



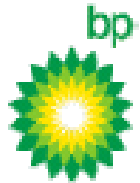
Developing Standards-Based Protocols: ISO 14064-2 Framework:

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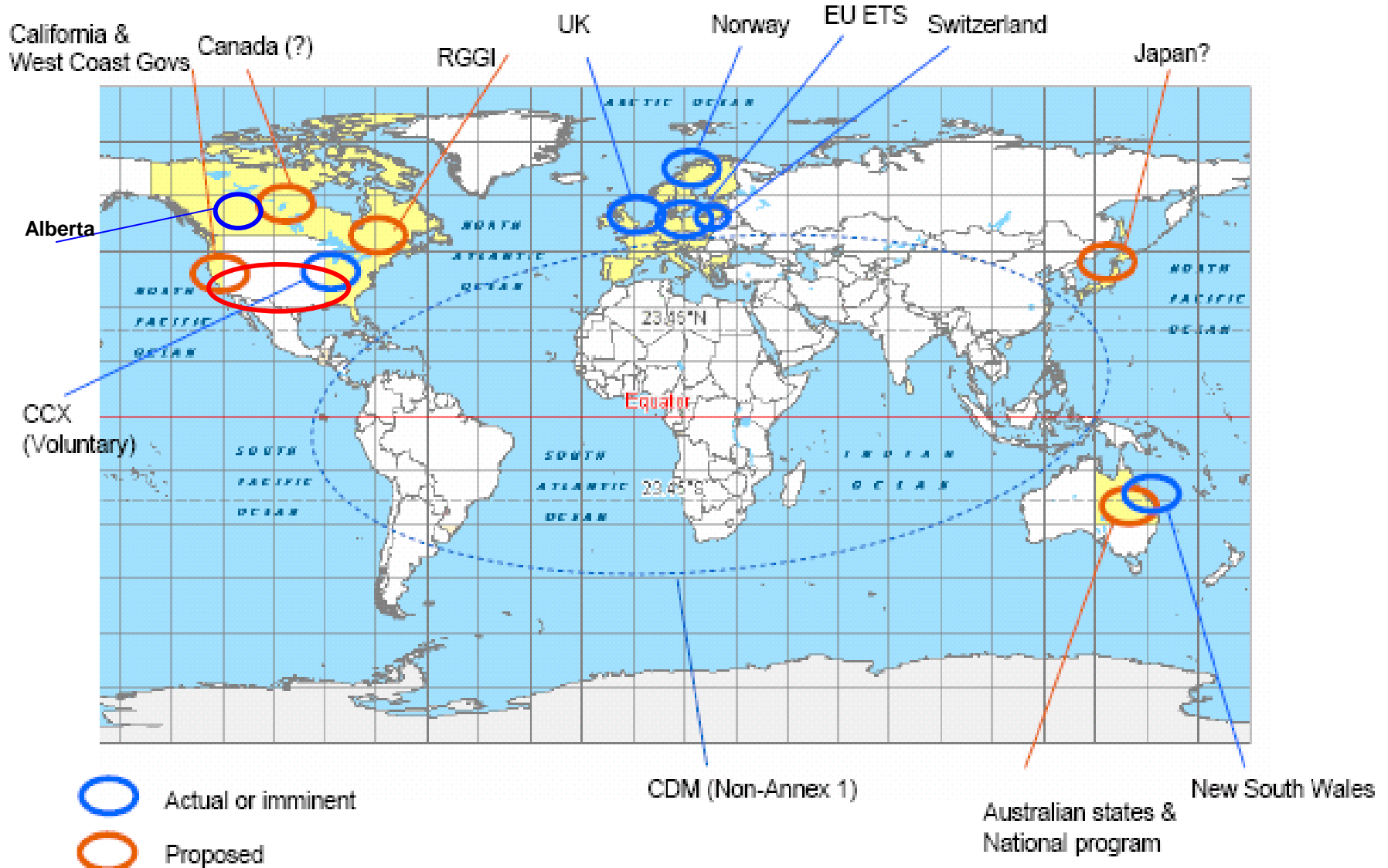
**Wetland Conservation and Restoration Protocol
Workshop**
March 17th & 18th, 2010



- Context
- Policy Drivers
- Offset Criteria
- Standards and Quantification Frameworks
- Quantification Resources
- Alberta Protocol Development



