# United Engineering Foundation Founders Society Carbon Management Team
# Steering Committee on Greenhouse Gas Measurement
# December 7-8, 2009 Workshop
# Scottsdale, Arizona

Presented by Tom Baumann
Co-founder and Director, GHG Management Institute
December 8, 2009

# Contents/Key Points

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- GHG Accounting Frameworks Not Coordinated in an Expanding Market
- Linking Technologies and GHG Markets
- GHG Market Infrastructure Not Adequate Now and for Future Growth – Crisis of Confidence
- Improving GHG Standards to Meet Needs for Reporting to Government, Investors, etc. and Business Friendly to Use, Harmonization
- Status and Road Ahead for GHG Standards

# KEY MARKET METRICS

**$500+ billion - global green stimulus funding**

**Global carbon market estimated at $120+ billion in 2008 (2009 about same)**

**$100 billion - Worldwide investment in clean energy by 2009**

**$2 trillion to $3 trillion – value of carbon markets by 2015**

**$500 billion - Value of low-carbon energy markets by 2050**

**$100 billion - Demand for projects generating GHG emissions credits by 2030**

**$84 billion - Cumulative net savings from energy efficiency in US by 2012**

**Voluntary carbon market expected to grow to $5 billion by 2013**

**$57 trillion - Carbon Disclosure Project signatories, 1000s of companies participating, expanding to supply chain accounting**

*SOURCES*: Thomson Reuters, Stern Report, The Climate Group, Deutsche Bank, CDP, Ecosystem Marketplace

# GHG Accounting Frameworks

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- Global
- National
- Sectoral
- Entity (i.e. organization, company)
- Facility (i.e., installation)
- Project
- Product (e.g., life cycle)
- Supply chain

# GHG Management Road Map

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**GHG Responsible Products and Services**
**GHG Commodities/Permits/Credits**
**GHG Governance**

Money

Time

| ROI Strategic Assessment | Execution Plan | Act and Engage Markets | Lead and Set the Standard |
|---|---|---|---|
| GHG Inventory | Internal GHG Management Team/Actions | Energy Efficiency | Continuous Innovation |
| Workshops and Training | Intelligent GHG Management Systems | Green Technologies, Process and Product Improvements | Partnerships, Policy and Standards Development |
| Strategic Planning | | GHG Transactions | |
| | | Supply Chain Carbon footprint | |

# GHG Management Road Map
# GHG Standards and Protocols

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GENERAL STANDARDS
Versus
SPECIFIC STANDARDS

