B.C. Forest Carbon Offset Protocol (FCOP) — Summary

Reference shorthand: "BC FCOP §X" denotes sections of the 2024 Forest Carbon Offset Protocol (Version 2, April 18 2024).

1. Snapshot

- Issued by the Director under Section 10 of the Greenhouse Gas Industrial Reporting and Control Act; Version 2 effective 18 April 2024. *(BC FCOP cover; §1.0)*
- Applies to forest carbon projects in British Columbia that meet the Emission Offset Project Regulation (EOPR) and protocol rules. *(BC FCOP §1.0)*
- Eligible project types: Afforestation/Reforestation (AFF/REF), Conservation & Improved Forest Management (CONS/IFM), Avoided Conversion (AC). *(BC FCOP §3.3)*

2. Governance & Protocol Setting

- Legally binding requirements for project proponents, validation bodies, and verification bodies; protocol supplements EOPR and must be read alongside it. *(BC FCOP §1.0)*
- Director accepts project plans, issues offset units, and may withhold issuances if reporting obligations are outstanding. *(BC FCOP §3.4, §3.7, §8.4.3)*
- Project proponents must comply with other provincial statutes (e.g., Forests Act, Professional Governance Act) and maintain records per EOPR. *(BC FCOP §1.0)*
- Indigenous engagement is mandatory: proponents must notify, meet, share information with, and report back to Applicable First Nations; ongoing engagement throughout the crediting period is expected. *(BC FCOP §3.1.6)*

3. Baseline & Additionality Rules

- Baseline determination uses two pathways:
  - Performance Standard (mandatory for AFF/REF on public land): choose regulatory, historic practice, or hybrid scenario, selecting the most conservative option. *(BC FCOP §5.1)*
  - Project-Specific (default for other cases): identify all plausible scenarios, evaluate 20-year historic data, assess financial/legal/technical obstacles, and evidence candidate viability. *(BC FCOP §5.2)*
- Additionality assertions cover both financial need (revenues from offsets required to proceed) and regulatory additionality (activities exceed existing

or new requirements); reconfirmed in each project report. *(BC FCOP §3.1, §6.1–§6.2)*
- Project reductions cannot be claimed in other offset systems and cannot receive per-tonne incentive funding. *(BC FCOP §3.1, §6.2)*

4. Monitoring, Reporting, Verification (MRV)

- Project plan must include an ISO 14064-2–aligned Monitoring & Maintenance Plan detailing data collection and risk management across crediting and monitoring periods. *(BC FCOP §3.1.1, §8.4.1, §10.0)*
- Project reports span 12 months to 5 years, reported on a calendar-year basis; Director may withhold issuance if reports are late. *(BC FCOP §3.7)*
- Monitoring period extends 100 years after the crediting period; monitoring reports due in four 25-year blocks within six months after each block. *(BC FCOP §3.5, §10.1)*
- Validation and verification bodies operate under EOPR accreditation; proponents must maintain data retention schedules to support audits. *(BC FCOP §1.0, §10.0)*

5. Credit Issuance & Registries

- Default crediting period is 25 years from project start (shorter optional), with potential revalidation at expiry; monitoring obligations run 100 years beyond crediting. *(BC FCOP §3.5)*
- Start date cannot precede the date proponents obtained rights to submit the plan and claim offsets; Director rejects plans older than one year from protocol notice (or >5 years after activity start). *(BC FCOP §3.4)*
- Contingency Account functions as a buffer: contributions and remedial payments calculated via defined equations when reversals occur. *(BC FCOP §8.4.3; Equations 35 & 39)*

6. Eligible Activities & Credit Use

- Projects must occur in B.C. and document entitlements on land tenure (public, private, First Nations, treaty settlement, Aboriginal title). *(BC FCOP §3.1–§3.2)*
- Per-tonne grant or subsidy funding is incompatible; offsets must not be issued elsewhere. *(BC FCOP §3.1)*
- Agreements with First Nations or provincial commitments can influence start dates but must still meet entitlement and reporting rules. *(BC FCOP §3.4)*

7. Safeguards & Co-benefits

- Required First Nations engagement steps (notice, meetings, incorporation of input, ongoing dialogue) serve as the primary social safeguard mechanism.

