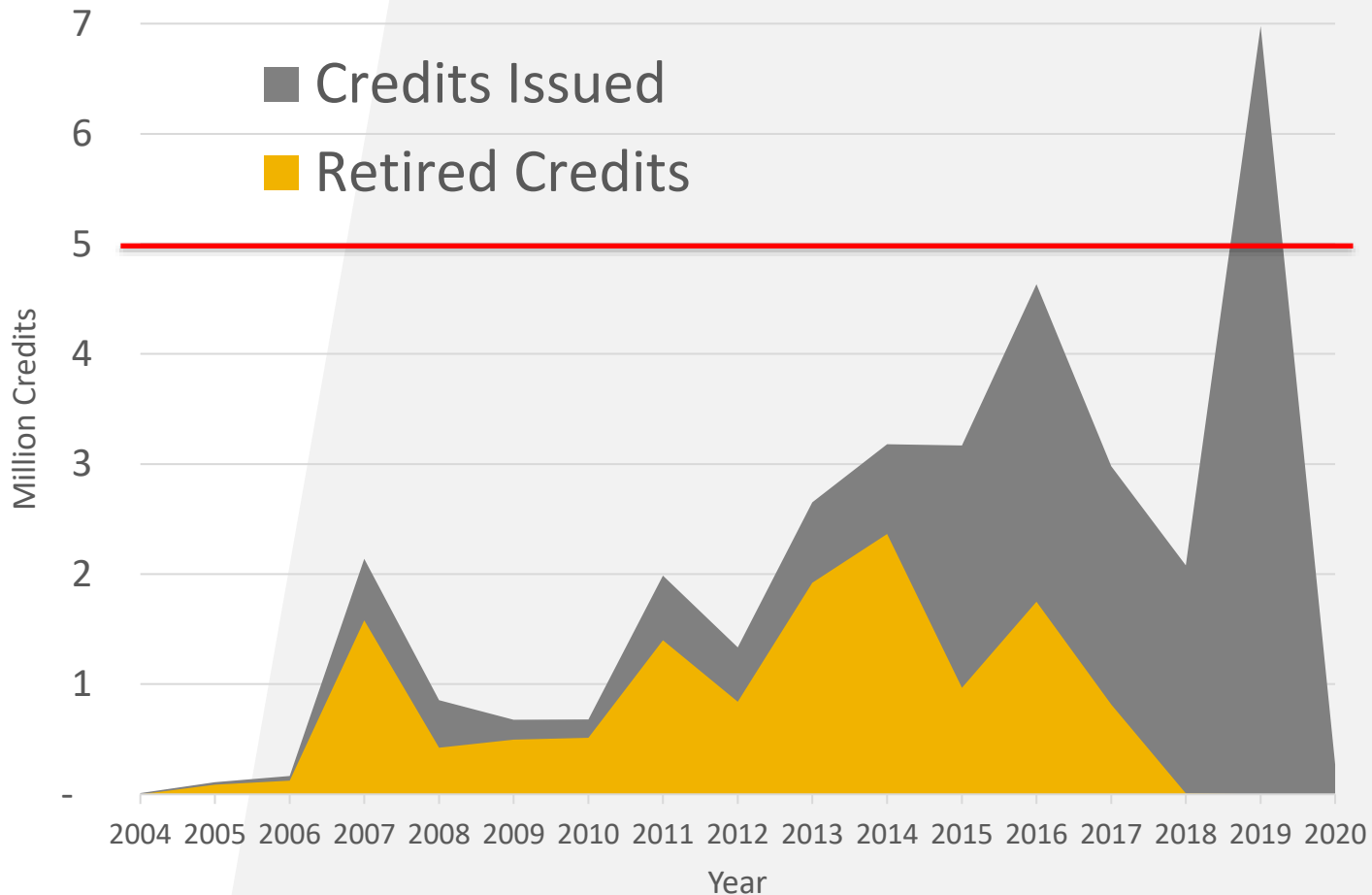




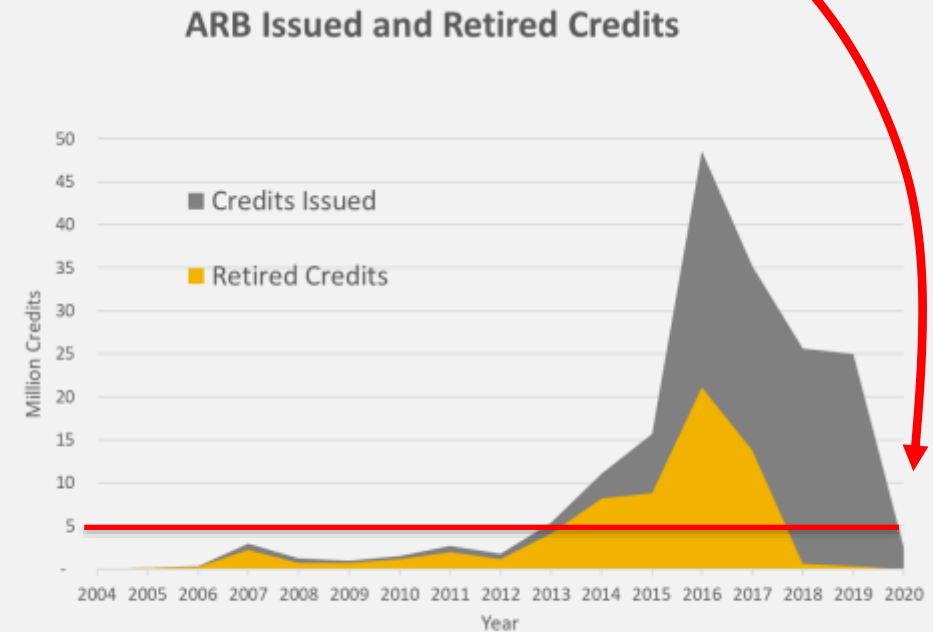
DIRECT ENVIRONMENTAL BENEFITS (DEBS)

To the State Of California *requires the reduction or avoidance of any air or water pollutant that could negatively affect the