The Evolving Global Carbon Market



Voluntary & Compliance Differences

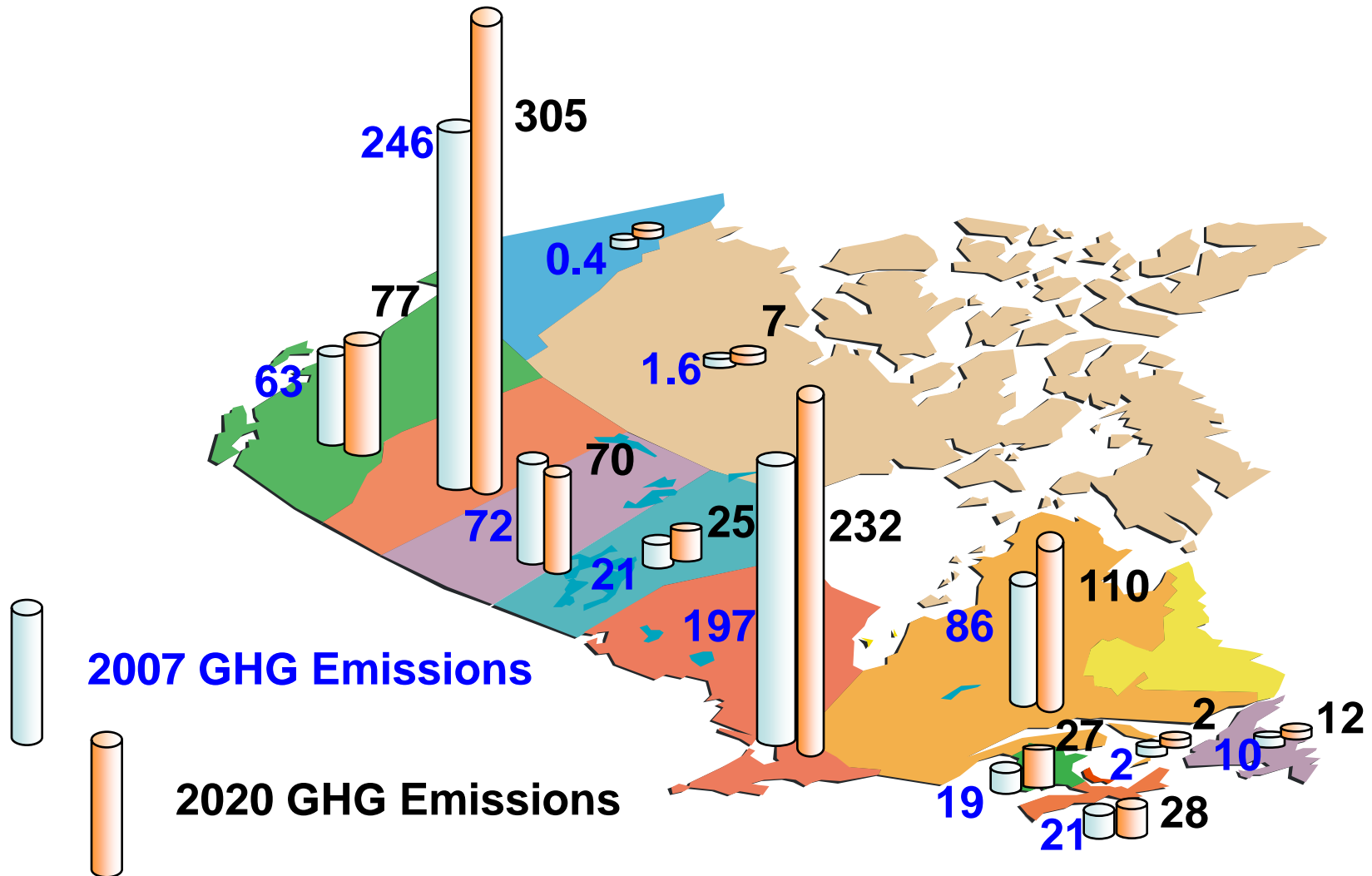


Characteristic	Voluntary-Based	Compliance-Based
Demand	<p>Set by <u>interested trading firms</u> for a variety of reasons:</p> <ul style="list-style-type: none"> • Corporate Social Responsibility • Public relations • Learning about markets • Carbon Neutral objectives 	<p>Set by <u>Government regulations</u> through compliance targets.</p>
Price	<p>Relatively <u>lower</u> due to voluntary demand, thin markets and confidence of the market.</p>	<p>Relatively <u>higher</u>; demand is mandatory; High Standards/confidence in Credits.</p>
Rules for Credit Supply	<p>Decided by <u>trading firms</u>; science review/scrutiny may be limited.</p>	<p>Overseen by <u>government</u> to fit compliance criteria for regulations; strong, consensus science base to ensure integrity of the system Additionality needs to be met.</p>
Transaction costs	<p>Tend to be <u>lower</u>; emphasis on learning.</p>	<p><u>Higher</u>; can be minimized by supply standards and government policy.</p>
Aggregation	<p>Still needed to minimize risk and reduce transaction costs.</p>	<p>Still needed to minimize risk and reduce transaction costs.</p>