(BC FCOP §3.1.6)

- Projects on First Nations or Treaty Settlement land need formal evidence of support (e.g., Band Council Resolution, Certificates of Possession). *(BC FCOP §3.2.3)*
- Protocol references compliance with other environmental/social statutes but does not mandate broader co-benefit certification frameworks. *(BC FCOP §1.0)*

8. Permanence & Reversal Management

- Monitoring & Maintenance Plan must address risk categories (fire, pests, financial, etc.) and identify mitigation and reporting commitments backed by recent evidence. *(BC FCOP §8.4.1)*
- Reversal events occur when project emissions exceed baseline; proponents must quantify impacts and report impairment. *(BC FCOP §8.4.2; Equation 33)*
- Default natural-disturbance risk contributions to the contingency account are 18% (Coast), 27% (Northern Interior), and 37% (Southern Interior) before project-specific deductions; financial/management risk factors are added separately. *(BC FCOP Table 23; Table 25; Equations 39–41)*

9. Materiality Thresholds & Data Quality

- Materiality threshold set at ±5% of annual emissions/removals; applies to errors, omissions, and misrepresentation. *(BC FCOP §3.6)*
- Project plans must justify calculation methodologies for each sink/source/reservoir and ensure data quality through inventories (e.g., VRI) and sampling protocols. *(BC FCOP §3.1, §10.0)*

10. Leakage Assessment & Mitigation

- Addresses activity leakage and external market leakage; provides default regional leakage factors (e.g., Coast ~47%, Northern Interior ~72%, Southern Interior ~69%) with option for project-specific analysis via Appendix C. *(BC FCOP §8.3; Tables 10–18)*
- Baseline assessments for avoided conversion must consider regional development trends and evidentiary requirements (permits, offers, economic analysis). *(BC FCOP §5.2.1)*
- Guidance encourages adjusting leakage estimates when species mix deviates from provincial averages. *(BC FCOP §8.3.2.3)*

11. Recent Updates & Discussion Prompts

- 2024 revision introduced contingency account and risk-of-reversal framework, updated leakage defaults, required Monitoring & Maintenance Plans,

and formalized First Nations engagement. *(BC FCOP Summary of Revisions)*
- Workshop prompts: How does the 25-year crediting/100-year monitoring structure influence perceptions of permanence? Is the 5% materiality threshold sufficient for high-variance forest data? Do engagement requirements meet expectations for robust social safeguards?

Verified Carbon Standard (VCS) — Summary

Reference shorthand: "VCS Standard §X" denotes clauses in the VCS Standard v4.7 (16 Apr 2024); "Program Guide §X" references the VCS Program Guide v4.4 (29 Aug 2023); "Reg/Issuance §Step Y" references the Registration & Issuance Process v4.6 (16 Oct 2024); "NPRT §X" references the AFOLU Non-Permanence Risk Tool v4.2 (3 May 2024).

1. Snapshot

- Global program administered by Verra covering the seven Kyoto gases plus ODS; eligible projects apply VCS-approved or adopted methodologies within defined scope exclusions. *(VCS Standard §2.1)*
- AFOLU project categories include ARR, ALM, IFM, REDD, ACoGS, and WRC; non-AFOLU activities span energy, industrial, waste, and other sectors subject to scope limitations in non-LDC contexts. *(VCS Standard Appendix 1; §2.1.3)*
- Core document suite: VCS Standard, Program Guide (governance, registry), Registration & Issuance Process (project cycle), and supporting tools (e.g., AFOLU NPRT). *(Program Guide Contents; Reg/Issuance §Step 1–7)*

2. Governance & Protocol Setting

- Verra (independent non-profit) manages the program, maintains impartiality, oversees VVBs, and administers the Verra Registry. *(Program Guide §2.5.4–2.5.6)*
- Roles: project proponents control implementation and documentation; methodology developers follow the Methodology Development & Review Process; accredited VVBs validate/verify within approved sector scopes. *(Program Guide §2.5.1–2.5.3; §7.1–7.3)*
- Registry operations include account management, buffer credit tracking, fee collection, and liability provisions; complaints/appeals are codified. *(Program Guide §4.0–4.2; §9)*
- Registration & issuance follow a seven-step workflow from validation through periodic issuance, retirement/cancellation, and ongoing maintenance reviews. *(Reg/Issuance §Step 1–7)*

3. Baseline & Additionality Rules

- Baselines must follow applied methodology requirements, demonstrate equivalence of services, use conservative assumptions, and integrate applicable regulations or policies. *(VCS Standard §3.13.1–3.13.4)*
- Additionality requires regulatory surplus at validation and each crediting period renewal; methodologies or approved activity modules (positive lists) provide tests, with safeguards when simplified approaches originate from other programs. *(VCS Standard §3.14.1–3.14.2)*
- Project start/validation timing governed by listing, public comment, and deadline rules; AFOLU crediting periods span 20–100 years (renewable up to 100 years total) with reassessment of baseline/regulatory conditions at renewal. *(VCS Standard §3.8; §3.9.3–3.9.9)*

