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International Perspectives on ETV

Introduction to International ETV Activities



**Presented by Environment Canada
on behalf of the International
Working Group on ETV**

Science & Technology Branch
Technology Programs

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Presentation Outline

- Overall goal of mutual recognition
- Objectives of the IWG
- Status and progress of IWG activities
- Overview of international ETV Programs
- Summary of international verification data
- Current collaborative projects
- Establishing mutual recognition among ETV Programs
- Next steps





Demonstrating performance

Development

Pilot & demonstration

- Proof of concept
- Parameters from development needs
- Done by developer/vendor

Technology

Verification

- Documentation of performance
- Parameters from application needs
- Done by independent verification body (could be accredited)

Mature technology

Certification

- Documentation of performance requirement compliance
- Parameters from standard, regulation or convention requirements
- Done by accredited certification body

ETV Program Goals

- Provide a decision support tool to assist program managers, regulators, policy makers and procurement officers in managing risk
- Ensure technology vendors have the means to support environmental performance claims via testing and verifications by accredited organizations
- Support global adoption and use of environmentally sound technologies



Requirements for successful implementation of performance measurement and verification

- Stakeholder engagement and transparency
- Quality Assurance
- International recognition and market acceptance

Importance of Global Acceptance of ETV Programs

- National environmental technology verification (ETV) systems are currently limited to their own jurisdictions
- Desirable outcome would be broad market acceptance of a framework for performance benchmarking and verification, based on mutual acceptance of data consistent with the overall objective of “verify once – accept anywhere”
 - Requires coordination of the mechanisms, structures and conformity systems that support performance benchmarking and verification
 - Benefits: increasing visibility, access and cost efficiency; decreasing duplication and trade barriers.

ETV - International recognition and cooperation

“Verify once, accept everywhere”

The ETV International Working Group (IWG) is working towards international recognition to ensure that a technology verified in one member program will be accepted as verified in other member programs.



Mutual recognition – International Working Group (IWG) on ETV

May 2008

- Signature of Statement of Intent

Objectives

- Establish mutual recognition of ETV Programs among participating countries
- Jointly develop verification procedures and jointly verify technologies of common interest
- Investigate development of a QA standard for ETV and accreditation of the ETV players
- Engage stakeholders to facilitate international cooperation
- Organize international meetings, workshops and forums