state of California (Assembly Bill 398 (AB 398; Chapter 135, Statutes of 2017))*

ARB DEBs Issued and Retired



**Prior slide (all ARB credits)
for reference**





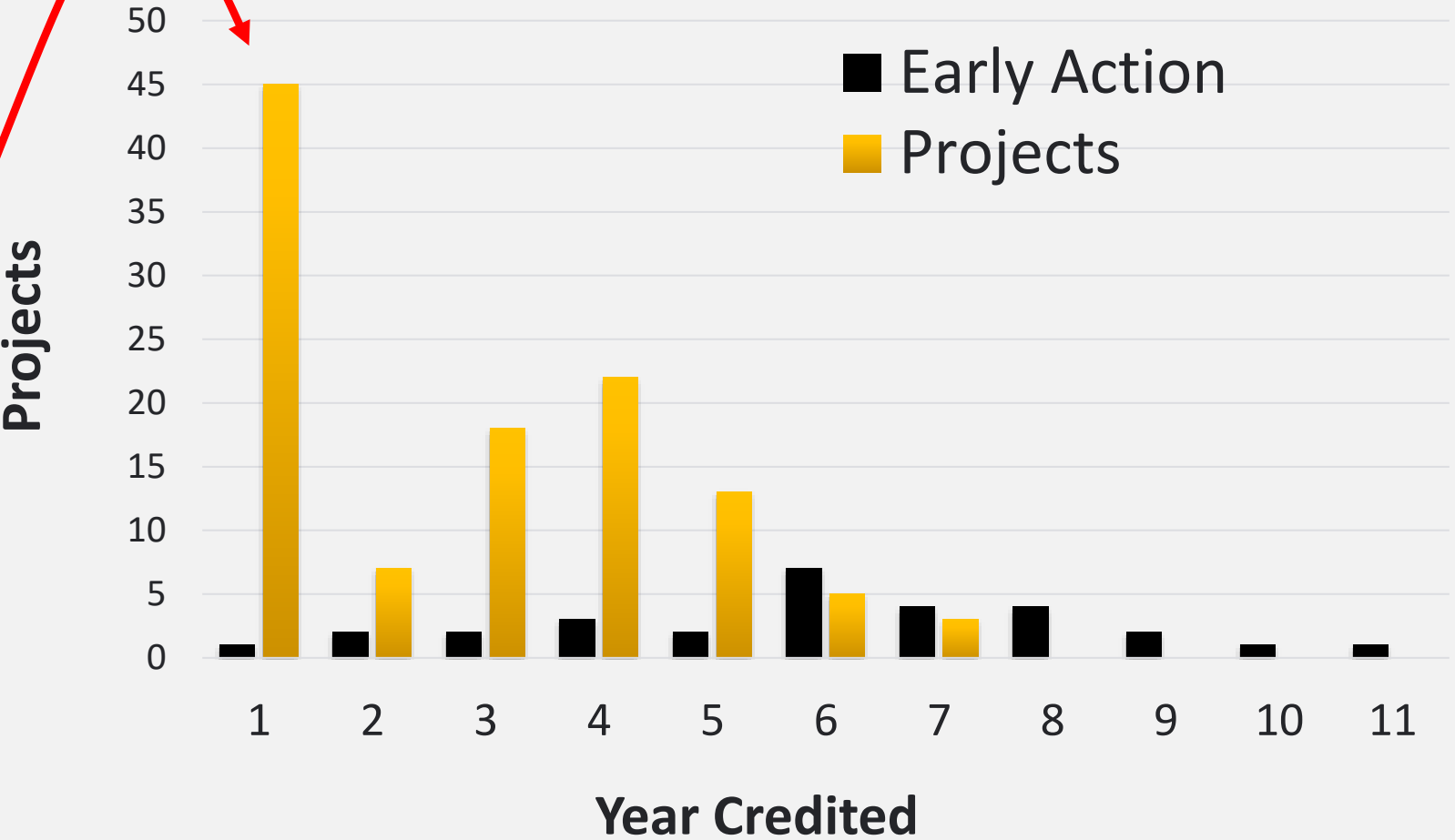
NUMBER OF CREDITING PERIODS *(ARB ONLY AGAIN)*