4. Monitoring, Reporting, Verification (MRV)

- Projects must maintain a GHG information system, QA/QC procedures, calibrated measurement equipment, and monitor leakage per methodology. *(VCS Standard §3.16.1–3.16.5; §3.15.15)*
- Verification requires reasonable assurance with materiality thresholds of 5 % (1 % for large projects), mandated site visits at validation, first verification, baseline reassessment, and major deviations; VVBs evaluate responses to public comments prior to issuing conclusions. *(VCS Standard §4.1.10–4.1.14; §3.18.13)*
- Monitoring reports follow Verra templates and feed into periodic verification; VVBs apply ISO 14065 competence requirements and document rationale when site visits are deferred. *(VCS Standard §4.1.19; Reg/Issuance §Step 1)*

5. Credit Issuance & Registries

- VCUs are issued only after successful verification and Verra registration review; Verra deposits calculated buffer credits to pooled accounts before credit issuance. *(VCS Standard §2.3.1; §3.15.16; Reg/Issuance §Step 3–5)*
- Project proponents sign unilateral representations, and registry terms of use prohibit double selling; registry tracks serial numbers, retirements, cancellations, and pooled buffer balances. *(Program Guide §2.5.1; §4.0; VCS Standard §3.23.1–3.23.6)*
- Fees and liability/time limits are defined in Program Guide; VCUs retain permanence even if projects later experience reversals (buffer credits cover losses). *(Program Guide §4.1–4.2; VCS Standard §2.4.1)*

6. Eligible Activities & Credit Use

- Scope excludes certain grid-connected renewable and fossil energy efficiency activities in non-LDCs unless specific conditions are met; AFOLU activities

must align with Appendix 1 definitions. *(VCS Standard §2.1.3; Appendix 1)*
- Projects cannot receive credit simultaneously under VCS and another GHG program; detailed gap validation requirements apply for transitions from programs such as CAR, CDM, or JI. *(VCS Standard §3.23.1–3.23.13)*
- VCUs can carry labels (e.g., CCB, SD VISta) to communicate co-certifications; Program Guide outlines registry processes for such labels and associated fees. *(VCS Standard §3.24; Program Guide §4.1)*

7. Safeguards & Co-benefits

- Projects must demonstrate contributions to at least three SDGs by the end of first monitoring period and each subsequent period; CCB or SD VISta verifications can satisfy this requirement. *(VCS Standard §3.17.1–3.17.2)*
- Stakeholder engagement requires inclusive identification, pre-implementation consultation covering risks, benefit sharing, FPIC, and workers' rights, with documentation of actions taken in response. *(VCS Standard §3.18.1–3.18.3)*
- Grievance redress involves staged resolution (negotiation → mediation → arbitration/courts) and ongoing communication obligations before each validation/verification. *(VCS Standard §3.18.4–3.18.6)*
- Extensive safeguards address community safety, labor rights (including gender equity, equal pay, prohibition of forced/child labor), indigenous/customary rights, cultural heritage, property rights, benefit sharing, biodiversity protection, and limits on ecosystem conversion. *(VCS Standard §3.19.1–3.19.29)*

8. Permanence & Reversal Management

- AFOLU projects must run the AFOLU NPRT to determine non-permanence risk; internal, external, and natural risk scores are summed, with minimum overall rating 12 and maximum 60. *(NPRT §2.5.1–2.5.3)*
- The overall risk percentage equals the fraction of carbon stock increase deposited as buffer credits; category thresholds (internal <=35, external <=20, natural <=35) ensure risk diversification, and projects exceeding limits must mitigate risks before eligibility. *(NPRT §2.5.2–2.5.4)*
- Verra periodically reconciles pooled buffer accounts and can adjust risk criteria prospectively; buffer cancellations compensate for verified reversals so issued VCUs remain intact. *(VCS Standard §2.4.1–2.4.3; §3.15.16)*

9. Materiality Thresholds & Data Quality

- Verifications apply 5 % (1 %) aggregate materiality thresholds; VVBs must log rationale when site visits are waived, evaluate stakeholder input, and ensure methodology deviations do not undermine conservativeness. *(VCS Standard §4.1.10–4.1.16; §3.20)*

- Monitoring plans require QA/QC procedures, calibrated instruments, documented data sources, and justification of any optional leakage deductions or methodology updates. *(VCS Standard §3.16.1–3.16.5; §3.15.8–3.15.15)*
- Double-entry safeguards include project description deviation protocols and documentation of ownership, reducing risk of data misuse or double claiming. *(VCS Standard §3.7; §3.21; §3.23)*

10. Leakage Assessment & Mitigation

- Leakage must be documented in project design and monitoring; IFM activities can apply default market leakage discounts (0–70 %) depending on harvest displacement, with optional 15 % activity-shifting and 10 % market deductions under defined conditions. *(VCS Standard §3.15.8–3.15.15; Table 3)*
- International leakage (outside host country) need not be quantified, but projects cannot claim positive leakage; Verra reviews market leakage assessments periodically for consistency. *(VCS Standard §3.15.11–3.15.14; §2.5.1)*