Members:, Philippines, Canada (Secretariat), EU

Observers: USA, Japan, Korea, China, Cambodia, Malaysia



Main Principles of the IWG

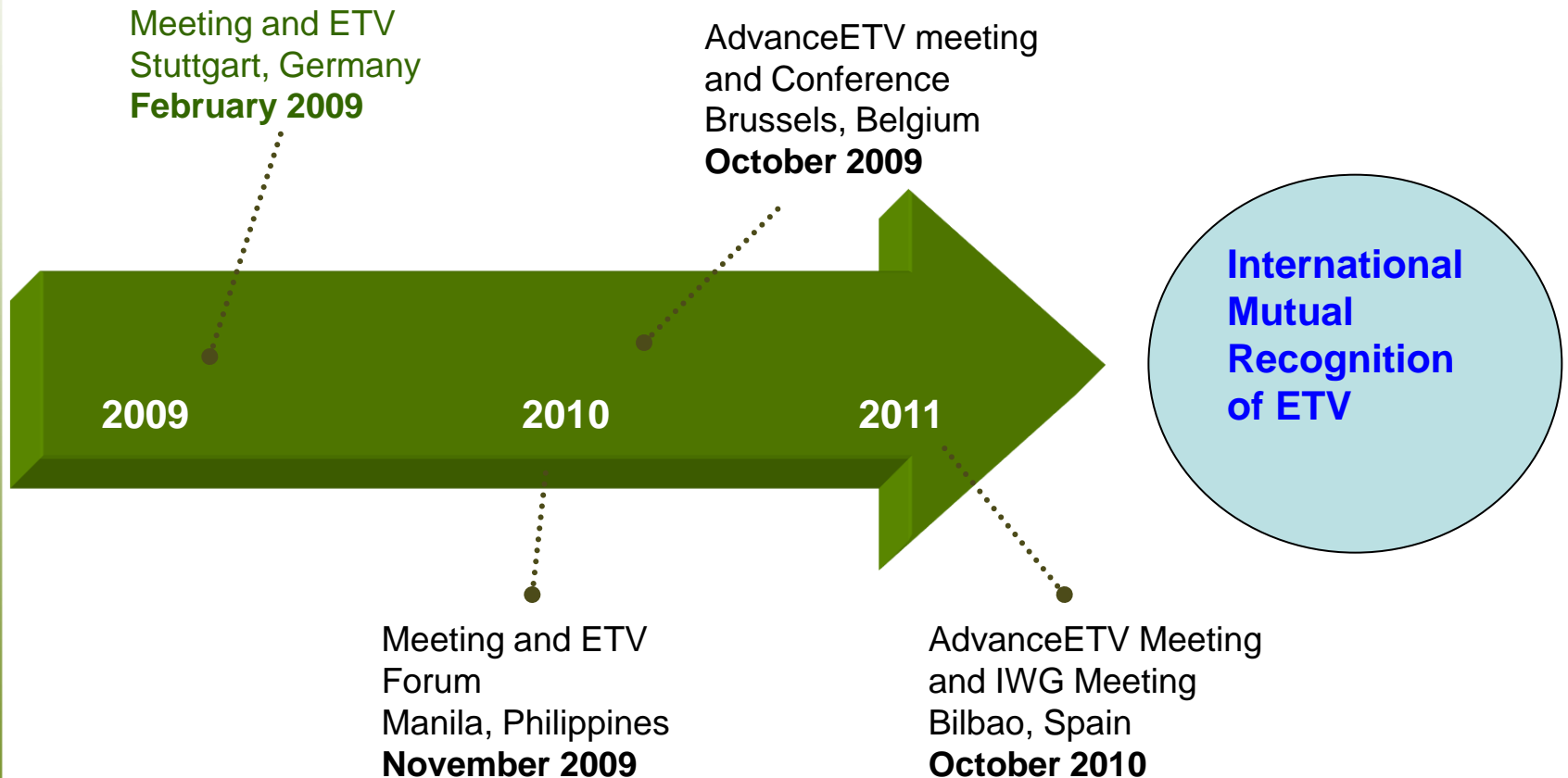
- Scientific and Technical Credibility
- Stakeholder Engagement
- Cooperative Networks
 - Increase importance and relations of ETV Community
- Transparency and Utility
- Sustainable Practices



Development and origin of the IWG



Recent Progress



A common goal: IWG Workplan

- IWG Work Plan developed at meeting held in Feb 2009 (Germany)
- IWG Members drafting and finalizing position papers on the 12 work activities for IWG discussion
- Position papers will be complementary to an international ETV standard



Current IWG activities under Workplan

- Topics and their status under the workplan:
 1. Organization: separation of VO and testing organization
 2. Government Oversight
 3. Quality Management System
 4. Stakeholder process vs vendor claims
 5. Factors to be verified - do they include sustainability?
 6. Definition of Verification
 7. Transparency
 8. Stage of the continuum - Commercial ready or earlier?
 9. Conflict of Interest
 10. 3rd party verification testing
 11. Openness – Can any vendor apply?
 12. Government Funding of ETV Programs

IWG Workplan – Work in progress

Teleconferences every two months		2011				
Workplan Items	Lead	January 2011	March 2011	May 2011	June 2011	September 2011
4. Stakeholder process vs vendor claims	European Union					
5. Factors to be verified - do they include sustainability?	Canada					
7. Transparency: release of results	Philippines					
8. Stage of the continuum - Commercial ready or earlier?	Philippines					
10. 3rd party verification testing	European Union					
14. Post verification – Consideration	Canada					
1. Organization: separation of VO and testing organization	Philippines	Final stages of approval				
2. Public sector/governmental oversight	Canada					
6. Definition of verification	US					
9. Conflict of interest	Philippines					
11. Openness – Can any vendor apply?	Canada					
12. Government Funding of ETV Programs	Canada					