Could be projects that just began (or are in the verification process)

Or

Could be projects that monetized avoided emissions credits only

Length of Forest Project Crediting

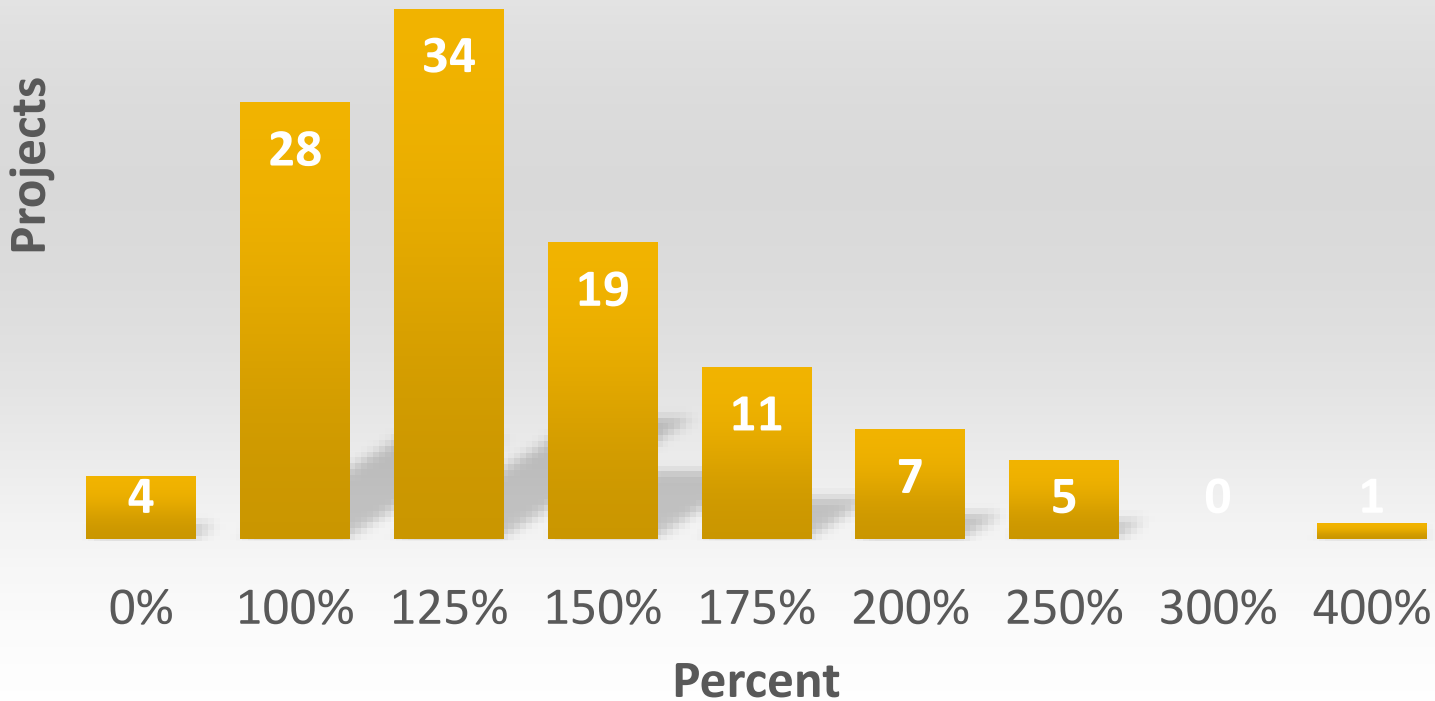


US FOREST CARBON OFFSET PARTICIPATION



Percent Increase from Baseline to Actual Stocking

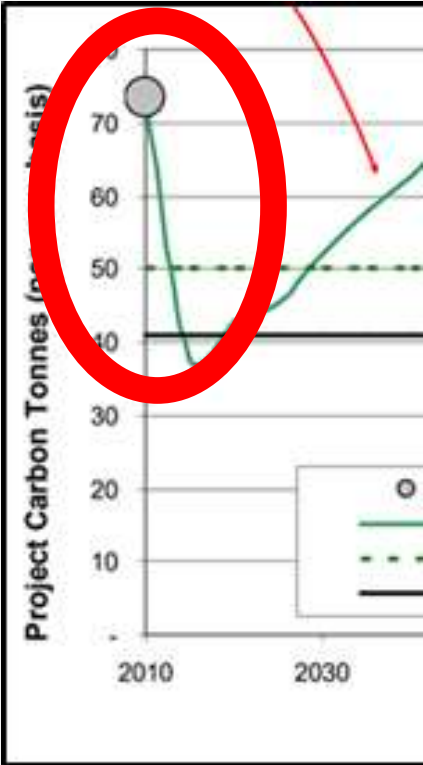
■ Avoided removals



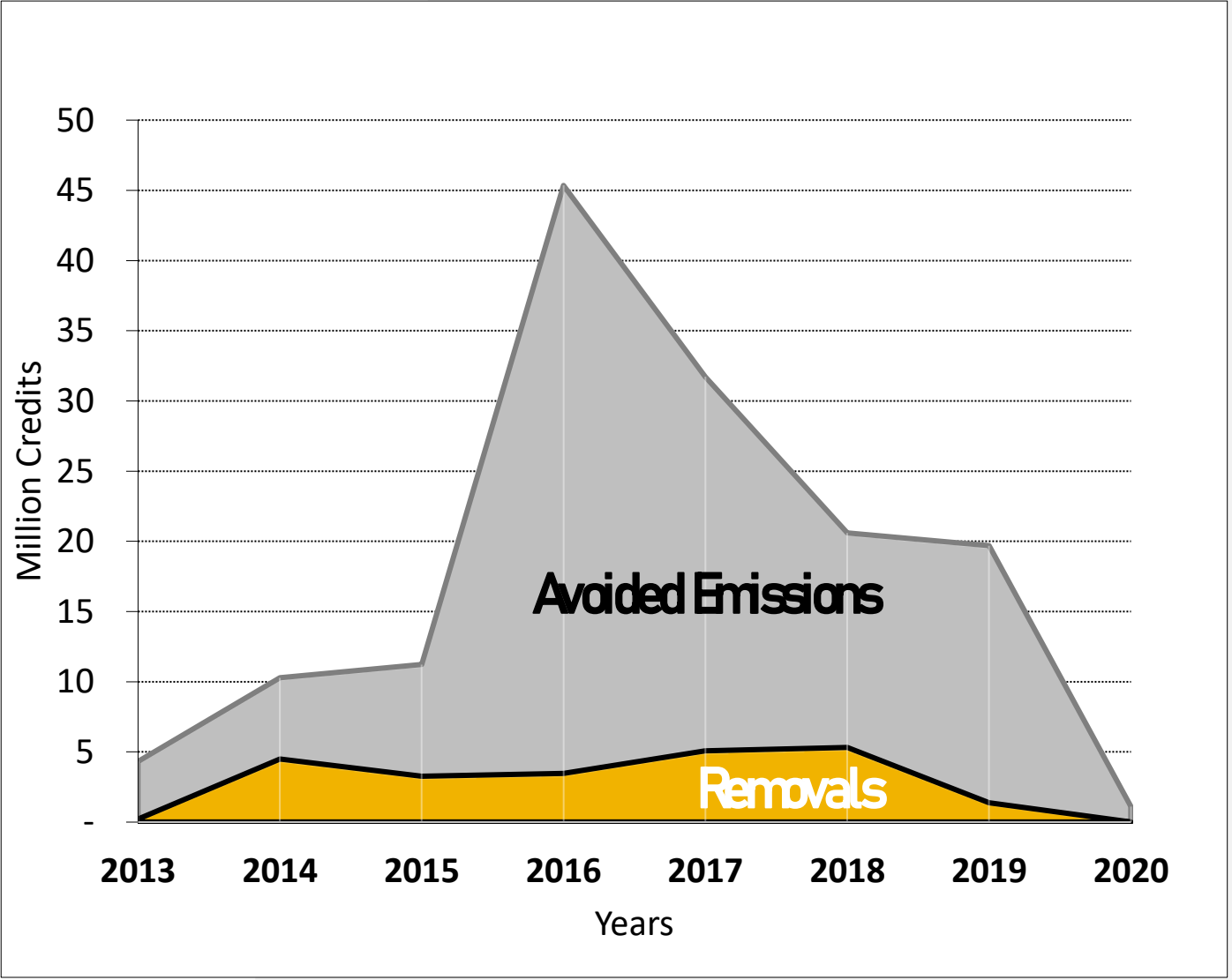
ARB only here *(yet again)*

This graph shows the percent increase from the projected stocking to the actual stocking recorded.

(not including early action)



AVOIDED EMISSIONS VERSUS REMOVALS BY CREDITS



Avoided Emission Offsets: Initial credits issued, usually larger number because of previously established timber

Removal Offsets: Credits that are issued yearly due to yearly growth of the project area

ACTIVE MANAGEMENT – WHO IS HARVESTING?

Looking just at ARB

