CLIMATE FORWARD

Reforestation Project Forecast Methodology

Public Comment Webinar

December 4, 2019

Agenda

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Program Overview

The Reforestation Project Forecast Methodology

1. Introduction
2. The GHG Removal Project
3. Eligibility Rules
4. The GHG Assessment Boundary
5. Quantifying GHG Removals
6. Project Implementation, Monitoring, and Reporting
7. Confirmation Guidance

Questions

PROGRAM OVERVIEW

Climate Forward

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Invest now in emissions reduction projects to mitigate future emissions

- **Credits recognized today to address future impacts**

Expands the scope and scale of feasible climate action across the economy

- **Enormous potential for diverse, creative climate solutions**

Issues Forecasted Mitigation Units (FMU) to projects that follow Reserve-approved methodologies

- **1 FMU = one metric ton of anticipated CO_2e reduction, to counter anticipated GHG emissions**

Tracks FMUs and project activities in a publicly accessible database

- **A registry of forward-looking GHG reductions to balance against forward-looking GHG impacts**

Who should use Climate Forward?

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Companies and organizations mitigating future emissions

- Any new investment creating additional GHGs
- Entities wanting to address corporate and social accountability goals
- Companies seeking CEQA compliance

Examples of future mitigation needs

- New manufacturing facility
- New transportation projects
- New data center
- New retail complex
- New residential/commercial developments
- Future needs from current investments

Who should NOT use Climate Forward?

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Currently:

- Not appropriate for addressing current emissions in a compliance program
  - e.g., cap-and-trade
- Not appropriate for mitigating historical emissions

Why forward crediting?

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A new paradigm, reducing barriers to entry for innovative, targeted climate solutions that can also achieve sustainability goals beyond climate impacts

- Customized climate projects with specific **co-benefits** tailored to align with organizational goals and values
- **Local** projects in communities directly affected by operations
- New opportunities: demonstrate climate **leadership**

Section 1

INTRODUCTION

1. Methodology introduction

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Reforestation Project Forecast Methodology accounts for carbon sequestration associated with **the restoration of forest cover on sites where trees are not regenerating on their own.**

Methodology provides: eligibility rules, methods to calculate expected GHG removals, and procedures for reporting project information to the Reserve.

Projects receive **independent confirmation** by a Reserve-approved confirmation body (CB) selected by the project proponent (PP)

Forecasted Mitigation Units (FMUs) are awarded on an *ex ante* basis based on application of this methodology and confirmation of project implementation

1.1 Methodology introduction

Ex ante crediting shifts the project economics, helping to cover a portion, if not all, of the initial reforestation costs

1.2 *Ex ante* and *ex post* options

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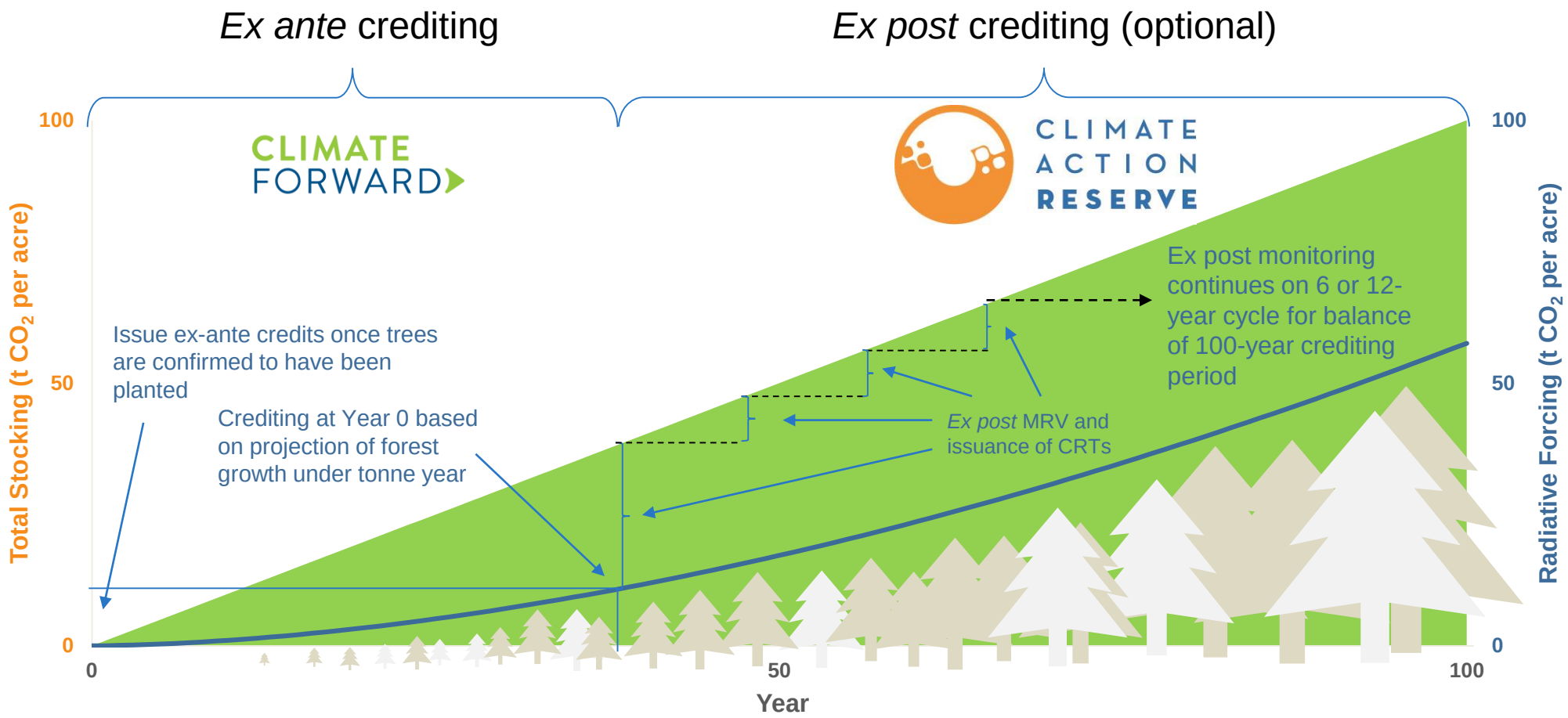