ETV Country Summaries



- European Union
 - Voluntary ETV pre-programme initiated in 2010 with 7 participating countries: Belgium, Czech Republic, Denmark, Finland, France, Poland and the United Kingdom
 - Large assessment study of the market potential and demand for ETV in the EU
 - Conclusions on definitive scheme after 2-3 years running of ETV pre-programme
 - Next Steps
 - Finalization of General Verification Protocol, accreditation framework, information to stakeholders
 - Accreditation of Verification Bodies, call for proposals (partnership agreements with European Commission), market study on ETV potential
 - Pre-programme operational, technical groups and advisory forum in place

ETV Country Summaries



- Philippines

- Program implemented in 2006 by the Industrial Technology Development Institute of the Department of Science and Technology – Republic of the Philippines
 - The ETV protocol was institutionalized also in 2006
- Participation in the ETV-IWG
- Continue capacity building of their Program
- Hosted 4th International ETV Forum (November 2009)



ETV Country Summaries



- **United States**

- US ETV is a partnership program that verifies the performance of innovative environmental technologies using stakeholder-developed protocols
- Goal: to provide credible performance data for commercial-ready environmental technologies to speed their implementation for the benefit of vendors, purchasers, permittees, and the public
- Six US ETV Centres:
 - **Advanced Monitoring Systems Center** (*Battelle*)
 - **Air Pollution Control Technology Center** (*RTI International*)
 - **Drinking Water Systems Center** (*NSF International*)
 - **Greenhouse Gas Technology (GHG) Center** (*Southern Research Institute*)
 - **Water Quality Protection Center** (*NSF International*)
 - **Materials Management and Remediation Center** (*Battelle*)

ETV Country Summaries



Korea

- ETV Program introduced in 1997
- To promote R&D of environmental technologies
- To support new and reinforced environmental regulations with the relevant technologies
- Addition of NET in 2000
- NET : Certified for “New & Excellent” technologies
 - Certify the technology through on-site inspection and document based review by expert committee
 - Newly developed technology with excellent performance
- ETV : Tested and Verified
 - ETV aims at building the trust between vendors and users to help the transaction of reliable technologies.
 - Verify NET accepted technologies by on-site testing of performance by KEITI (Korea Environmental Industry and Technology Institute) and review of the result by expert committee
 - Advantages allowed in public bidding



ETV Country Summaries



- **Japan**

- In 2003, Japan Ministry of the Environment (MOE) implemented ETV Pilot Project
- Full scale program in 2008
- Performance of environmental technologies are verified by third parties
- Logo and Verification Number are issued to the verified technologies
- ETV Program is under the authority of the Office of Environmental Research and Technology
- The budget for FY2011 is 123 million Yen (1 Million Euro)
- For FY2011, 8 technological fields have been selected



ETV Country Summaries

- Canada
 - ETV Program established in 1997
 - Continue national collaboration with key stakeholders under the Performance Measurement and Verification Partnership (PMVP) to strengthen and raise profile of ETV
 - Provincial and municipal involvement through ETV workshops
 - Cooperation with industrial associations
 - IWG Secretariat until end of 2011
 - Partner in international discussion and consultation on IWG activities and ETV Standards
 - ETV Workshop in China on June 13-14



Collection of Global ETV Data

Country	Program	Website
Canada (CAN)	ETV Canada	www.etvcanada.ca
Denmark (DAN)	Danish Centre for Verification of Climate and Environmental Technologies (DANETV)	http://www.etv-denmark.com
Nordic EU (NOW)	Nordic Water Technology Verification Center (NOWATECH)	http://www.etvnord.org
Various EU (EU)	EU-ETV pre-programme	http://ec.europa.eu/environment/etv/index.htm
	EU RTD projects on ETV	http://www.eu-etv-strategy.eu/
Japan (JAP)	Japanese ETV	http://www.env.go.jp/policy/etv/
Korea (KOR)	KEITI (Korea Environmental Industry & Technology Institute)	www.koetv.or.kr
Philippines (PHL)	ETV Philippines	www.etvphilippines.com.ph
United States (US)	U.S. EPA ETV	www.epa.gov/etv