11. Recent Updates & Discussion Prompts

- v4.7 updates consolidate expanded safeguard language (FPIC, gender, biodiversity), clarify acceptable use of non-native species where consistency with safeguards is demonstrated, and align AFOLU risk/leakage oversight with the latest NPRT. *(VCS Standard Document History notes §4364–4400)*
- Discussion starters: How do long AFOLU crediting periods and buffer contributions shape perceived permanence risk relative to other protocols? What implementation burden does the SDG contribution requirement create for projects targeting compliance vs voluntary buyers? How do VCS leakage discounts compare with jurisdictional approaches (e.g., CAR or BC FCOP) when groups design "good" versus "bad" protocols?

Gold Standard for the Global Goals — Summary

Reference shorthand: "Principles §X" denotes clauses in Principles & Requirements v2.1 (2024-12-05); "Stakeholder §X" references Stakeholder Consultation & Engagement Requirements v2.1 (2022-06-14); "Safeguards §X" references Safeguarding Principles & Requirements v2.1 (2023-06-29); "Gender §X" references Gender Equality Requirements v2.0 (2020-12-16); "LUF §X" references Land Use & Forests Activity Requirements v1.2.1 (2020-04); "Methodology §X" references A/R GHG Methodology v2.1 (2024-05-16); "GHG PR §X" references GHG Emissions Reduction & Sequestration Product Requirements v3.0 (2024-11); "Positive List" references RC 2025 LUFAR Positive List; "Smallholder" references RU 2021 LUF Smallholder Definition.

1. Snapshot

- Certification governed by Principles & Requirements; project cycle includes Gold Standard Certified Project Design and Gold Standard Certified Project, with optional product labels (Principles §2.1–2.3).
- Land-use eligibility guided by LUF Activity Requirements, Positive List of approved practices, and smallholder definitions; A/R methodology provides quantification rules for carbon sequestration projects (LUF §1–§4; Positive List; Smallholder).
- Impact Registry records issuance/retirement of Gold Standard Verified Emission Reductions (GSVERs), Planned Emission Reductions (PERs), and Article 6 authorisations (GHG PR §§10–15).

2. Governance & Protocol Setting

- Gold Standard Foundation oversees certification, maintains the Impact Registry, and approves dual/stacked certification to avoid double counting (Principles §3.1.1; GHG PR §§10.1.2, 10.7).
- Eligibility requires defined project boundaries, legal compliance, uncontested ownership, host-country law adherence, and transparency on Official Development Assistance (Principles §3.1.1(a–h)).
- LUF projects submit detailed GIS layers, socio-economic context, and risk assessment covering land-use history, stakeholder profiles, and project change risks (LUF §4.1.3; §4.1.2 bullets).
- Impact Registry terms govern account access, serial tracking, and Article 6 authorisations; false or duplicate claims can trigger suspension (GHG PR §§10–14).

3. Baseline & Additionality Rules

- Projects define conservative baseline and project scenarios considering legal enforcement; suppressed demand baselines limited to eligible small-scale contexts (Principles §4.1.8–4.1.10).
- Projects must document contributions to at least three SDGs (including SDG 13) and identify monitoring indicators at design stage (Principles §4.1.12–4.1.16).
- Financial additionality is required for product issuance: apply UNFCCC/GS additionality tools (CDM Tool 01/21, etc.), demonstrate regulatory surplus, and show carbon finance necessity (Principles §§4.1.46–4.1.48; Methodology §3.2.2–3.2.3).
- LUF requirements emphasise baseline land-use assessment, modelling unit definition, and eligibility verification (LUF §4.1; Methodology §§2.1–3.5).

4. Monitoring, Reporting, Verification (MRV)

- Monitoring plan (validated at design) must specify parameters, frequency, data collection methods, responsible parties, QA/QC, and ethical consid-

erations (Principles §§4.1.40–4.1.45).

- A/R methodology quantifies sequestration by modelling units, deducting baseline and leakage upfront (t=1) and tracking annual CO2 removals; remote sensing classification must reach >=90 % accuracy (Methodology §§3.3–3.7; Annex C §1.1.6).
- GHG Product Requirements set default crediting periods (max 10 years absent activity-specific rules), retroactive crediting limits (2 years, or 3 years for A/R/AGR), and require verification before Impact Registry issuance (GHG PR §§10.1–10.4).
- Performance Certification cross-checks monitored carbon stocks vs issued PERs/GSVERs; deviations trigger reporting within 30 days and corrective actions (GHG PR §11.4.1).

