Monitoring, Reporting and Verification Issues

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MRV requirements

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- Monitoring, Reporting and Verification (MRV)
  - Process for credible, independently assessed quantification of GHG reductions
  - Post-implementation/ongoing part of GHG accounting requirements
- Quantification might include both:-
  - Monitoring (using data collected from the site over the reporting period)
  - Estimation (using models from data collected at other sites)

MRV requirements

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- Five core accounting requirements for offset projects:-
  - **Real** (achieved reductions, address leakage)
  - **Measurable** (measure reductions to a reasonable degree of certainty)
  - **Long-term** (addressing non-permanence/risk of reversal)
  - **Additional** (not what would have occurred anyway)
  - **Verifiable** (can be confirmed by independent parties, repeatable)

Measurement uncertainty

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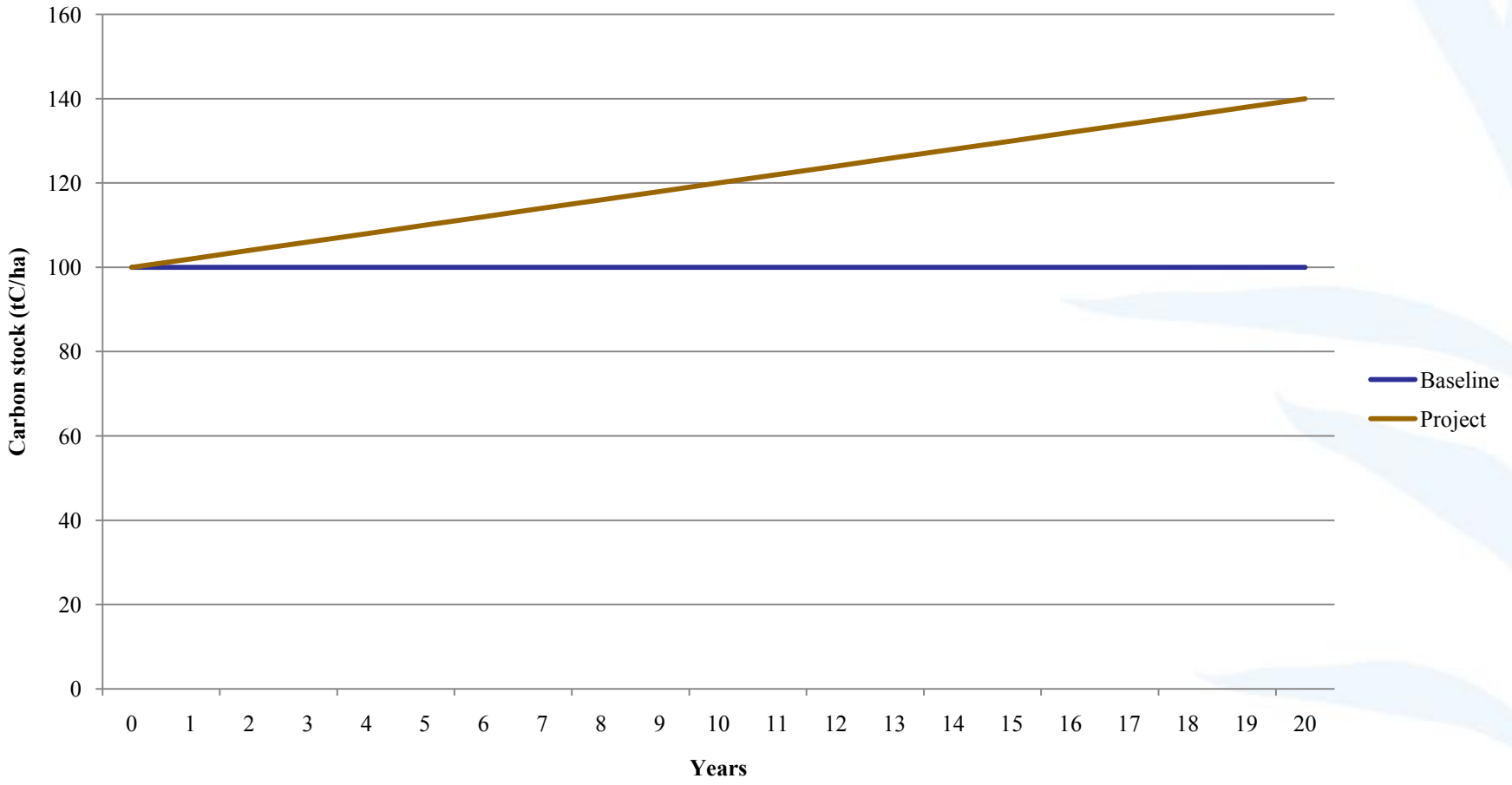
Graph 1. Baseline and project carbon stock changes