Verification	<p><u>May</u> be 3rd party.</p>	<p><u>Essential</u> to have 3rd party audits.</p>
Practice Change	<p><u>May</u> or may not be required.</p>	<p><u>Essential</u> to have baseline and practice change to satisfy additional criteria.</p>
System Integrity	<p>Emphasis on learning; getting started; <u>more flexible</u> in rules.</p>	<p>Emphasis on compliance; considers international rules/targets.</p>
Liability	<p>Addressed through <u>bilateral contracts</u>.</p>	<p><u>Rules</u> in place; government policies will dictate how reversible carbon (soil and forestry sinks) need to be managed.</p>

Alberta's GHG Emissions in the Canadian Context



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The lay of the Land in Alberta

- A history long time in the making...
 - Taking Action (October 2002)
 - Climate Change and Emissions Management Act (2007)
 - Specified Gas Emitters Regulation
 - Administrative Penalty Regulation



Specified Gas Emitters Regulation

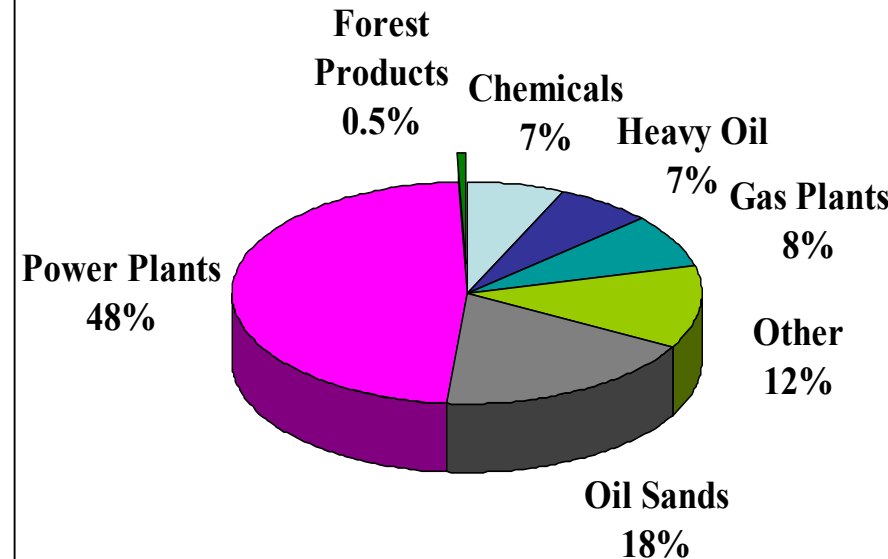
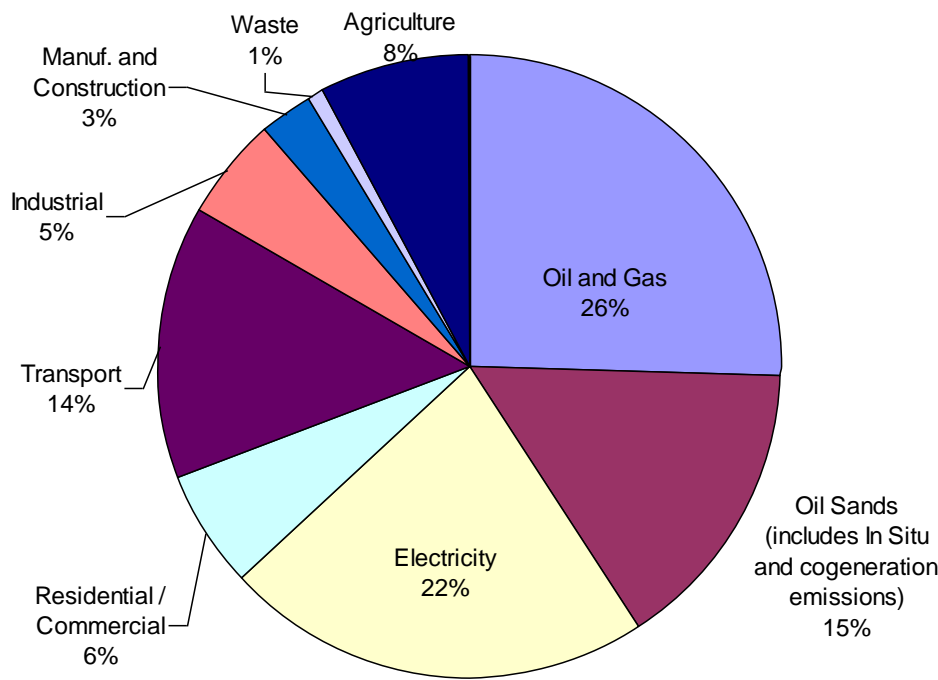
- Facilities emitting more than 100 000 tonnes of CO₂e per year must reduce their emissions intensity by 12%.
- 4 ways to reduce their emissions:
 - Reduce internally
 - Emissions Performance Credits
 - Pay into Climate Change Emissions Management Fund
 - Offsets