Costs	$	$	$	$	$
Revenues	$	$	$	$	$

Section 2

THE GHG REMOVAL PROJECT

2.1 Project Definition

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Increases in removals of CO_2 from the atmosphere by restoring forest cover via:

- direct planting of native trees
- site preparation activities that promote the natural regeneration of tree seedlings

The activities will result in forest growth that occurs above business as usual conditions.

2.1 Project Proponent (PP)

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An entity that has an active account on the Climate Forward registry, submits a project for listing and registration with the Reserve, and is ultimately responsible for all project reporting and confirmation

Required Attestations:

- Attestation of Title
- Attestation of Legal Additionality
- Attestation of Regulatory Compliance

Section 3

ELIGIBILITY RULES

3.1 Location

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- Unlimited geography with Reserve-approved tree seedling growth projections
  - Currently limited to certain forest communities in the US
  - PPs may propose additional forest communities for approval, subject to a fee
- Not on prior project site, unless prior project closed in good standing
- Appropriate for reforestation, with validation from professional forester or ecologist
  - Requires intervention to establish forest cover
  - Conditions favorable for seedling establishment and growth
  - Not at high risk for conversion to non-forest use

3.2 Start Date & Crediting Period

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- Start date
  - Last date that trees are planted or date site preparation completed
  - Planting may occur in ‘batches’ with no more than 365 days lapsing between planting activities
- Submitted for listing within 365 days of start date
- Crediting period
  - Period for which future projections of sequestered carbon are recognized for crediting
  - Crediting period linked to permanence
  - Varies based on forest community and land ownership, up to 100 yrs

3.3 Additionality

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- Projects must yield surplus GHG emission reductions “additional” to what would have occurred in the absence of the project
- Performance standard test
  - Not under forest cover for at least 10 years, or
  - Affected by natural disturbance within past 10 years, resulting in <25% canopy cover
- Legal requirement test
  - Project activities must not be legally required
  - Attestation of Legal Additionality

3.4 Environmental & Social Safeguards

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- Must support/enhance native ecosystems
- Initiate forest composed of diversity of native tree species
- PPs are encouraged to voluntarily report any non-GHG benefits, including any alignment with the United Nations' Sustainable Development Goals

3.5 Regulatory Compliance

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- Sign an Attestation of Regulatory Compliance
- Provide an assessment of the risk of future non-compliance during the crediting period and identify how such risks will be reduced or mitigated

3.6 Ownership & Double Counting

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Provisions to ensure clear ownership of FMUs and to prevent double counting

- Ownership of FMUs assigned to entity owning the trees
- PPs must provide a signed Attestation of Title document
    - Exclusive claim to the project's GHG removals
    - No other entities are reporting or claiming the project's GHG removals

3.8 Permanence

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Climate benefits of GHG removals are realized when removals are permanent

Reserve's standard

- 100 years = permanent
- Forest offset protocol → additional carbon maintained for 100 years

How to apply this standard within an *ex ante* framework?