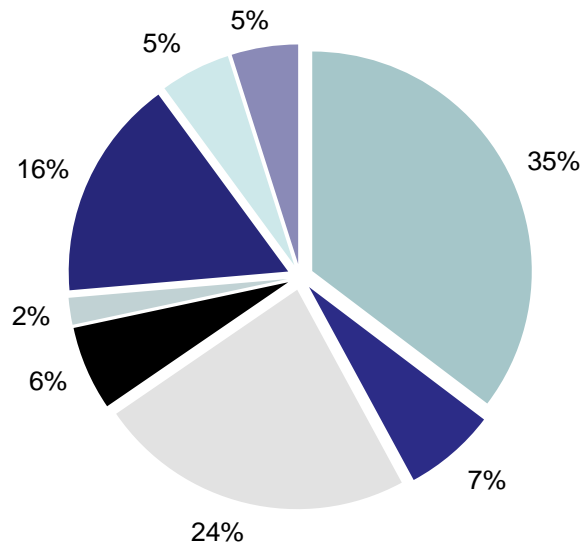


Technology Categories

Technology Category	Example Application
Water treatment and monitoring	Monitoring of water quality for microbial and chemical contaminants (e.g. test kits, probes, analysers)
Soil and groundwater monitoring and remediation	Soil pollution remediation in situ and on site (e.g. thermal treatment, air venting, chemical oxidation)
Cleaner production and processes	Improved energy efficiency in industry (e.g. heat pumps) and buildings (e.g. low energy loss windows)
Materials, waste, and resources	Recycling of industrial by-products and waste into secondary materials
Environmental technologies in agriculture	Recycling of nutrients and organic carbon from manure (e.g. digestion)
Air pollution monitoring and abatement	Air emissions monitoring (e.g. continuous emission monitors)
Energy technologies	Production of heat and power from renewable sources

Over 1000 technologies verified under various national ETV programs

- Water treatment and monitoring (375)
- Soil and groundwater monitoring and remediation (72)
- Cleaner production and processes (248)
- Materials, waste, and resources (66)
- Environmental technologies in agriculture (21)
- Air pollution monitoring and abatement (173)
- Energy technologies (55)
- Other (does not fit in any of the above categories) (52)



Totals by Verification Program

Technology Category	US	DAN	NOW	EU	JAP	CAN	PHL	KOR	Total
Water treatment and monitoring	154	3	8	8	90	15	12	85	375
Soil/GW monitoring and remediation	51	0	0	10	0	11	0	0	72
Cleaner production and processes	32	0	0	3	211	0	2	0	248
Materials, waste, and resources	10	0	0	1	0	2	21	32	66
Env. technologies in agriculture	13	4	0	0	0	3	1	0	21
Air pollution monitoring/abatement	122	3	0	7	22	15	0	4	173
Energy technologies	29	2	0	7	0	3	14	0	55
Other	32	0	0	0	0	8	0	12	52
Total number verified as of February 2011	443	12	8	36	323	57	50	133	1062

% of Technologies Verified by Program (highlighted shows highest percentage)

Technology Category	US	DAN	NOW	EU	JAP	CAN	PHL	KOR
Water treatment and monitoring	35%	25%	100%	22%	28%	26%	24%	64%
Soil/GW monitoring & remediation	12%	0%	0%	28%	0%	19%	0%	0%
Cleaner production and processes	7%	0%	0%	8%	65%	0%	4%	0%
Materials, waste, and resources	2%	0%	0%	3%	0%	4%	42%	24%
Env. technologies in agriculture	3%	33%	0%	0%	0%	5%	2%	0%
Air pollution monitoring/abatement	28%	25%	0%	19%	7%	26%	0%	3%
Energy technologies	7%	17%	0%	19%	0%	5%	28%	0%
Other	7%	0%	0%	0%	0%	14%	0%	9%