Regulated Large Industrial Emitters Profile (*>100,000 tonnes CO₂e/year*)

Alberta Total 2007 Emissions (246 Mt CO₂e)



Options to Achieve Targets



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1. Internal Reductions via improvements
2. Emission Performance Credits (EPCs)
 - These are credits for better than target performance – created by regulated companies
3. Payment into the Fund
 - Compliance payment to the Climate Change and Emissions Management Fund at \$15/tonne
 - Safety valve - essentially caps industry's risk as we transition into a new regulatory and economic system
4. ***Carbon Offsets***
 - Incentivizes reductions outside of the regulated facilities, unleashing ingenuity of the broader market
 - Rewards reduction activity not otherwise required by law

Emission reductions by unregulated sectors sold to 'offset' target reductions by LFEs



- Are reductions in greenhouse gas emissions that occur outside any *Regulation*; Result from a change in practice
- Emission Offsets Eligibility Criteria:
 - Action (project) taken on/after January 1, 2002
 - All actions must occur in Alberta
 - Must be *real, quantifiable and measurable*
 - Not otherwise required by law; clearly owned
 - Must be verified by 3rd party
 - Provide Guidance Documents (Projects, Verification, Protocols)
 - *Develop Protocols – Most comprehensive set in NA*
 - Establish Project-based Registry = Alberta Offset Emissions Registry



- A **demand** for credits
 - Created through the Specified Gas Emitters Regulation (SGER)
- A **supply** of credits
 - Creation allowed through the regulation; government approved protocols and methodologies
- **Rules** to govern the system
- **Consequences** for non-compliance
 - % of projects are audited each year



- Government Approved Protocols:
 - Science-based
 - International compatibility
 - Streamlined use
 - Transparency and consistency
 - Reduced costs and administration
 - Considerable technical review
 - Provides certainty for investors – GHG tonnes reduced