3.8 Permanence (cont'd)

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Tonne-tonne accounting

- 1 credit issued for each additional tonne sequestered

Tonne-year accounting

- Recognizes the time-value of sequestered carbon through the end of the crediting period
  - Crediting period: time during which risk of non-permanence is acceptable
- Assumes 1% of 100-yr climate effect of CO_2 achieved for each year a tonne remains sequestered (0.01 FMU per tonne per year)

3.8 Permanence (cont'd)

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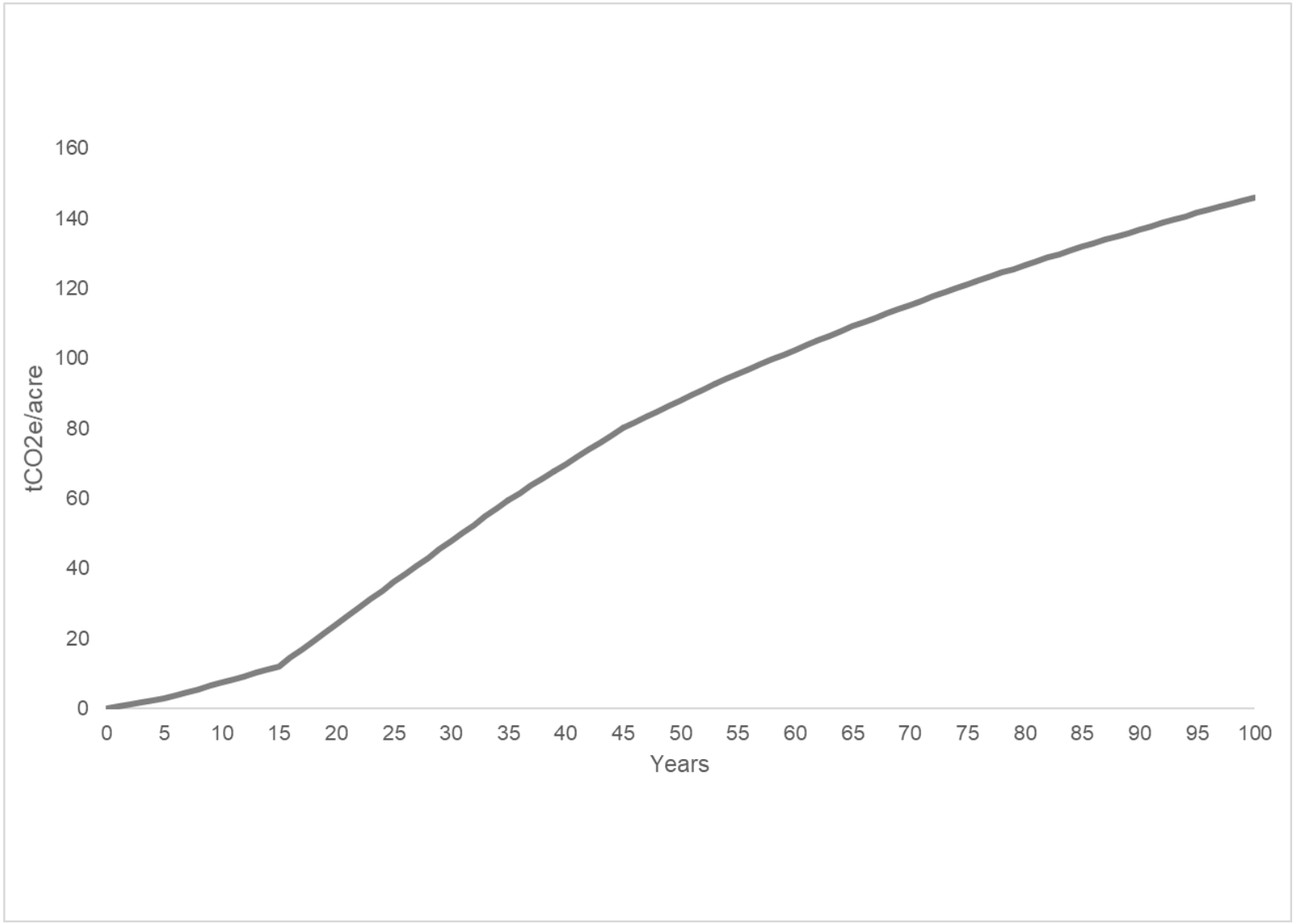