GHG Protocol Product/Supply Chain ISO 14067

GHG Protocol Corporate, Sector ISO 14064-1

GHG Protocol Project ISO 14064-2 Sector CDM, VCS

CDP/CDSB Disclosure

Competency and Training

ISO 14064-3

ISO 14065

ISO 14066

Money

Time

GHG Inventory

Internal GHG

Energy Efficiency

Continuous Innovation

Partnerships,

Development

Carbon footprint

# Linking Green Technologies and GHG Markets

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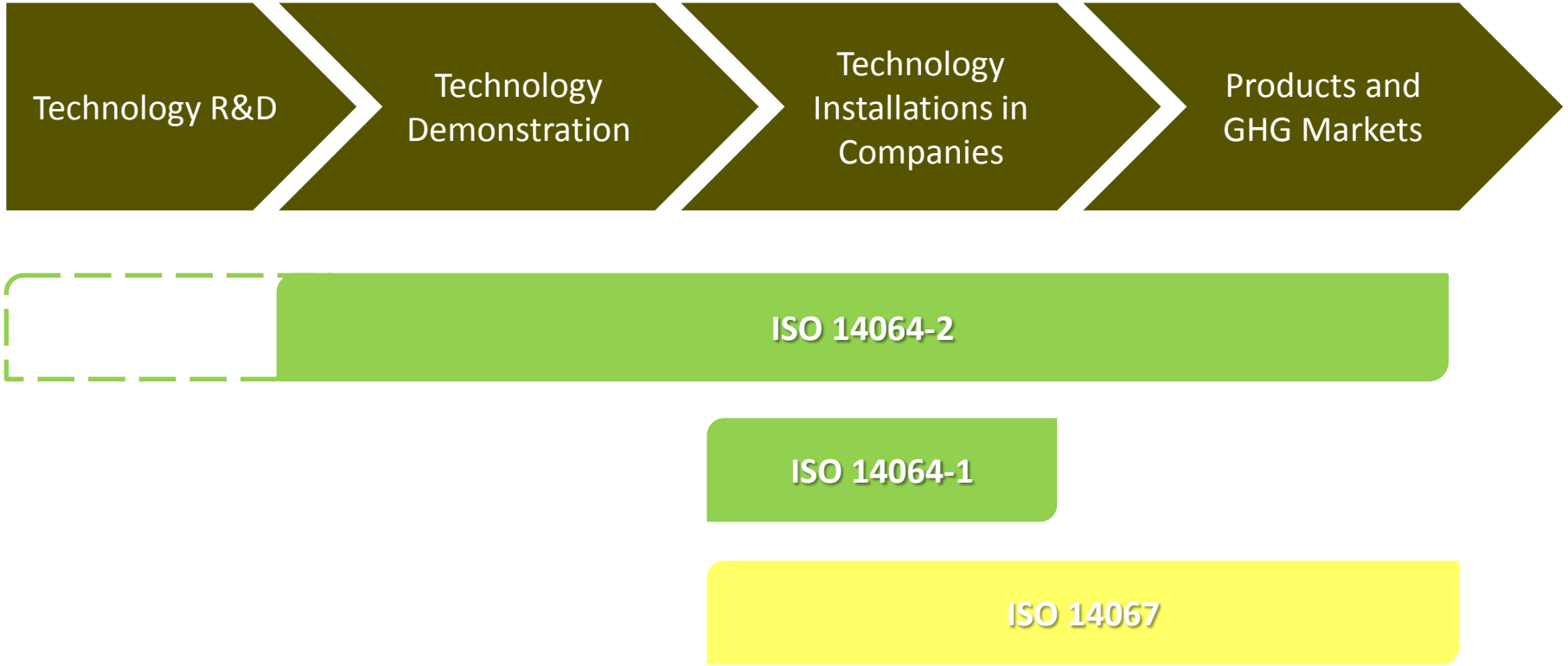

# Overview of ISO GHG Standards

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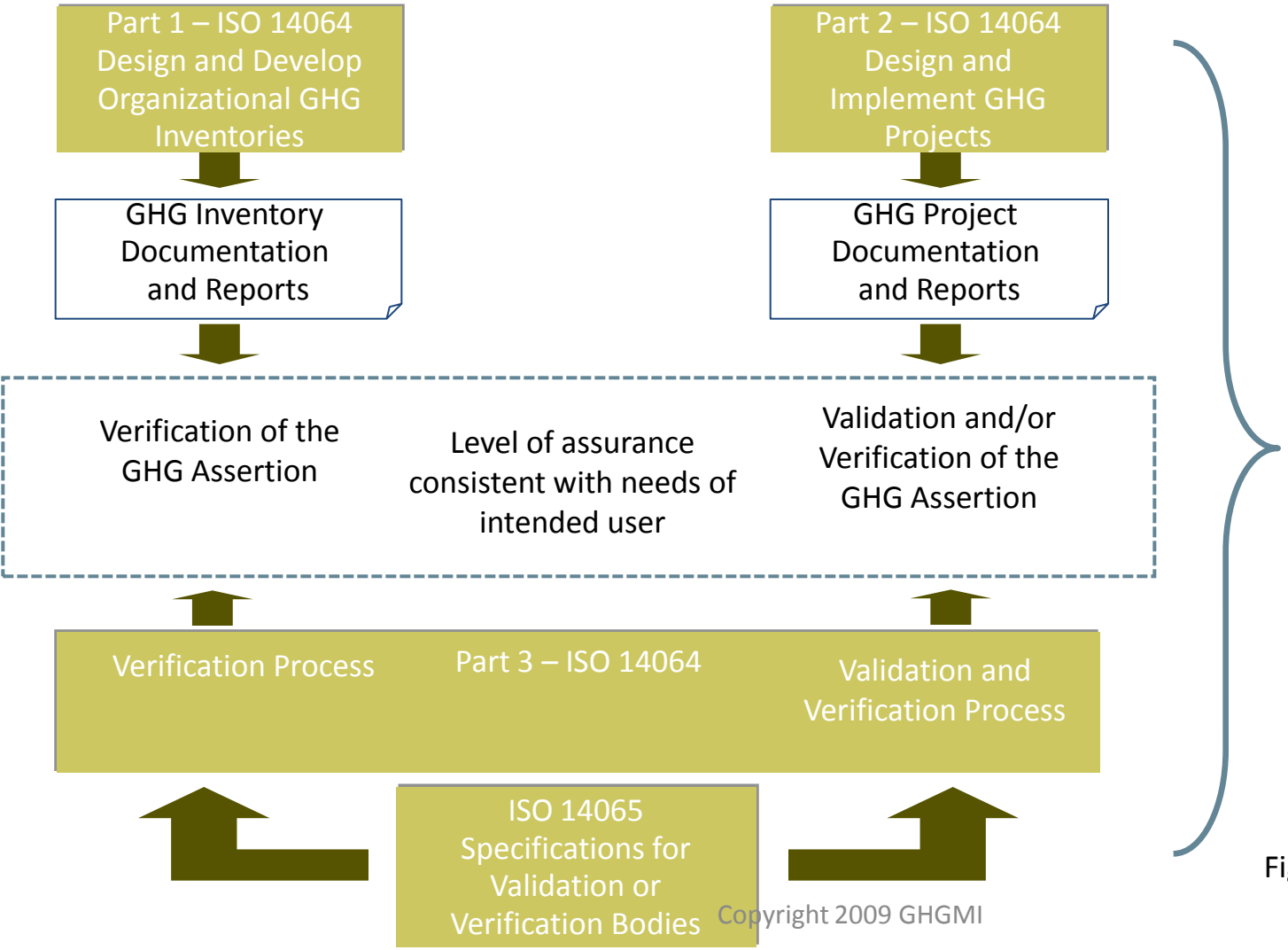