Measurement uncertainty

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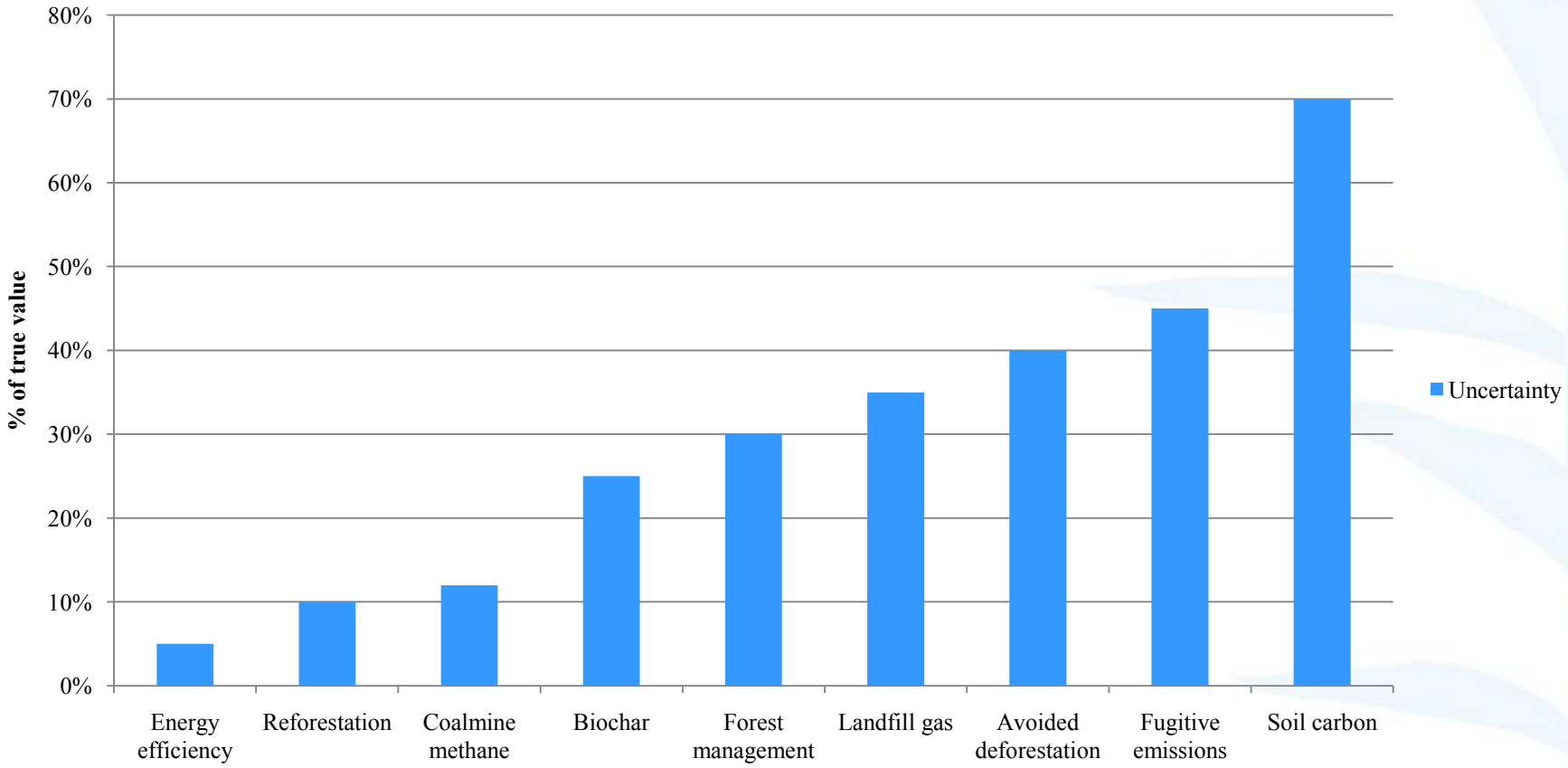
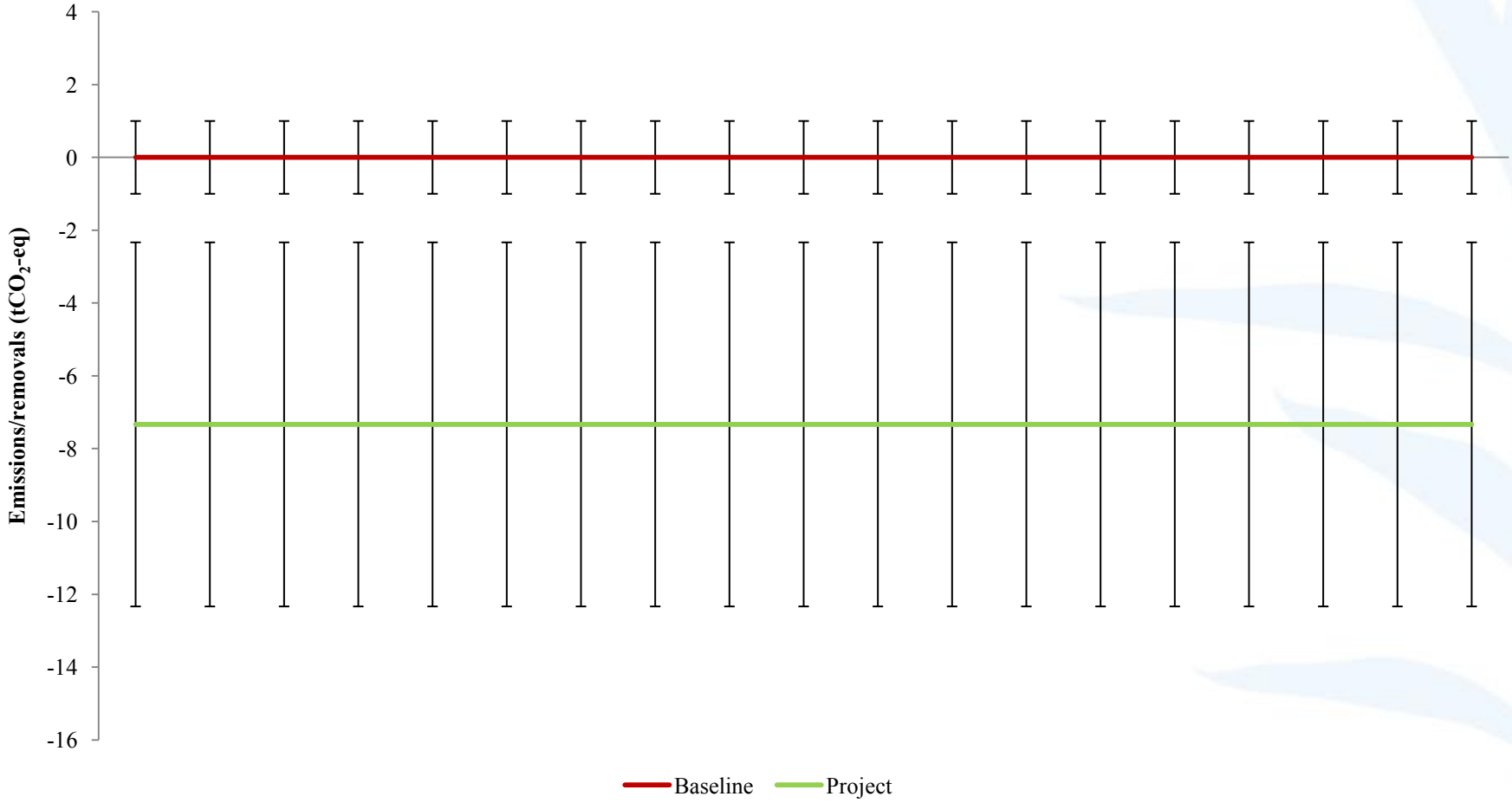
Graph 2. Uncertainty of GHG reduction in different project types