Projections show expected increases in timber volume and C stocks

Ideally, stocks would be maintained for 100 years after being sequestered

But… there are risks to realizing the projection

3.8 Permanence (cont'd)

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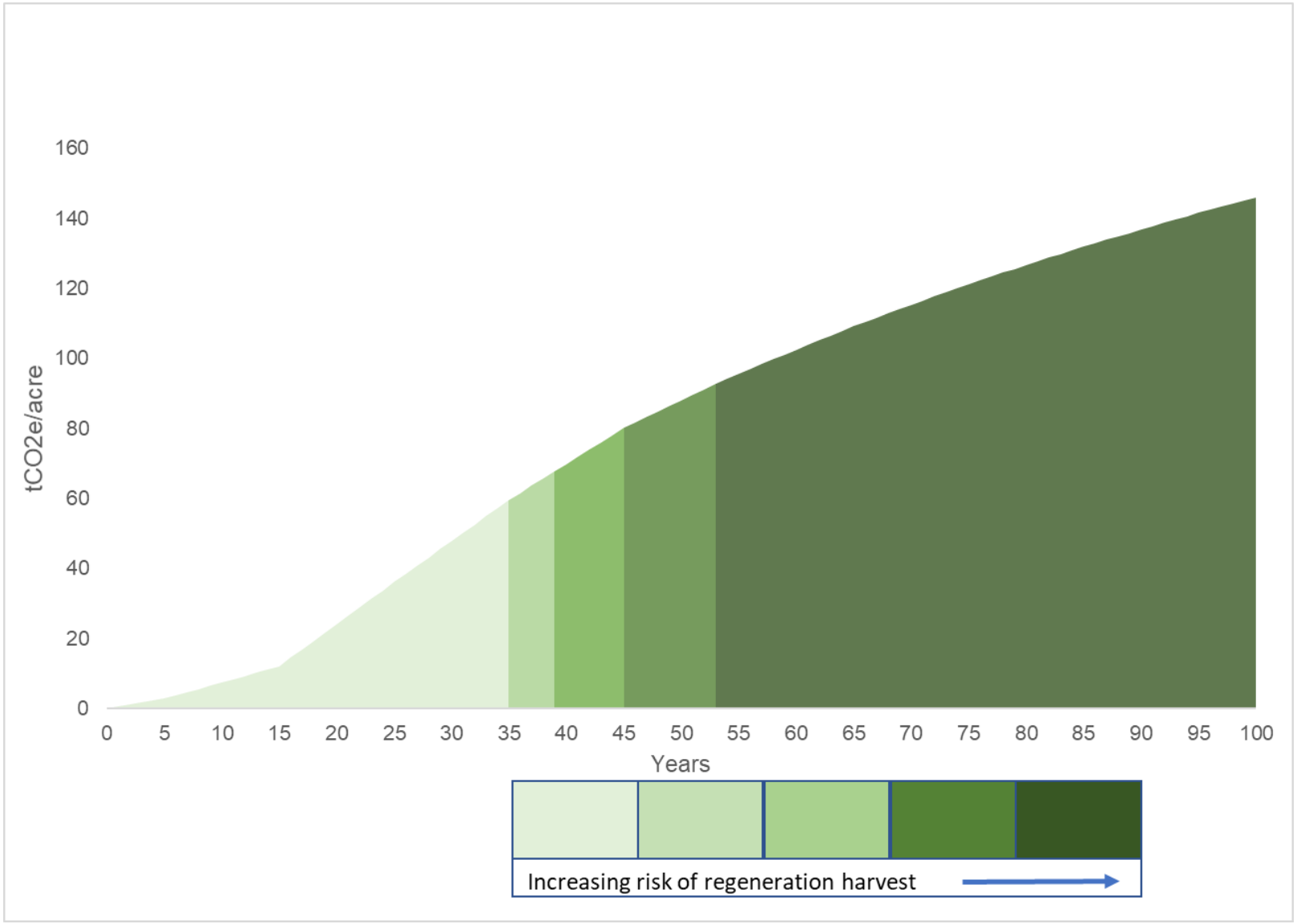
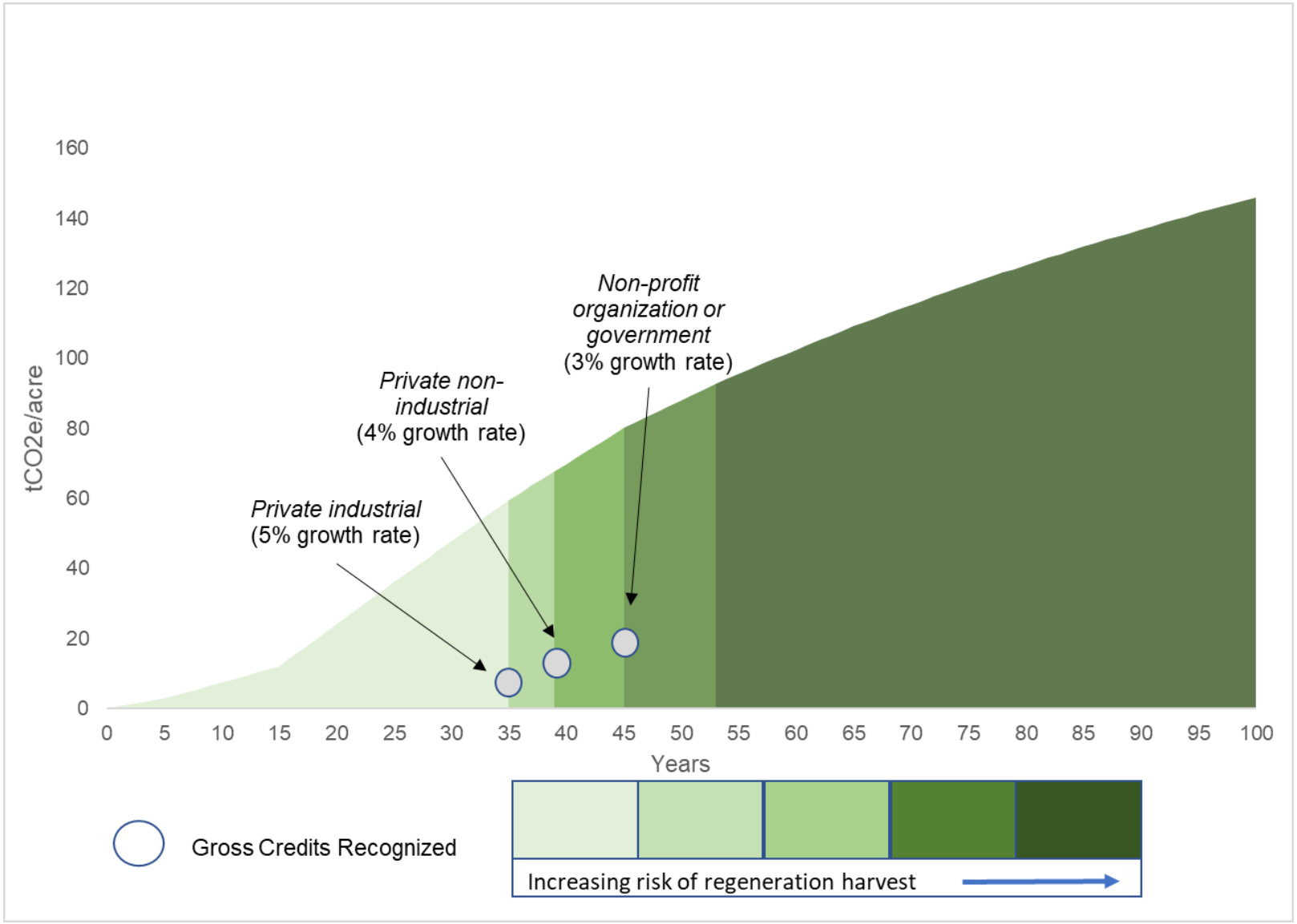