Conformance with applicable:

- GHG Program(s) – CCX, CDP, Climate Leaders, Alberta
- Legislation – federal, state/provincial, local
- Protocols/Standards – WBCSD/WRI GHG Protocol, industry guidance (API, INGAA, IPIECA, etc.), CDM AMs, technical and safety standards/ codes, etc.

Figure Copyright ISO - modified

# ISO 14064-2 GHG Standard for Offsets

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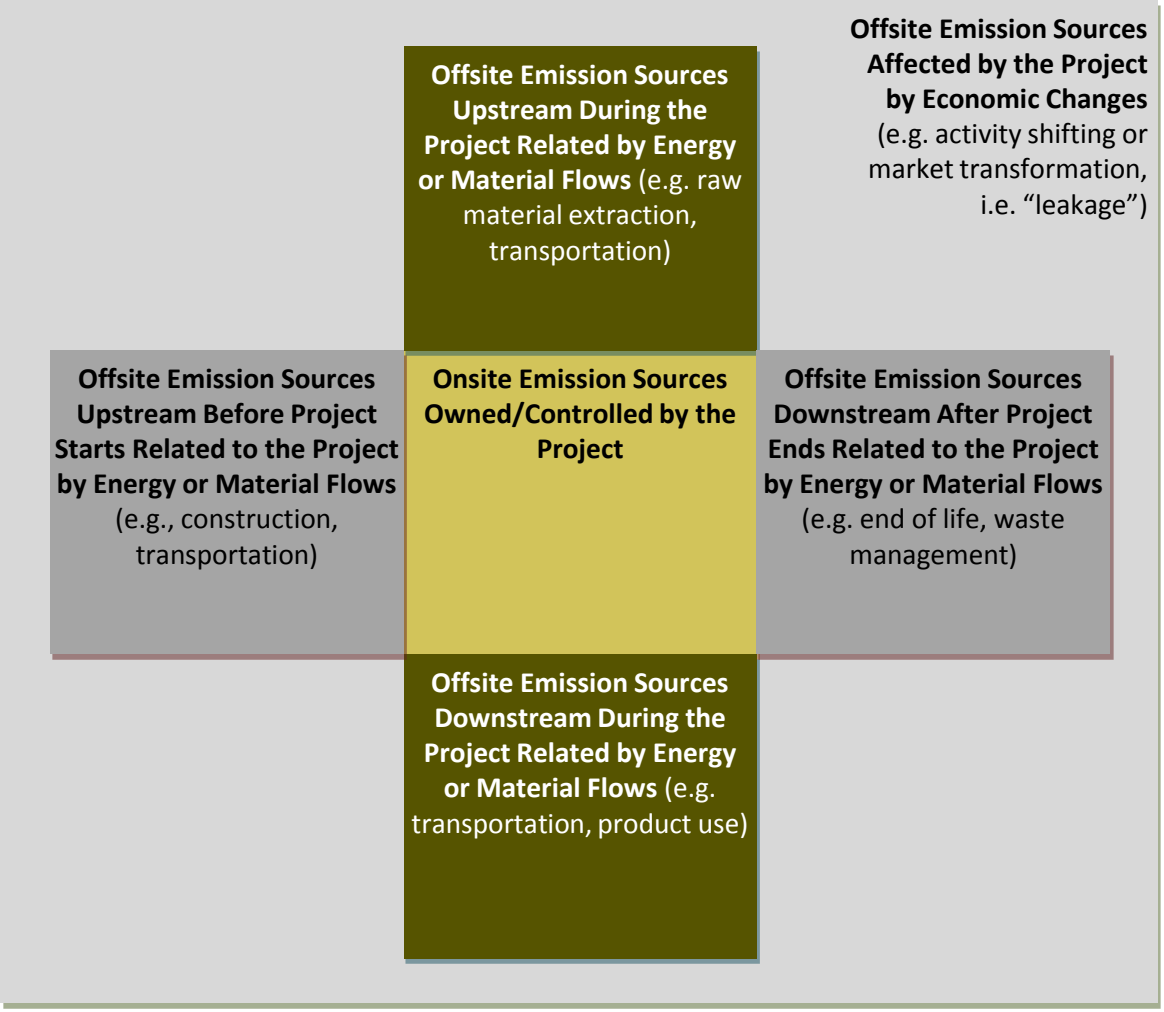
- Evolved from the Clean Tech program SMART protocol for GHG Technologies
- Compatibility with the WRI-WBCSD GHG Protocol for Project Accounting
- Compatibility with the UNFCCC CDM
- Consistency with ISO's auditable standard structure and specifications
- Compatibility with ISO 14040 series of life cycle assessment (LCA) standard