DEFINES THE SUPPLY – SIZE OF THE REDUCTION



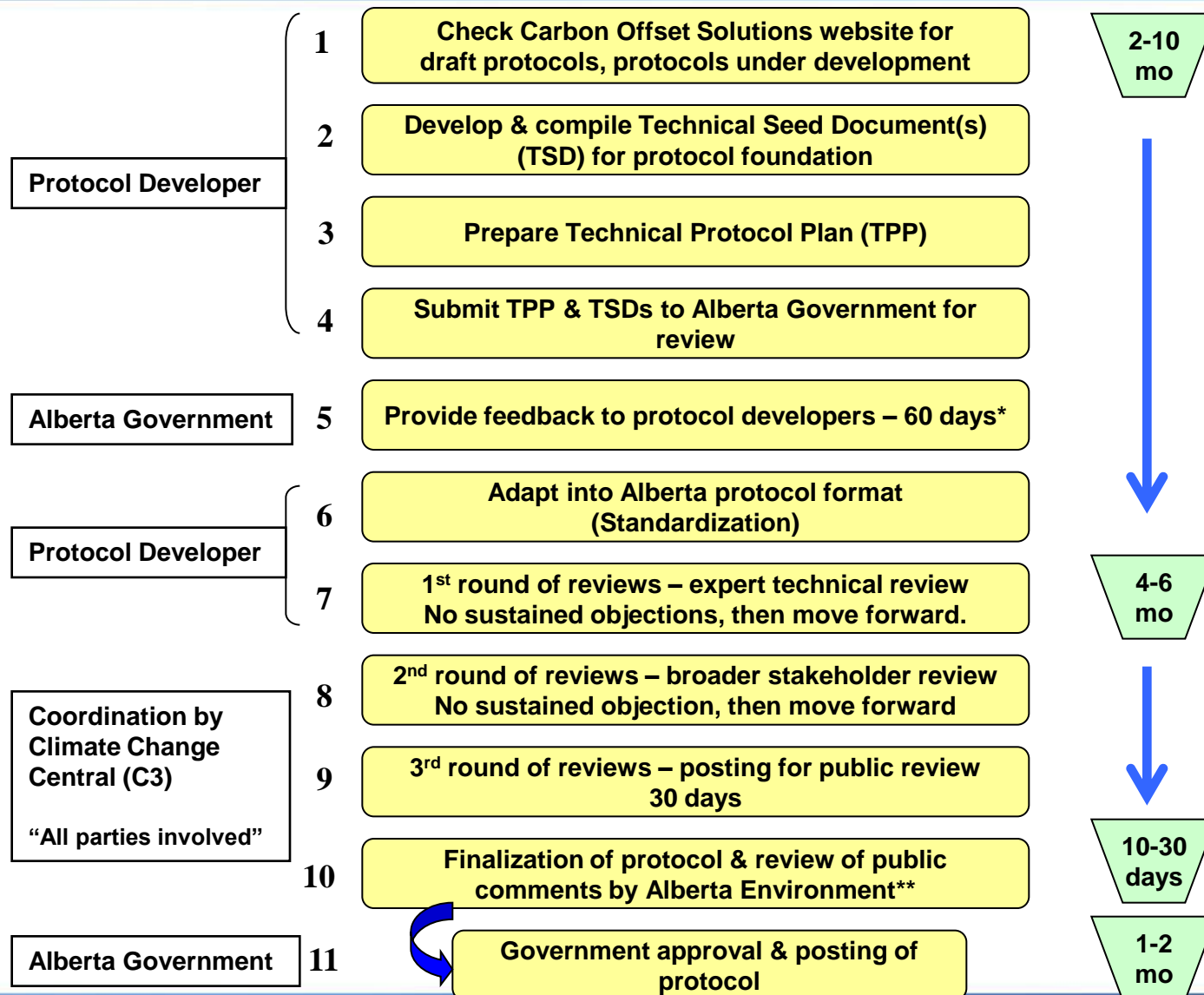
- **Phase 1** – Planning and compilation of Technical Background Document (late 2008 – early 2009)
- **Phase 2** – Development of a Science Discussion Paper (completed Mid 2009)
- **Phase 3** – Science Coordination (Today) - followup work?
- **Phase 4** – Standardize into Alberta Template (2-3 mos)

Then proceeds to the Alberta Protocol Review Process (4 to 8 mos)