5. Credit Issuance & Registries

- GSVERs issued post-verification; PERs (ex-ante) allowed for LUF projects up to 5 years (3 years for agriculture) with 20 % buffer withholding and conversion to GSVERs after verification (GHG PR §§11.1–11.2).
- Impact Registry manages serials, authorisations, and claims; dual certification permitted only with explicit Gold Standard approval to prevent double crediting (Principles §2.3; GHG PR §10.1.2).
- Projects operating under other programs must ensure combined crediting periods do not exceed Gold Standard limits; pre-CDM GSVER issuance requires surrender commitments (GHG PR §§10.1.2, 10.7.1).

6. Eligible Activities & Credit Use

- Project types must align with approved Activity Requirements or secure approval; fossil fuel, nuclear, and geo-engineering projects are excluded (Principles §4.1.7).
- Positive List enumerates eligible A/R practices (e.g., assisted natural regeneration, agroforestry); smallholder definition (<25 ha or <25 % income from agriculture) unlocks tailored requirements and default factors (Positive List; Smallholder §2).
- Stacking (combining products) is permitted under defined conditions, provided baselines and impacts are compatible and double counting is avoided (Principles §2.3; §4.1.11).

7. Safeguards & Co-benefits

- Safeguarding framework covers human rights, gender equality, labour safety, biodiversity, pollution, cultural heritage, indigenous/customary rights, and conflict sensitivity; projects must assess risks, document mitigation, and provide supporting evidence (Safeguards §§4–5; Annex).
- Gender requirements mandate gender-responsive assessments, equal participation, and reporting on gender indicators linked to selected SDGs

(Gender §§2.1–2.4).

- Stakeholder consultation entails at least two formal meetings (Local Stakeholder Consultation I & II), public comment periods, and documentation of responses; continuous input & grievance mechanism must remain active through the crediting period (Stakeholder §§3.1–3.8; LUF Annex D).
- FPIC is required where land/resource rights are affected; stakeholder lists, contact records, and updates are included in each monitoring report (Stakeholder §§3.5–3.8; Principles §3.1.1(f)).

8. Permanence & Reversal Management

- LUF projects contribute 20 % of sequestration-related PERs/GSVERs to the Compliance Buffer; contribution not required for purely avoidance projects (GHG PR §11.1.1).
- Carbon Performance provisions require tracking actual stocks vs issued credits, reporting incidents within 30 days, and following Performance Shortfall Guidelines when shortfalls occur (GHG PR §11.4.1).
- LUF requirements enforce riparian buffer zones (15 m), mosaic planting, conservation set-asides, and documentation of land-use history to mitigate reversal risks (LUF §§4.1, 7.2, Annexes).

9. Materiality & Data Quality

- Monitoring plan mandates QA/QC and ethical data handling; SDG indicators tie to national/international datasets or justified proxy metrics (Principles §§4.1.15–4.1.16; §4.1.40).
- Remote sensing classifications for eligibility require >=90 % accuracy and documentation of sensors, methods, and ground-truthing (Methodology Annex C §1.1.4–1.1.7).
- Impact Registry oversight and Terms of Use enforce accurate reporting; breaches can suspend account access and de-label credits (GHG PR §§13–14).

10. Leakage Assessment & Mitigation

- A/R methodology addresses leakage via four activity categories (fuelwood, timber, agriculture, livestock) with deductions applied in year 1 using activity-shift percentages and CO2-stock estimates (Methodology §§3.7.1–3.7.8).
- LUF requirements integrate socio-economic assessments, land-use planning, and buffer/mosaic design to minimise displacement risks (LUF §§4.1.2, 7.2, 12).

11. Recent Updates & Discussion Prompts

- 2024/2025 updates reinforce SDG alignment, financial additionality, expanded safeguarding, and Article 6 reporting; GHG Product Requirements v3.0 formalise 20 % buffer and Impact Registry authorisation workflows.
- Workshop prompts: How does Gold Standard's dual requirement for SDG impacts and financial additionality influence project credibility? Compare the 20 % compliance buffer and carbon performance checks with VCS/CAR permanence mechanisms. Evaluate stakeholder consultation depth relative to other standards when crafting "good" vs "bad" protocols.

Climate Action Reserve – U.S. Forest Project Protocol Summary

Reference shorthand: "FPP §X" denotes clauses in the U.S. Forest Protocol v5.1 (2023-07-20); "Appendix" references the same document; companion documents include Quantification Guidance (2017-06-28), Long-Term Management (2019-06), and aggregation/summary notes.

1. Snapshot

- U.S.-focused protocol covering Improved Forest Management (IFM), Reforestation, and Avoided Conversion; projects generate Climate Reserve Tonnes (CRTs) after third-party verification and Reserve review.
- Credit permanence enforced via 100-year monitoring and verification obligations post-final issuance; Buffer Pool insures against unavoidable reversals.
- Protocol underpins California's compliance offset program and voluntary market CRTs; eligible projects may transition from Climate Forward or other programs following Reserve Program Manual procedures.