# ISO 14064-2 Systems Approach



# Challenges within context
# Lack of infrastructure

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**Financial markets**

- More than 100 years
- Business schools
- Chartered accountants
- Professional societies
- Extensive software tools
- Extensive information resources
- GAAP

**GHG markets**

- Less than 10 years
- Training is new/limited
- Codes/standards are new
- No professional society
- Limited tools and information resources
- Invisible gas that exists on paper
- $3 trillion market 2015/20

# Crisis of Confidence

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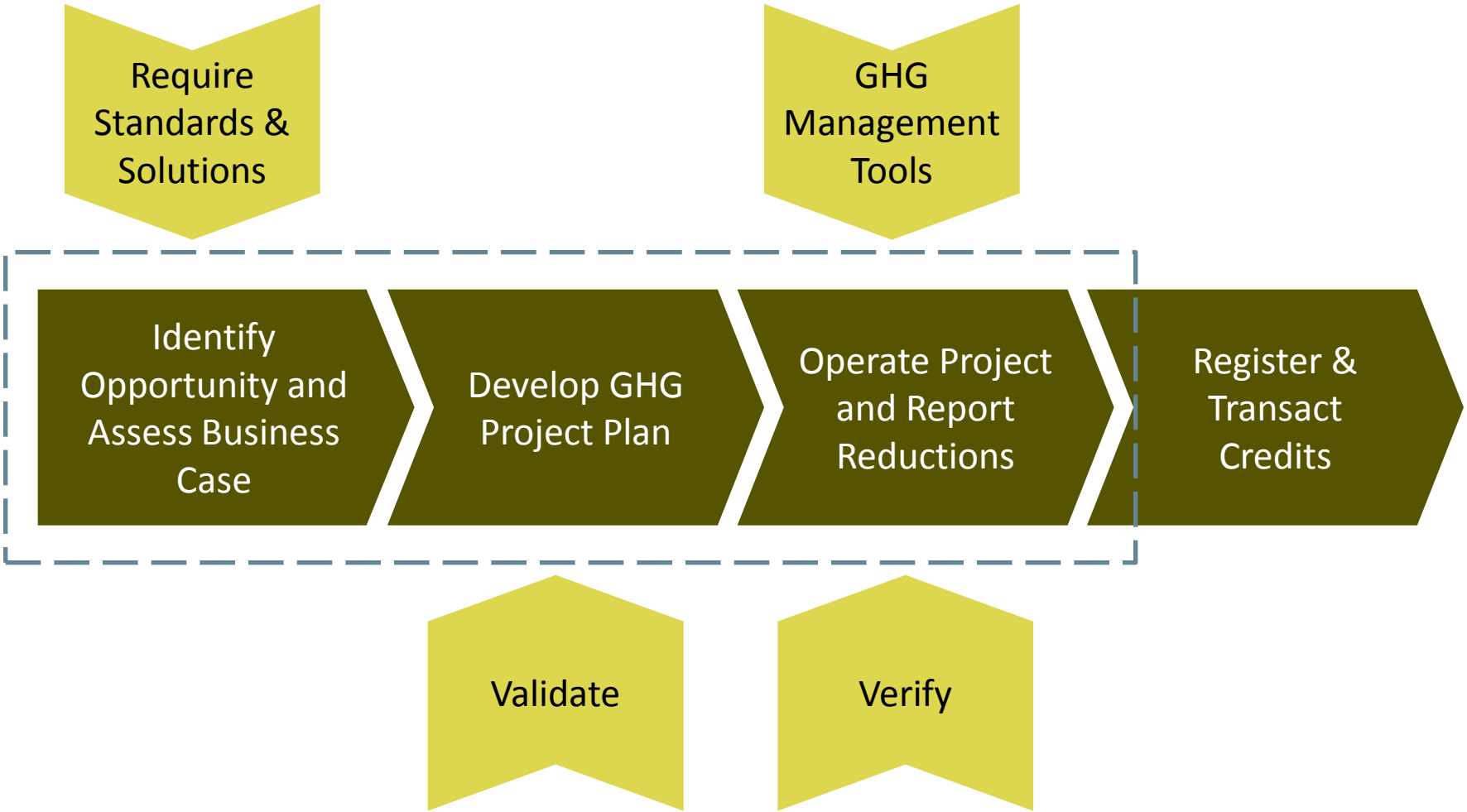
**GHG Labour Market Survey**