Measurement uncertainty

Graph 3. Estimation of baseline and project emissions/removals with error margins



Measurement uncertainty

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Table 1. Uncertainty requirements for carbon pool based projects

Program	Measurement Uncertainty
GGAS	Uncertainty analysis discounted to 30th percentile on all quantification inputs
CDM	Take into account to achieve reliable estimates
CAR	Confidence deduction up to 20% at 90% CI based on ranges, ±20% error limit
RGGI	Precision limits of ±10% at 95% CI for all carbon pools
Alberta Offset System	Precision limits of ±10% at 95% CI for measured data
VCS	Take into account to achieve reliable estimates
Californian ETS (AB32)	For non-carbon pool no more than ±5%, carbon pool projects discounted according to uncertainty
Western Climate Initiative	Be accounted for when above a defined threshold (i.e. as per AB32)
US ETS (ACESA)	Protocols include monitoring and accounting for uncertainty (i.e. same as AB32)
CarbonFix	Highly conservative factors

Measurement uncertainty

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- Three main approaches:-
  - Uncertainty analyses on all quantification inputs selecting conservative percentile value (GGAS)
  - ± 5% at 90% CI sampling precision targets/discounting (North American programs)
  - Conservative models and assumptions (CDM, VCS, Carbonfix)
- Either project developer, auditor or programme administrator will be responsible for over-predictions
- If weak justifications or high uncertainty auditors will either:-
  - Attach a low degree of assurance to quantified GHG reductions
  - Assure a lower amount of GHG reductions

Expectations and options

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- C pool projects have long-term MRV obligations due to risk of reversals
- If cannot cost-effectively meet MRV expectations, other policy option may be better
- Project-based mechanism is not the only option, mitigation policies include:-
  - Emission trading or tax
  - Fiscal measures including grants, subsidies and rebates
  - Regulations and standards
  - Research and development investment
- Will a grant/subsidy/rebate option be more cost-effective/create greater incentive for some activity types?

Expectations and options

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- Suggestions if project mechanism:-
  - Ability to apply project aggregation, pooling or programmatic approach (which can reduce uncertainty and MRV costs)
  - 5-yearly monitoring and verification subject to recalculation/'true-up' (reduce costs)
  - Uncertainty discounting over set precision targets (greater flexibility)
  - Risk of reversal buffer over temporary crediting (more stable outcome)
  - Monitoring methodologies subject to validation and approval but not public disclosure innovation

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Thank You!

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