2. Governance & Eligibility

- **Project Operator & Ownership:** Project Operator must document carbon rights, ownership interests, and professional forester oversight (FPP §2.2; §8.1).
- **Eligible Lands:** IFM/Reforestation allowed on private, tribal, and subnational public lands; Avoided Conversion restricted to private lands unless transferred to public ownership with 100-year conservation easement (FPP §2.1; §3.2.3).
- **Project Area Definition:** IFM projects must include all forested acres controlled by the owner within the smallest applicable HUC12/14 watershed or full ownership; exceptions require Reserve approval (FPP §4.2).
- **Start Date & Listing:** Linked to discrete action (e.g., easement recordation, property transfer, project submittal) and projects must be listed within 12 months of start date (FPP §3.2).

- **Additionality Tests:** Legal Requirement Test, Performance Standard (standardized baselines), and long-term commitment (100-year) ensure surplus reductions (FPP §3.3).
- **Natural Forest Management:** Projects must meet native species, age distribution, structural element, and harvest retention criteria; progress checked at initial and subsequent verifications (FPP §3.9.1–§3.9.3; Table 3.3).

3. Baseline & Quantification

- **Baseline Stocks:** Derived from Assessment Area Data Files (peer group carbon averages) adjusted for legal constraints; must reflect business-as-usual management over 100 years (FPP §6.3; Appendix C).
- **Annual Net Reductions:** Equation 6.1 aggregates changes in onsite carbon (DeltaAConsite – DeltaBConsite), soil carbon (if applicable), harvested wood products (80 % factor for market response), secondary effects (leakage), and carry-over (FPP §6.1).
- **Leakage:** Activity-shifting leakage percentage determined via decision tree (Figure 6.1); applied annually to net onsite change for cropland/grazing displacement. Market leakage factor (0.2) embedded in harvested wood product term for IFM (FPP §6.2.6; Equation 6.3).
- **Confidence Deduction:** Statistical uncertainty deduction applied to inventory estimates per Appendix B; baseline re-assessed only if methodology changes approved by Reserve.

4. Monitoring, Reporting, Verification (MRV)

- **Reporting Periods:** Initial period up to 12 months; subsequent annual periods must be contiguous. Monitoring reports due within 12 months of each period end even if verification deferred (FPP §8.2–§8.3).
- **Verification Schedule:** Initial verification within 12 months of first reporting period; site visits required at least every six reporting periods (approx. six years) with desk reviews allowed between required visits under specified conditions (<4,000 CRTs/year issuance). Monitoring and verification continue 100 years post-final issuance (FPP §8.3.2; Table 8.1).
- **Documentation:** Project Design Document, calculation worksheets, attestations, verification statements, and Professional Forester oversight required; KML/GIS files must match project area maps (FPP §8.1; §4.2).

5. Credit Issuance & Registries

- **CRTs:** Issued after Reserve review of third-party verification report and compliance attestations; project enters Project Implementation Agreement (PIA) committing to long-term obligations (FPP §8.1).
- **Buffer Pool:** Project-specific reversal risk rating (Appendix A) determines percentage of CRTs contributed each issuance. Qualified conservation

easements/deed restrictions can reduce risk rating; contributions adjusted if risk changes (FPP §7.2).
- **Reversals:** If annual net reductions (QRy) negative post-issuance, Reserve deems reversal. Unavoidable reversals (e.g., wildfire) compensated by Buffer Pool retirements; avoidable reversals require project to surrender CRTs within four months of verified estimate (FPP §7.3).
- **Termination:** Failure to report/verify as required or project area withdrawal triggers automatic termination and avoidable reversal treatment (FPP §3.5; §4.3).

6. Eligible Activities & Credit Use

- **Project Types:** IFM (sustainable harvest, stocking, structural upgrades), Reforestation (tree planting/regeneration on non-forest lands), Avoided Conversion (prevent conversion to non-forest use with 100-year easement). Aggregated projects follow additional guidance (Aggregation Guidelines 2017).
- **Stacking:** Allowed with prior Reserve approval to prevent double counting; project documentation must ensure baseline/additionality maintained (FPP §2.1).
- **Program Linkages:** Projects may transition to/from CARB Compliance Offset Program or Climate Forward; must follow Reserve Program Manual and meet respective buffer/verification rules (FPP §3.2; Long-Term Management note).

7. Safeguards & Co-benefits

- **Natural Forest Management:** Ensures native species composition, structural diversity, dead wood retention, watershed-scale age class balance, riparian protection, and soil disturbance limits (FPP §3.9; Table 3.2–3.3).
- **Harvest Controls:** Even-aged block size limits tied to residual basal area; re-entry restrictions until regeneration established (FPP §3.9.2).
- **Public Land Projects:** Require agency approval and public vetting consistent with management responsibilities; conservation easements mandate 100-year forest cover (FPP §2.1; §3.2).
- **Social Safeguards:** No explicit SDG framework; safeguards embedded in easement commitments, public approvals, and long-term monitoring requirements.