- **37% of all projects**
 - *That is 56 projects harvesting*
- **38.6% of IFM** (*Improved Forest Management*)
- **45% of AC** (*Avoided Conversion*)
- **0% of R** (*Reforestation*)

Leakage

- **20% in ARB** – not assessed on avoided emissions at time of crediting
- **40% on most ACR** – assessed against all crediting

Most leakage values based in some way on: Murray, B. et al. 2005. Greenhouse Gas Potential in U.S. Agriculture and Forestry. United States Environmental Protection Agency Report EPA 430-R-05-006. 154p.

BUFFER POOL CONTRIBUTION - RISK



I The risk rating represents...

- Financial risks
- Natural disaster risks
- Social risks
- Management risks.

Average Risk Rating is 17.5%





U.S. Forest Carbon Market Primer



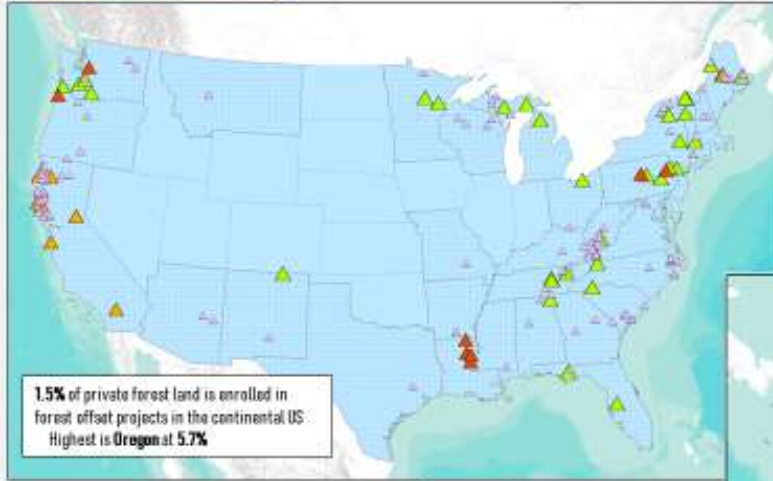
Carbon Registries

ARB: 25 year crediting period with 100 years maintaining those carbon stocks
ACR: 20 year crediting period with 20 years maintaining those carbon stocks
VCS: Most used voluntary program in the world
CAR: Crediting can be valid for 100 years from the start date, then 100 years maintaining those stocks **CAR Version 5.0**



Legend

- ARB
- VERRA
- CAR
- ACR



1.5% of private forest land is enrolled in forest offset projects in the continental US. Highest is Oregon at 5.7%



Principles of Offset Projects

Additionality: Project must demonstrate how it is going to increase carbon stocks in the project area.
Verifiability: Projects must be verified through a third-party, sites are visited every six years and inventory reports are verified.
Leakage: Occurs when the GHG reductions in one area results in the increase of GHG reductions in another area.
Permanence: Must show project is permanent for a period of time
 One Carbon Credit is equivalent to one metric ton of CO2 from the atmosphere.