As trees grow, risk of disturbances, including timber harvest, increases

Risk increases as trees reach merchantable sizes and as growth rate declines—different for each forest community

Methodology recognizes heightened risk when growth rate becomes lower than desired economic rate of return

3.8 Permanence (cont'd)

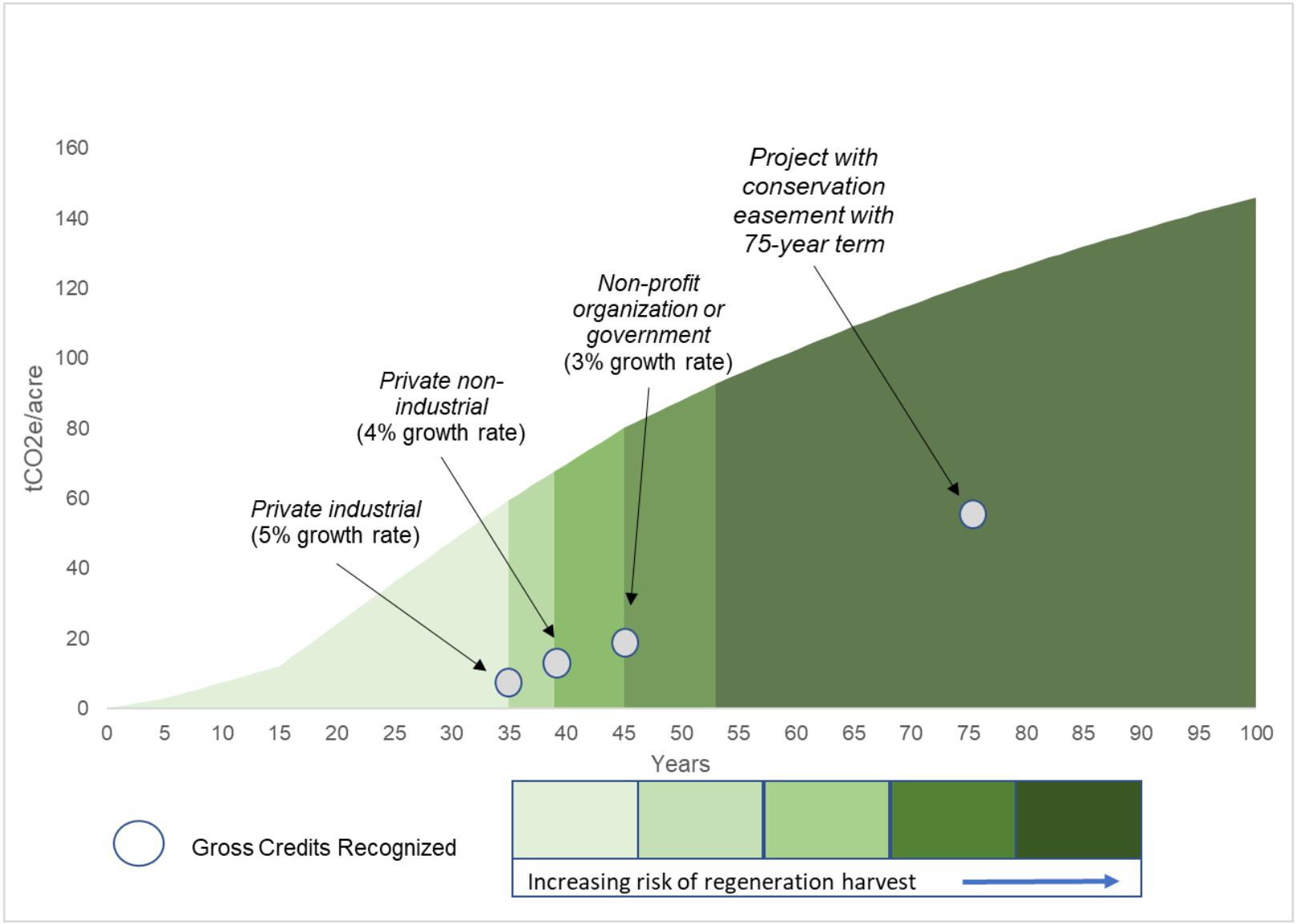


Different landowner types have different expectations for rates of return

Without long-term monitoring and reporting:

- Credit to when risk of regeneration harvest is reached, based on when growth rate drops below target rate of return (crediting period)
- Apply tonne-year accounting

3.8 Permanence (cont'd)



Conservation easement with fixed term

- Provides additional security to the longevity of the projections
- Extends crediting period
- Still uses tonne-year accounting

3.8 Permanence (cont'd)

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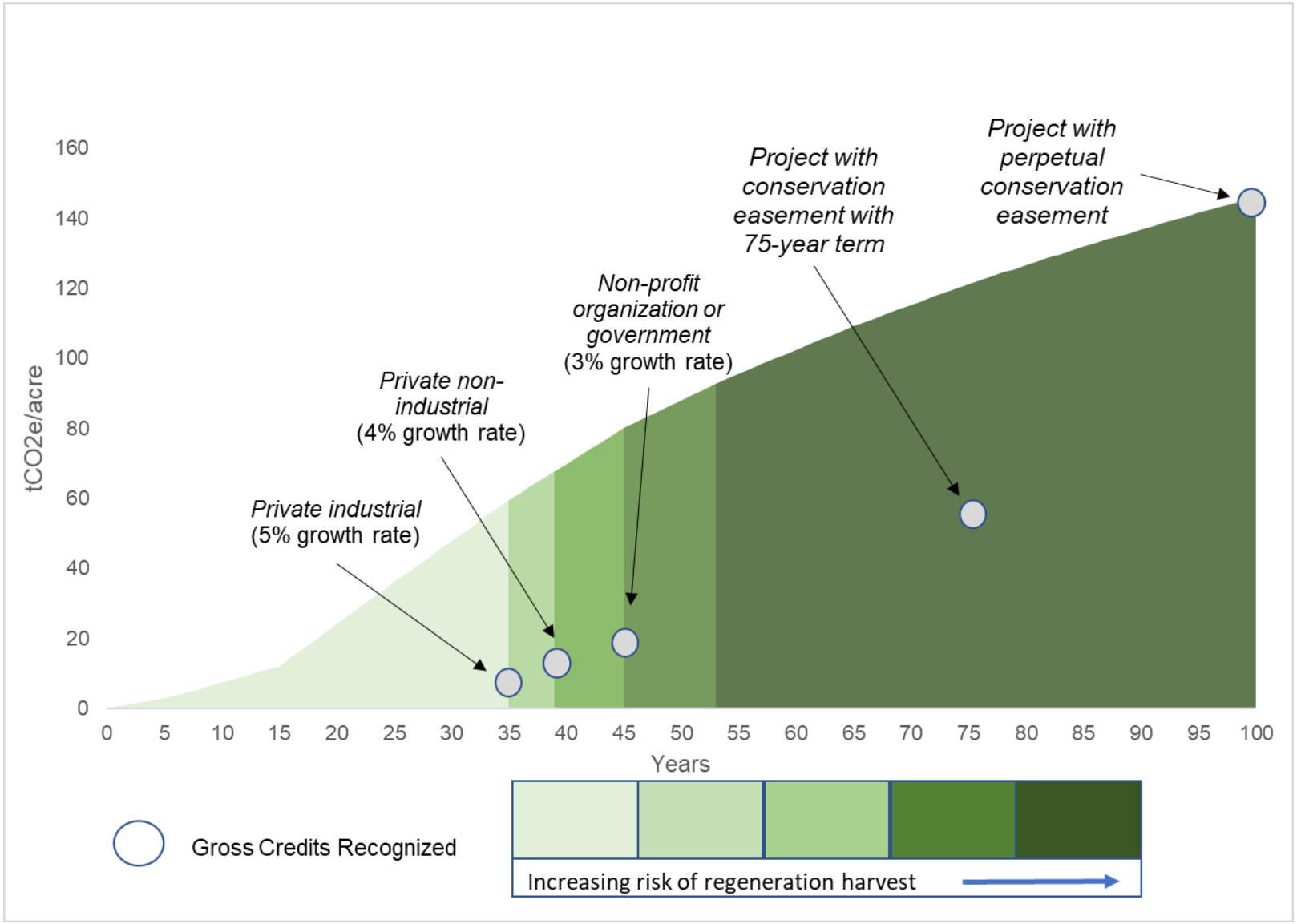