8. Permanence & Reversal Management

- **100-Year Obligation:** Project operators must maintain credited carbon stocks and conduct monitoring/verification for 100 years after final CRT issuance (FPP §7.1; §8.2).
- **Buffer Pool Contributions:** Risk-based (typically ~15–20 % per Reserve guidance); contributions withheld each issuance and may be adjusted if

risk profile changes. Alternative insurance instruments may be allowed in future (FPP §7.2.2–7.2.3).

- **Natural Disturbance Response:** Projects must report unavoidable reversals within six months, submit verified inventory within two years (or when mortality stabilizes), and allow Reserve to retire Buffer Pool CRTs (FPP §7.3.1).
- **Avoidable Reversals:** Report within 30 days, verify within one year, and surrender CRTs; includes planned harvest exceeding baseline or misestimation (FPP §7.3.2).

9. Materiality & Data Quality

- **Inventory Standards:** Professional/Certified Forester oversight required; inventory methods documented in PDD and updates per Appendix B (FPP §8.1).
- **GIS & Parcel Reconciliation:** Acreage discrepancies resolved using lesser of GIS or assessor data or by working with assessor; KML shapefiles mandatory (FPP §4.2).
- **Verification Manual:** Reserve Verification Program Manual outlines sampling, error thresholds, corrective action, and dispute processes complementing protocol requirements (FPP §10).

10. Leakage Assessment & Mitigation

- **Activity-Shifting Leakage:** Decision tree assigns percentage (based on timber market, grazing/cropland displacement risk); applied annually to net onsite carbon changes (FPP Figure 6.1; Equation 6.3).
- **Market Leakage:** 0.2 factor embedded in harvested wood product term to account for market response where project harvest differs from baseline (FPP §6.2.6).
- **Quantification Guidance:** Companion document provides step-by-step inventory, growth model, and leakage calculations to ensure consistent application.

11. Recent Updates & Discussion Prompts

- Version 5.1 clarifies natural forest management timelines, verification schedules, and easement provisions; maintains risk-based buffer approach aligned with CARB program.
- Discussion prompts: Compare CAR's standardized baseline and Buffer Pool with VCS and Gold Standard approaches; debate practicality of 100-year monitoring requirement when designing "good" vs "bad" protocols; evaluate leakage treatment (decision tree + 0.2 market factor) relative to BC FCOP's regional defaults and VCS optional deductions.

Cross-Standard Comparison (Draft)

KPI	B.C. FCOP (2024)	Verra VCS (v4.7)	Gold Standard (v2.1 suite)	Climate Action Reserve (FPP v5.1)
Governance & Protocol Setting	Provincial protocol under GGIRCA; Director accepts plans and issues offset units; mandatory First Nations engagement; integrates with EOPR requirements.	Managed by Verra non-profit; Program Guide defines roles for project proponents, methodology developers, VVBs, and Verra Registry; methodology development/approval process.	Gold Standard Foundation oversees certification; Principles & Requirements set global rules; Impact Registry manages issuance and Article 6 authorisations.	Climate Action Reserve administers U.S. Forest Protocol; Project Implementation Agreement binds operators; Professional Forester oversight required.
Baseline & Additionality Rules	Performance-standard vs project-specific baseline; 20-year historic data; regulatory & financial additionality assertions, revenue-dependency requirement.	Methodology-driven baseline; regulatory surplus mandatory; additionality via methodology tests or positive lists; activity-method modules allowed.	Baseline vs project scenario defined in Principles; must demonstrate SDG impacts (>=SDG13 + two) and financial additionality using UNFCCC/GS tools.	Standardized baselines by assessment area; legal requirement test; performance standard across 100-year horizon; long-term commitment assures additionality.

KPI	B.C. FCOP (2024)	Verra VCS (v4.7)	Gold Standard (v2.1 suite)	Climate Action Reserve (FPP v5.1)
Monitoring, Reporting, Verification	ISO 14064-2 monitoring & maintenance plan; reports every 1–5 years; 100-year monitoring period; monitoring plan must address risk categories.	Monitoring plan with QA/QC; reasonable assurance verification with 5% materiality (1% large); site visits at validation, first verification, baseline reassessment.	Monitoring plan must specify parameters, frequency, ethics; A/R methodology requires >=90% remote sensing accuracy; verification per Product Requirements.	Annual monitoring reports; verification within 12 months of reporting period, site visits at least every 6 reporting periods; 100-year verification obligation post-issuance.
Credit Issuance & Registries	25-year crediting (extendable), 100-year monitoring; contingency account remits based on risk tool; Director may withhold issuance.	VCUs issued post-verification via Verra Registry; buffer credits withheld based on AFOLU risk rating; registry prevents double selling.	GSVERs issued after performance certification; PERs (ex-ante) convert to GSVERs; 20% compliance buffer; Impact Registry tracks claims and Article 6 authorisations.	CRTs issued after Reserve review of independent verification; contributions to Buffer Pool based on reversal risk rating; 100-year Project Implementation Agreement.