Total		Compliance		
Projects	Acres	ARB		
192	5,794,736	Projects	149	
		Acres	5,338,811	
Credits	192,754,683	Credits	180,745,973	
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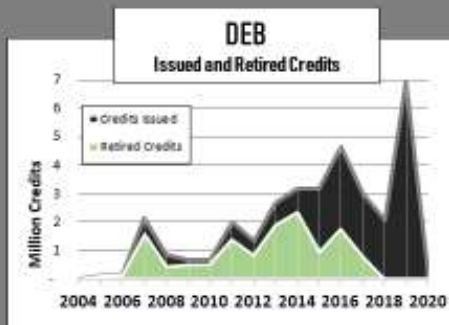
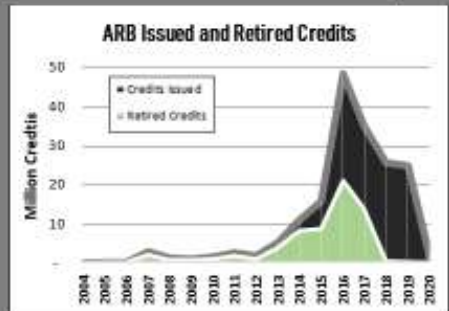
U.S. Forest Carbon Market Primer



STEPS FOR A FOREST OFFSET PROJECT

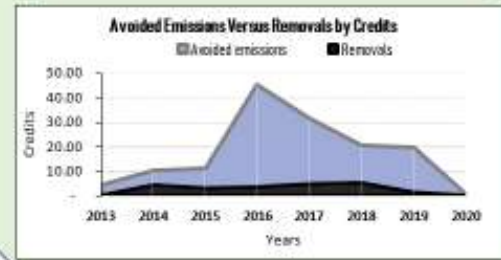
1. Landowner	2. Developer	3. Verifier	4. Registry	5. Verified Again	6. Credits Issued
Provides project area and management of that area	Initial stand stocking and conducts harvest plant	Verified thought third party	Registered in either ARB, CAR, ACR, VCS	The registry verifies the offset project internally	If all previous steps were approved then credits are issued to the landowner

Issued Credits: Represents one metric ton of CO2 from the atmosphere
Retired Credits: Purchased credits that are taken off the market, so the purchaser can claim to have reduced emissions



Direct Environmental Benefits In The State Of California: requires the reduction or avoidance of any air or water pollutant that could negatively affect the state of California
 - Assembly Bill 398 (AB 398), Chapter 125, Statutes of 2017

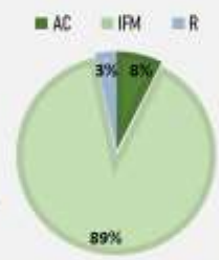
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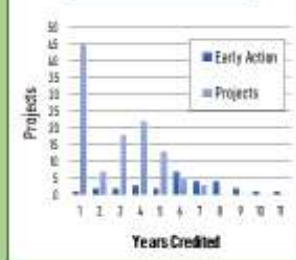
FOREST PROJECT TYPES

Avoided Conversion (AC): Forests prevented from being converted to non-forested land
Afforestation/Reforestation (R): Converting non-forested land into forested land
Improved Forest Management (IFM): Forest management that increases/maintains a certain level of carbon stocking

ARB Harvesting	
37.6% All Projects	56 projects of 149
IFM - 38.6%	
AC - 45%	
R - 0%	



Length of Forest Projects



Data was acquired from the ARB, CAR, and VCS public registries up to the 2020 vintage year. Completed in December 2021.



Fact Sheet coming soon

CONCLUSION



I No real conclusions here

- Hopefully you picked up a couple tidbits you can use at some point though

I *And..* Hopefully sets the stage for the next couple of talks

Thank You



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e-newsletter and reports

<http://www.uidaho.edu/cnr/pag>