Perpetual conservation easement

- Provides assurances about long-term maintenance of C stocks
- Credit out to 100 years
- Apply tonne-tonne accounting

3.8 Permanence (cont'd)

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Additional measures to ensure projected stocking achieved

- Confirmation occurs at least 1 year after seedling planting/site prep
- Standard deduction applied to ensure programmatic integrity
  - 2% for projects without permanent conservation easements
    - Programmatically insures against individual project failure
  - 20% for projects with permanent conservation easements
    - Provides an added buffer to enable landowners to manage for resiliency, which is not captured by projections

Section 4

THE GHG ASSESSMENT BOUNDARY

4. The GHG Assessment Boundary

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- Live trees
  - Estimated from pre-approved projections
- Mobile emissions (CO_2 only) from site preparation
  - Emissions factors for site preparation intensity
- Biological emissions from displacement (leakage) of previous land use activities on project area to other sites (e.g., trees cleared at another site to establish crops)
  - Decision tree with standardized rates

Section 5

QUANTIFYING GHG REMOVALS

5. Quantifying GHG Removals

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Compare project stocks to baseline stocks, projected forward throughout the crediting period

- **Baseline**: live tree stocks assumed to be 0 t CO_2/acre
- **Project:** growth of live tree stocks according to approved projections
- **GHG Removals:** Increase in carbon stocks, minus site preparation and/or leakage emissions and standardized deductions

GHG removals are quantified and confirmed at least 1 year after project implementation

5. Quantifying GHG Removals (cont'd)

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GHG removals/FMUs are calculated in the Reforestation Communities Data File

Input required:

- Landowner type
- Length of conservation easement (if applicable)
- Forest type and acreage
- Site prep acreage and intensity
- Activity-shifting leakage rate

Total FMUs to be issued, net of project abandonment discount (2%) or resiliency management discount (20%, for projects employing a conservation easement)	[Enter data below]
Project-wide variables	
Landowner type	[Select landowner type]
Duration of conservation easement (if applicable; enter "p" if easement is perpetual)	
Rate of return threshold	[Select landowner type]
CMAI discount threshold	[Select landowner type]
Stratum 1	
Variables	
Forest type	[Select forest type]
Forest type acres	
Assumed year of liquidation harvest	[Select forest type and landowner type]
Per acre tonne-year value at end of crediting period	[Select forest type and landowner type]
Acres with treated mechanically for site preparation	
Mechanical site prep intensity	[Select intensity level]
Mobile emissions from mechanical site prep	[Enter mechanical site prep info]
Activity shifting leakage rate (see Figure 1)	[Select rate from Figure 1]
Emissions from activity shifting leakage	[Select activity shifting leakage rate]
Total FMUs to be issued for forest type	[Enter data above]

5. Quantifying GHG Removals (cont'd)

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GHG removals/FMUs are calculated in the Reforestation Communities Data File

Total FMUs to be issued, net of project abandonment discount (2%) or resiliency management discount (20%, for projects employing a conservation easement)	11,832
Project-wide variables	
Landowner type	Tribal or Non-Industrial Private
Duration of conservation easement (if applicable; enter "p" if easement is perpetual)	
Rate of return threshold	4.0%
CMAI discount threshold	70.0%
Stratum 1	
Variables	
Forest type	Oak-gum-cypress SC
Forest type acres	500
Assumed year of liquidation harvest	41
Per acre tonne-year value at end of crediting period	24
Acres with treated mechanically for site preparation	100
Mechanical site prep intensity	Light (Up to 25% brush cover)
Mobile emissions from mechanical site prep	9
Activity shifting leakage rate (see Figure 1)	0%
Emissions from activity shifting leakage	0
Total FMUs to be issued for forest type	12,074

Sections 6 and 7

PROJECT IMPLEMENTATION, MONITORING, AND REPORTING

6/7. Project Implementation, Monitoring, and Reporting

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Required Project Implementation Report (PIR) addresses all project monitoring and reporting activities and includes:

- Project location (e.g., map of project area)
- Ownership
- Demonstration of site suitability (from Reforestation Project Goals Form)
- Estimated GHG removals (from Reforestation Communities Data File
- Co-benefits (optional elaboration beyond default co-benefits associated with restoration of native forest cover)

7.1 Project Submittal Documentation

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Required documentation:

LISTING:

- Project Submission form
- Reforestation Project Goals form

CONFIRMATION:

- Signed Attestation of Title form
- Signed Attestation of Legal Additionality form
- Signed Attestation of Regulatory Compliance form
- Project Implementation Report (PIR)
- Reforestation Communities Data File
- Confirmation Report, and Confirmation Statement
- From Confirmation Body: confirmation plan, sampling plan, and list of findings (not made public)