International collaboration on ETV Projects

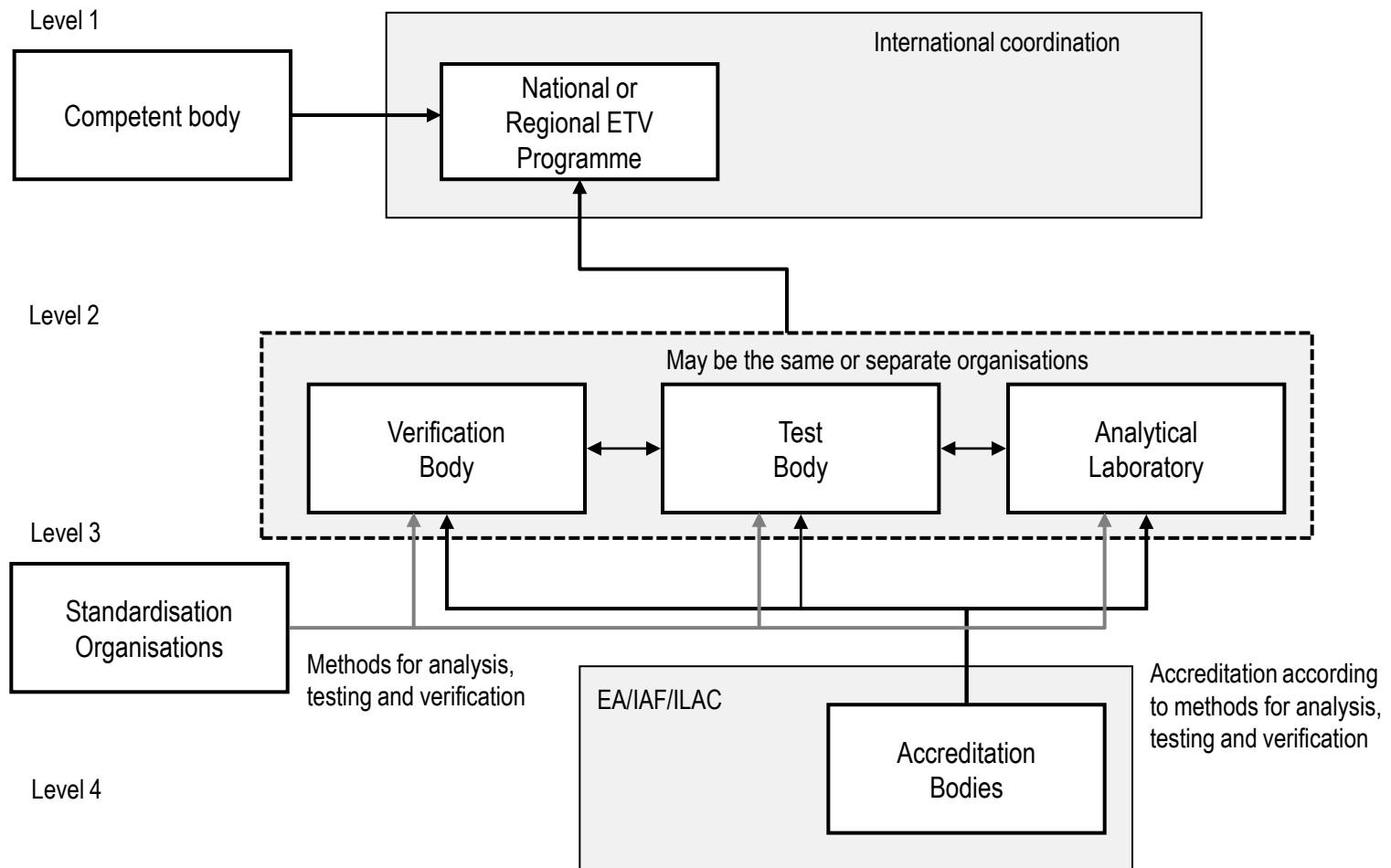
- International “Joint” and “Co-” Verification Projects
 - Acute Toxicity Detection in Wastewater – DANETV, USEPA and Canadian ETV Program
 - Coliform Detection in Drinking Water – DANETV, USEPA and Canadian ETV Program
 - Leak Detection for Biofuel Underground Storage tanks – USEPA and Canadian ETV Program
 - Sensors detection for Methane Leak Detection - USEPA and Canadian ETV Program
 - Passive groundwater sampler for volatile organic compounds in water - USEPA and NOWATECH