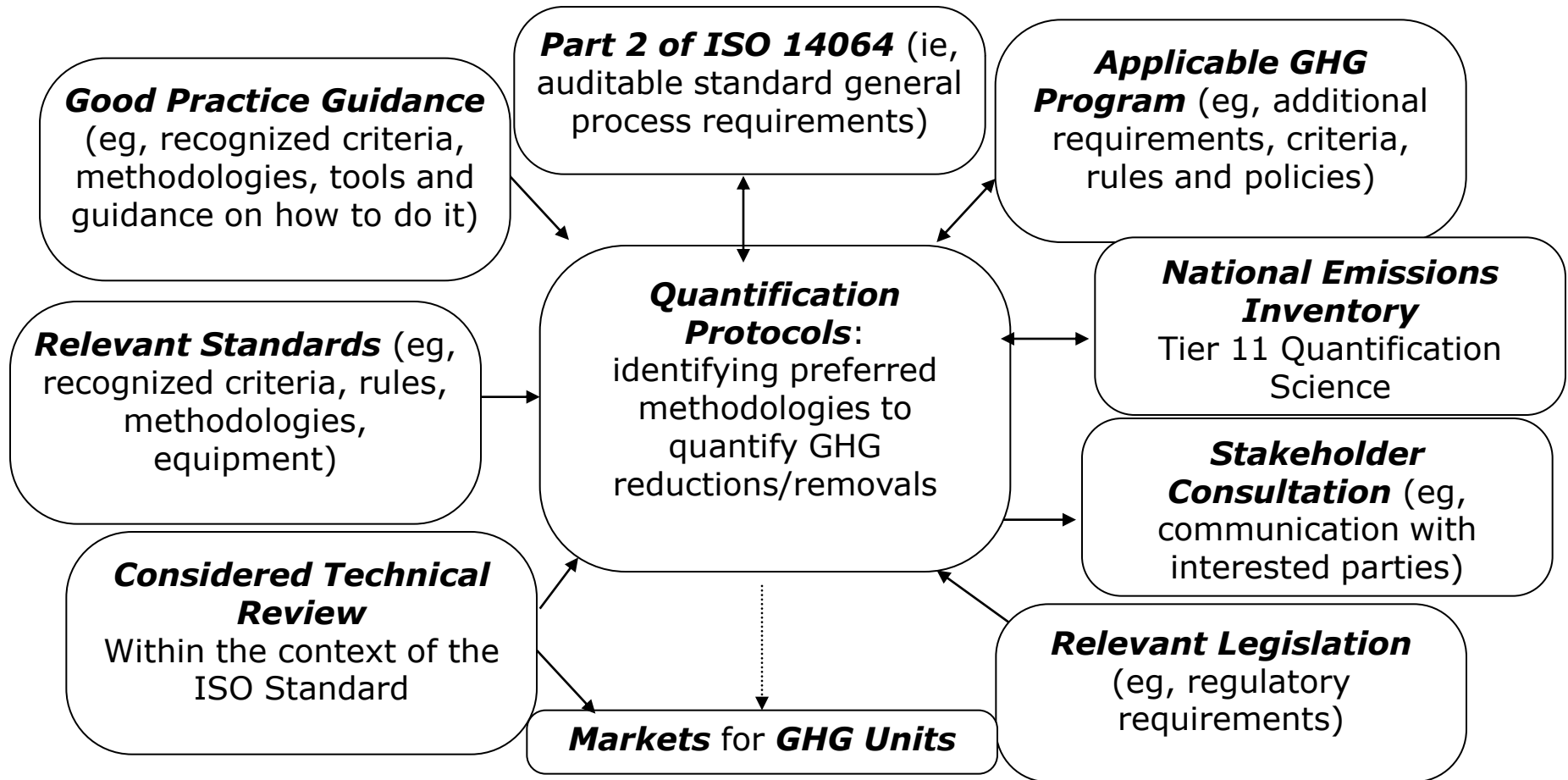
Protocol Development and Validation Process



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Protocol Development Requires.....