KPI	B.C. FCOP (2024)	Verra VCS (v4.7)	Gold Standard (v2.1 suite)	Climate Action Reserve (FPP v5.1)
Eligible Activities & Credit Use	British Columbia forest projects: AFF/REF, CONS/IFM, Avoided Conversion; BC jurisdiction only.	Global scope; AFOLU categories (ARR, IFM, REDD, etc.); exclusions for certain grid-connected renewables in non-LDCs.	LUF Positive List (afforestation, agroforestry, etc.); smallholder definitions; stacking allowed with compatibility checks.	U.S.-only: Improved Forest Management, Reforestation, Avoided Conversion; must include all forested acres under control within HUC12/14 unless approved.
Safeguards & Co-benefits	Mandatory First Nations engagement (notice, meetings, ongoing dialogue); references provincial statutes; limited broader social safeguards.	SDG contribution requirement (>=3 SDGs); extensive stakeholder engagement & grievance procedures; safeguarding principles covering social/environmental risks.	Comprehensive safeguarding (human rights, gender equality, labour, biodiversity); gender requirements; two-stage stakeholder consultation + continuous grievance channel.	Natural Forest Management standards (native species, structural diversity, harvest retention); conservation easement/public approval for public lands; long-term habitat sustainability.

KPI	B.C. FCOP (2024)	Verra VCS (v4.7)	Gold Standard (v2.1 suite)	Climate Action Reserve (FPP v5.1)
Permanence & Reversal Management	Risk-of-Reversal tool (regional defaults 18/27/37% natural risk); contingency account contributions; monitoring plan must address risk categories; 100-year monitoring post-crediting.	AFOLU Non-Permanence Risk Tool sets overall risk rating (min 12, max 60); buffer converts risk % to withheld VCUs; pooled buffer retires credits for reversals.	20% Compliance Buffer for sequestration components; carbon performance checks vs issued credits; PERs convert after verification; buffer for sequestration only.	Buffer Pool contributions tied to project-specific risk rating; unavoidable reversals compensated from Buffer Pool, avoidable reversals require CRT surrender; monitoring/verification for 100 years.
Materiality & Data Quality	5% materiality threshold; monitoring & maintenance plan must cite evidence <=10 years old; ISO 14064 alignment.	5%/1% aggregate materiality; mandatory QA/QC; methodology deviations allowed only where conservative.	Monitoring plan requires QA/QC, data ethics; remote sensing classification >=90% accuracy; Impact Registry enforcement.	Inventories overseen by Professional Forester; confidence deduction applied per Appendix B; GIS acreage reconciliation.

KPI	B.C. FCOP (2024)	Verra VCS (v4.7)	Gold Standard (v2.1 suite)	Climate Action Reserve (FPP v5.1)
Leakage	Default regional leakage percentages with option for project-specific adjustment (Appendix C); activity leakage & market leakage addressed separately.	Activity leakage optional 15% deduction; market leakage adjustments (0%–70%) for IFM; international leakage not required.	A/R methodology deducts leakage (fuelwood, timber, agriculture, livestock) in year 1; optional activity-shifting factor; compliance buffer addresses residual risk.	Leakage decision tree sets activity-shifting percentage; 0.2 market factor embedded in harvested wood products; secondary effects quantified annually.
Notable Updates / Discussion Prompts	2024 revision added contingency account, risk tool, mandatory First Nations engagement; compare regional risk defaults vs other buffers.	v4.7 expands safeguards and SDG requirements; evaluate positive-list additionality vs standardized baselines.	2024 updates reinforce SDG alignment and compliance buffer; consider interaction of PERs and buffer contributions in good/bad scenarios.	v5.1 clarifies natural forest management timelines, verification schedules; contrast 100-year obligations and market leakage factor with other standards.

Discussion Themes (initial)

- Permanence strategies: compare contingency account (BC), pooled buffers (VCS, CAR), compliance buffer + PERs (Gold Standard).
- Stakeholder and social safeguards: First Nations focus vs global SDG requirements vs natural forest management criteria.
- Treatment of leakage: regional defaults vs decision trees vs optional deductions.
- Credit issuance pacing: PERs and CRTs with long-term monitoring vs

VCUs; workshop could explore “good” vs “bad” design choices using buffer/leakage levers.