Toward Mutual Recognition of ETV

- Development of potential roadmaps and recommendations on International Organization of Standards (ISO) standards for accreditation of test agents, laboratories and verification organizations
 - Environment Canada Memorandum of Understanding (MOU) with the Standards Council of Canada
- Contribute to the development of an International ETV Quality Management System (QMS)
- Cooperation with other jurisdictions through IWG in ensuring that the basic conformity assessment and accreditation process is understood and applied widely
 - Activities undertaken by the IWG QA Sub-Group
 - Input and key contribution by AdvanceETV Members
- Develop program framework to support delivery among IWG-ETV Members



Framework for mutual recognition



Current progress

- Since 2008, the IWG is committed to work with its partners and meet the main objectives of the Statement of Intent
 - Development of key international documents (ETV Procedure, ETV Policy Framework) for the eventual establishment of an ETV Quality Management System and Standard
- Excellent collaboration between the members
- Different options being considered
- EU-ETV Pre-programme — Development of protocols and administrative arrangements; consultations on-going
- Canada has prepared a draft ISO/ETV proposal and justification

Summary of ISO/ETV Proposal

- Proposal based on International ETV Procedure and ETV Framework under development
- IWG Workplan items to support of a Performance Verification Document
- Rationale
 - Uses an existing global platform that is proven in the development and use of verification and accreditation, and is policy-neutral in action
 - Enables completion within 3 years for global market recognition of ETV statements
- Preparation of two documents to be submitted to ISO
 - New Work Item Proposal (NWIP) : Overall description of the proposed ETV standard, identification of related standards (i.e. ISO 17011, 17025), technical committee, etc.
 - ISO Guide 72 – Justification Study : Background documents and justification of proposal, ETV Procedure and ETV Framework to be annexed to documentation
- Proposal ready for international consultation (ETV community)

Next Steps on International ETV Activities

- To continue progress and collaboration among members and observers of the IWG
 - Mutual recognition of ETV being the ultimate objective
- Work in cooperation with EU, AdvanceETV and other jurisdictions on co- and joint- verification processes
 - Initiate international projects among the programs
- Engage discussion through international meetings, workshops and forums
- Continue discussion and collaboration among stakeholders on the development of an internationally accepted ETV Standard
- Other potential opportunities: networking, international policy and S&T advices on ETV, etc.

Acknowledgement

“We would like to thank all IWG Members and Observers which include the European Union (and AdvanceETV), the Philippines, the United States, Korea, Japan and all other stakeholders from the international community who kindly contributed to the content of this presentation.”



Thank you – Merci !



New ISO/ETV Standard

[New] ISO 140XX standard—
Specifications with guidance for
ETV performance

[New] ISO 140XY standard—
Requirements for verification
organizations for accreditation or
other recognition

Use existing relevant ISO standards, e.g., ISO 9001—Quality management, and ISO/IEC 17011—General requirements for accreditation bodies accrediting conformity assessment bodies

Reference to the proposed ISO/ETV Framework

Benefits of ISO/ETV standardization

- Upstream—more focus on innovation and bringing new technologies to market more rapidly
- Downstream—create more visibility, access and added-value to new technologies, products and services
- Environmental—provision of a baseline for environmental technology performance
- IWG-ETV—fulfillment of strategic objective 3, and its final global work phase
- ISO—more recognition and expansion of proven ISO 14000 series environmental management tool kit
- Societal—more support to technological change, process improvement and knowledge transfer across regions



An ISO/ETV Standard would also

- Provide a new ETV business model for service delivery to markets
- Use an existing global platform that is proven in the development and use of verification and accreditation, and is policy-neutral in action
- Establish a pragmatic ETV framework informed by IWG-ETV
- Enable completion within 3 years for global market recognition of ETV statements