- 83.2% of respondents that believe that there is either a **moderate or high risk** that GHG markets will suffer from problems similar to those symbolized by the Enron, Worldcom or Tyco accounting scandals of the past.

**Greenwashing**

- 98% of Green claims commit at least one of the '7 sins of greenwashing'

# GHG Project Cycle



# Challenges with Verification Enough? More? Less?

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- Verification training and certification (expanding)
- Verification organization accreditation (expanding)
- Individual verifier certification (new)
- Verifications get spot audited by the programme
- The programme gets audited
- Internal audits by the companies
- 4th party audits (one auditor auditing another auditor)

# Challenges with Verification Quantity/Quality/Limits/Cost

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- Quantity of verifiers a challenge?
- Quality of verifiers (or verification) a challenge?
- New area of work so a challenge to find adequately experienced verifiers
- GHG auditing tools/software – data, risks, uncertainty...
- Cost of verification – Low? High?
- Set the cost of verification, then get what you get
- Rather set verification fundamentals, then calculate cost

# Challenges with Verification Lack of Transparency

- Usually a 1-2 page verification statement
- Sometimes a “cut-down” verification report of 5-10 pages
- Hardly ever presented detailed verification report that would pass an audit by another auditor
- Is there sufficient audit evidence to prove the auditor followed the audit standard and good practice?
- Need professional standards

# Improving GHG Standards (1)

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- Improving the framework in which GHG standards are organized and developed to enable better compatibility both
  - within specific categories of GHG standards, e.g. project-level standards, and
  - across different categories of GHG standards, e.g. sectoral-level to organization-level to project-level to product-level standards to technology-level

# Improving GHG Standards (2)

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- Improving the GHG standard development processes by
  - coordinating GHG standards development process that link different levels of standards,
  - consolidating similar GHG standards development efforts, (e.g. a technology standard within a project standard), and
  - leveraging standard development tools and resources such as online wikis and databases to enable broader and cost-effective participation.

# Overview of GHG Standards Availability and Need

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| Areas for GHG Standardization | Availability of General Standards (applicable to different types) | Availability of Specific Standards | Potential Need for More GHG Standards |
|---|---|---|---|
| Technologies | 1 (maybe more?) | Very few | 1000 + |
| Products | 1, 2 more soon | Very few | 1000 + |
| Projects | 3 or more | ~100+ | 100s |
| Inventories | 4+ | ~10 | 100s |
| Supply Chain | 1 soon | Very few if any | 100s |
| Sectoral | Maybe? | IPCC, LCAs | 100s |
| Disclosure | 1, another soon | Very few if any | ? Maybe need 1 |
| Practitioners | 1 soon | Basic requirements | ? 100s |
| Verification | 4+, another soon | Very few if any | 100s |

# Overview of GHG Standards Issues and Resources

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| Areas for GHG Standardization | Compatibility of ISO and GHG Protocol | Compatibility across types of GHG Standards | Issues (L = limited resources, C = complexity) |
|---|---|---|---|
| Technologies | ? | ? | L, C |
| Products | Maybe? | Partly? | L, C |
| Projects | Yes | low | Many types to resolve |
| Inventories | Yes | Partly | |
| Supply Chain | Maybe? | ? | L, C |
| Sectoral | ? | ? | C |
| Disclosure | ? | Partly | L, C |
| Practitioners | ? | Partly | L, C |
| Verification | ? | Partly | L, C |

# Conclusion

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- Thank you
- Questions?