Section 8

CONFIRMATION GUIDANCE

8. Confirmation Guidance

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Confirmation guidance supplements the Program Manual and Confirmation Manual and describes confirmation activities specifically related to reforestation projects being confirmed under this methodology

CBs trained to confirm reforestation projects must be familiar with the following:

- Climate Forward Program Manual
- Climate Forward Confirmation Manual
- Reforestation Project Forecast Methodology
- Reforestation Forecast Methodology companion documents
  - Reforestation Project Goals Form
  - Reforestation Communities Data File

8. Standard of Confirmation

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Accredited Confirmation Body must confirm project has been implemented as described in the forecast methodology – and that estimated emission reductions have been calculated accurately

- Desktop review to review PIR and companion documents
- Site visit to confirm reforestation activities
    - Project area
    - Seedling species diversity
    - Seedling density
- Confirmation activities may commence no sooner than 1 year after the PP has completed planting or site preparation activities

Option to transition after FMU issuance

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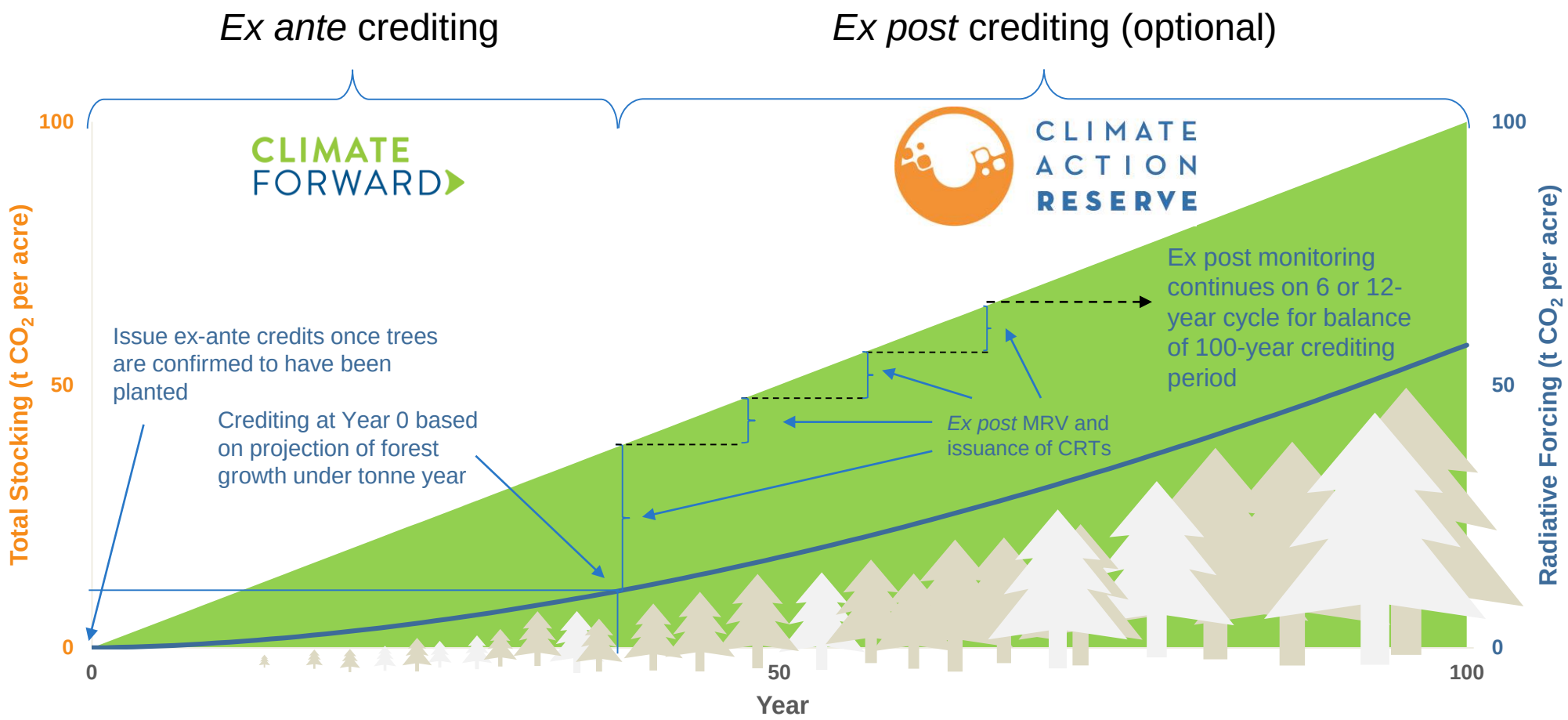

Costs	$	$	$	$	$
Revenues	$	$	$	$	$

Public Comment Period

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Deadline for comments:
Friday, December 20, 2019

Documents available for comment

- Reforestation Project Forecast Methodology
- Reforestation Communities Data File

Submit written comments to
info@climateforward.org

CLIMATE ACTION RESERVE

QUESTIONS?

Contact Information

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