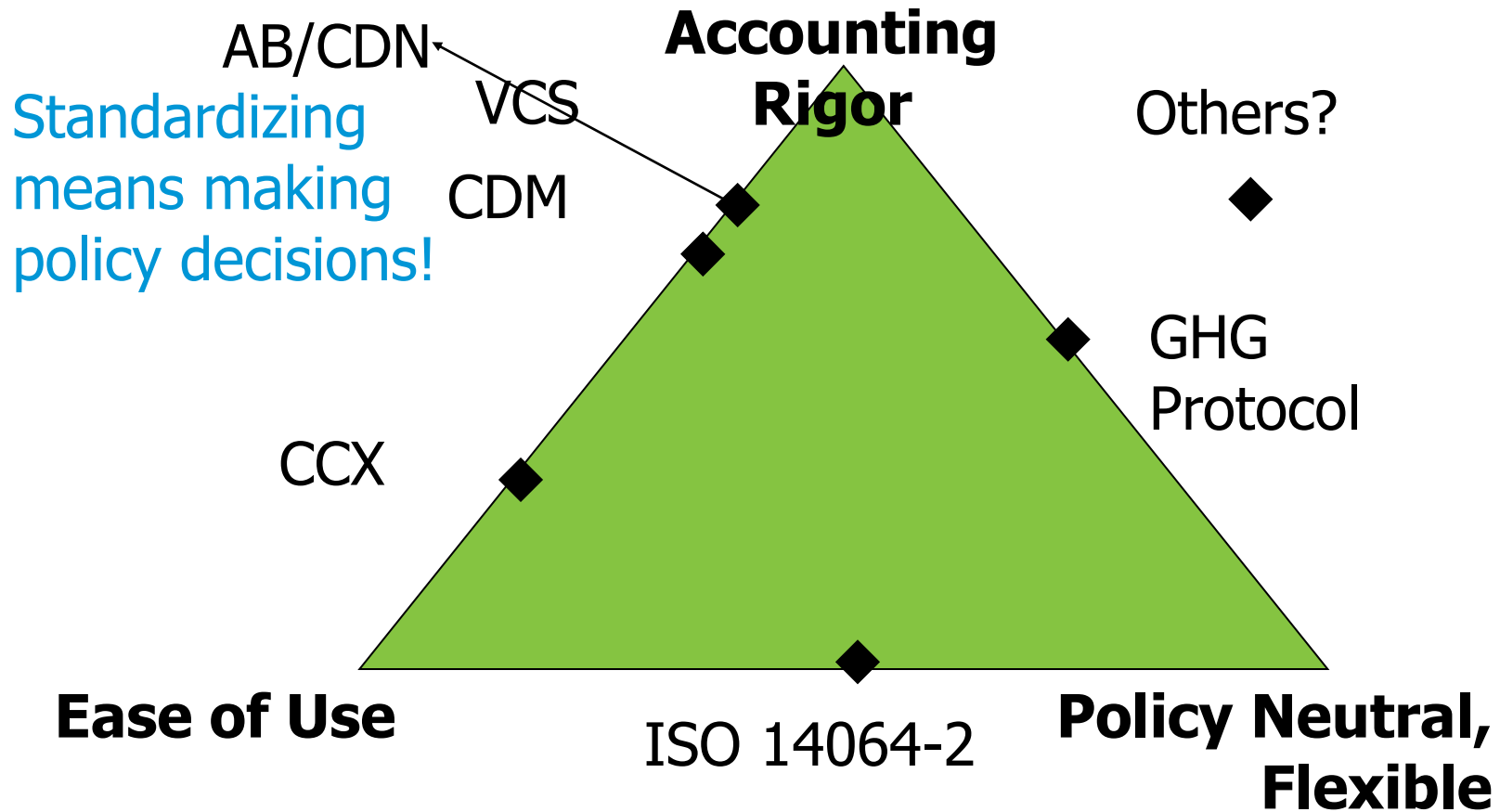


ISO 14064-2 as a Quantification Framework for Project Based Accounting

Carbon Offset (Project-based) Accounting Standards



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- 1. Relevance** - select GHG sources and sinks, emission factors and formulae appropriate to the environmental integrity of the protocol.
- 2. Completeness** – should consider all relevant GHG emissions and removals. Relevant information used to support decisions made in the quantification process should be transparently documented.
- 3. Consistency** - to ensure meaningful comparison of GHG-related information. In particular, like emissions need to be compared in baseline and project scenarios – ‘Functional equivalence’.
- 4. Accuracy** - reduce bias and uncertainties as far as practical; rely on IPCC and National Inventory methods as much as possible.
- 5. Conservativeness** - conservative assumptions, values and procedures are used to ensure that GHG emission reductions or removal enhancements are not over-estimated.
- 6. Transparency** - present your calculations, assumptions and decisions in a clear, upfront manner that facilitates review by reviewers, interested parties, verifiers - ultimately Program Operators will accept the protocols.



- **Completeness Principle:**
 - Knowledge and Scientific Judgment
 - Substitute for direct evidence where lacking
 - Models and conversion factors
 - Estimate uncertainty
- **Conservativeness Principle**
 - Applied as a risk-based approach where gaps in consensus-based science exists or uncertain data sources used.
 - Strive to underestimate baseline emissions
 - Use the 80:20 rule; collective decisions
 - “Serves as a moderator to accuracy”



- **Principle of Completeness, Section A.3.1:**
 - *“In the absence of such direct evidence, expert judgment is often required to provide information and guidance in establishing and justifying elements of the GHG quantification. This might include the appropriate use of models and conversion factors, as well as estimation of uncertainty.”*
- **Principle of Conservativeness, Section A.3.6:**
 - *“...The implementation of the conservativeness principle frequently is a matter of balance (e.g., between accuracy and conservativeness or accuracy and relevance) and therefore almost always involves compromise .”*



Project

1. Describe the project
2. Identify GHG Emission Sources and Sinks (SS's) for the project

Baseline

3. Select baseline scenario (historical, comparison, projection, baselines of similar projects that have been registered)
4. Identify GHG Emission Sources and Sinks (SS's) for the baseline scenario

Select 'relevant SS's' and requirements for quantification

5. Select 'relevant SS's' for quantification (those affected and controlled)
6. Establish 'relevant SS's' for monitoring
7. Describe quantification procedures for emissions and removals from 'relevant SS's'

Quantify reductions / removals

8. Quantify emission reductions or removal enhancements (or reversals)

GHG Project Quantification Resources



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1. International Good Practice Guidance (e.g. IPCC, World Bank, UN Climate Change Mechanisms – CDM)
2. Other Evolving Systems (CCAR, VCS, RGGI)
3. Project-Based Quantification Frameworks (ISO 14064-2 and World Resource Institute GHG Protocol)
4. NRCan – Energy Use Data Handbook
5. Carbon/GHG Mass Balance and Engineering Calculations
6. Project Typology (WRI/WBCSD GHG Protocol)
7. Additionality Tests and Barriers Assessment
8. “Precedent” project-specific methodologies
9. Canada`s National Emissions Inventory
 - National GHG Accounting and Verification System (NCGAVs) for Agriculture
 - CanAg-Mars for Forestry/Agriculture
 - Tier II and Tier III development



- **Consider Baseline; Permanence; Leakage**
- **Credits** - difference between “**without project**” emission baseline and the “**with project**” emissions
- Establishing baselines for projects will need to consider additionality (over and above business-as-usual practices)
- **Three main types:**
 - **Baselines assessed on a project by project basis**
 - **Regional industry practices with standard coefficients**
 - **Industry Performance Standard (sector-wide)**
- Choice-depends on availability of data, complexity of data (many sources, many variants), quality of data
- Many kind of baselines to consider...




- Policy Thinking Evolving:
 - Activity-based protocols are different than technology based protocols
 - Activity – can change from year to year depending on conditions; A piece of capital is built – different
 - Strict regulatory interpretation – practice change must occur after 2002, or not eligible
 - Activity – if activity increases after 2002 – eligible for those tonnes (composting, tillage) from incremental activity
 - Not necessarily exclusion at all because the activity (at some level was occurring)



Beginning of the Review Steps



ISO 14064-2	Alberta OS Rules	Alberta Protocol Application	Project Plans 
<ul style="list-style-type: none">• Defines the Requirements• Tells the developer what to do not how to do it• Generic, nonsectoral	<ul style="list-style-type: none">• Some requirements defined through the Policy• Some procedures are a given• Sectoral	<ul style="list-style-type: none">• Performance-based standard' approach:<ul style="list-style-type: none">-simplified and prescriptive to achieve a certain level of performance• Project Type• Many criteria and procedures established and justified – the how to's	<ul style="list-style-type: none">• Project specific• Must show they meet the requirements• Establish some criteria and procedures



- **Real Reductions** – beyond business as usual (Establish valid and defensible baseline – activity and emission factors are the best available (post 2002))
- **Measurable, Quantifiable** – agreement on best available science and activity data – guided by a Protocol. Must stand up to several Review Processes.
- **Verifiable** – Tracking process and Aggregation process must be clear, defensible, and have good QA/QC procedures.
- **Functional Equivalence** – the Metric for comparison is important - for a project-baseline comparison to be meaningful, the service provided by the project must compare in quantity and quality to the same areas in the baseline. (ie per kg beef, per hectare of land)



- Designing Initial Protocol Approach
 - Rules too complex = few projects, little learning
 - Rules too loose = false credits, less reductions; credibility issues
 - Start with practical rules (First Generation Protocols)
 - Learn by doing, revise/update in 5 years
 - Don't let the perfect be enemy of the good