

Carbon Markets & Practice Workshop



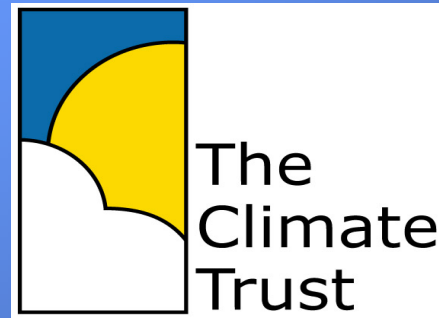
The Portland Katoomba
Presented by: Bjorn Fischer,
June 9, 2006

Overview

- What is a project based emission reduction (“offset”)?
- Value & role of offsets
- Who is The Climate Trust?
- Quality criteria
- Acquisition process of offsets
- Policies to encourage a forest carbon market



the
katoomba
group



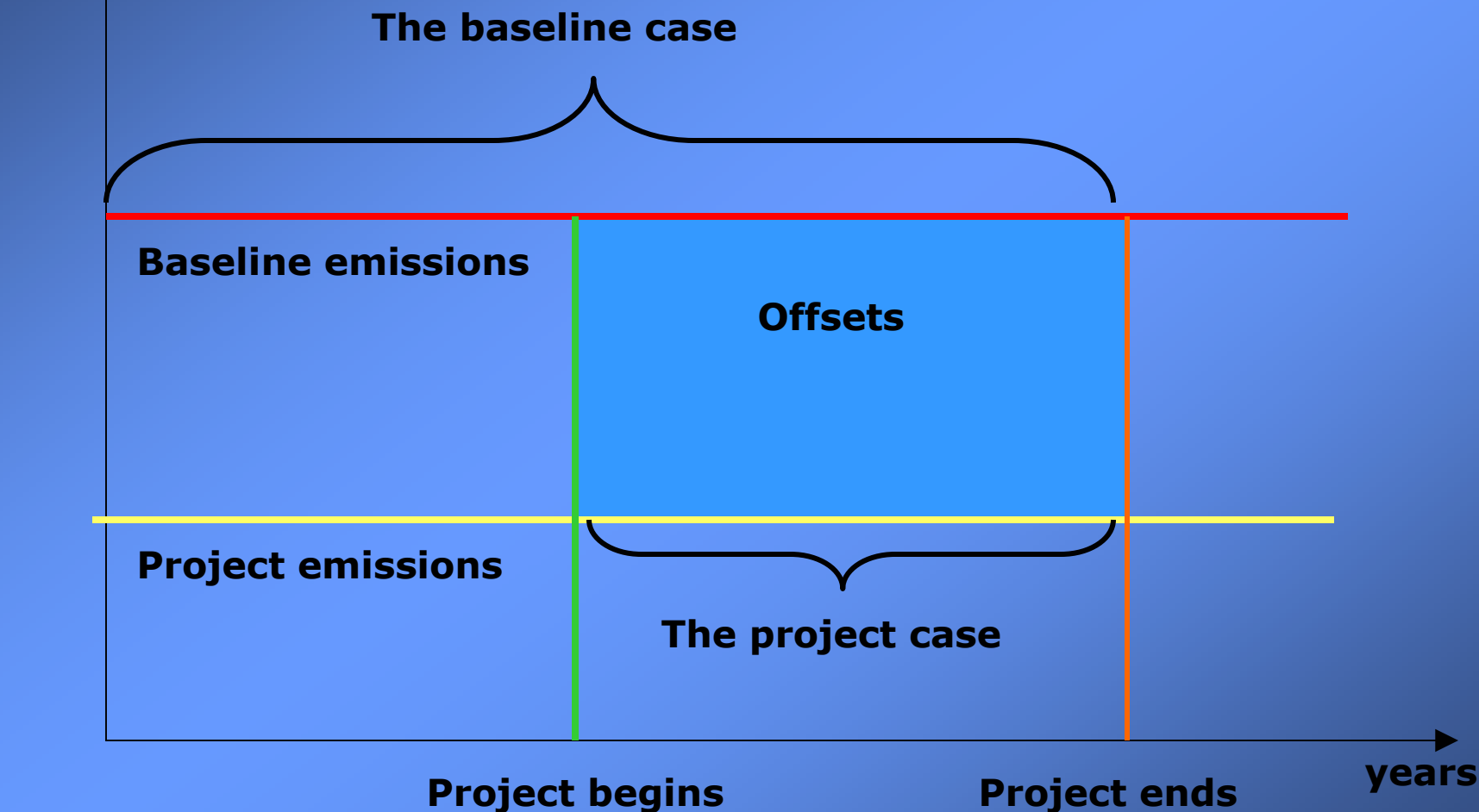


What is an Offset?

Focus on Quality

What is an Offset? (theory)

Specific Project That Reduces GHG Levels



Ecuador Rainforest Reforestation

An Offset Project (Practice)

- Reforest 600 acres in biological reserve
- Rare, endemic trees
- Biodiversity “hot spot”
 - ✦ One of Conservation International’s top five global conservation targets
- 99-year conservation easement with clear intent for permanent preservation



- Partners: Conservation International & Jatun Sacha Foundation
- Project statistics:
 - ✦ Tons: 65,500 Term: 99 years

Forest Carbon Offset Types

Nutshell of Offset Profile

❶ Avoided deforestation

- ✦ Immediate pulse of “saved” carbon, but subject to leakage

❷ Afforestation

- ✦ Carbon builds slowly in the near- and mid-term

❸ Reforestation

- ✦ Carbon builds slowly in the near- and mid-term

❹ Forest management

- ✦ Harvest adds to complexity of quantification and monitoring



Value & Role of Offsets

Bridging the Gap

Policy Rationale for Offsets

More Money for Everything Else We Really Want

- Effective in reducing GHG levels
- Lower climate change mitigation cost to society
- Funding driver
 - ✦ into un-capped sectors
 - into new & innovative technology
- Economic co-benefits
 - ✦ Create jobs; save money on energy; enhance energy security by reducing oil imports; create demand for clean energy products;
- Environmental co-benefits
 - ✦ Reduce air pollution; preserve biodiversity; improve habitat, watersheds, and water quality; reduce soil erosion; protect endangered species

Economic Rationale for Offsets

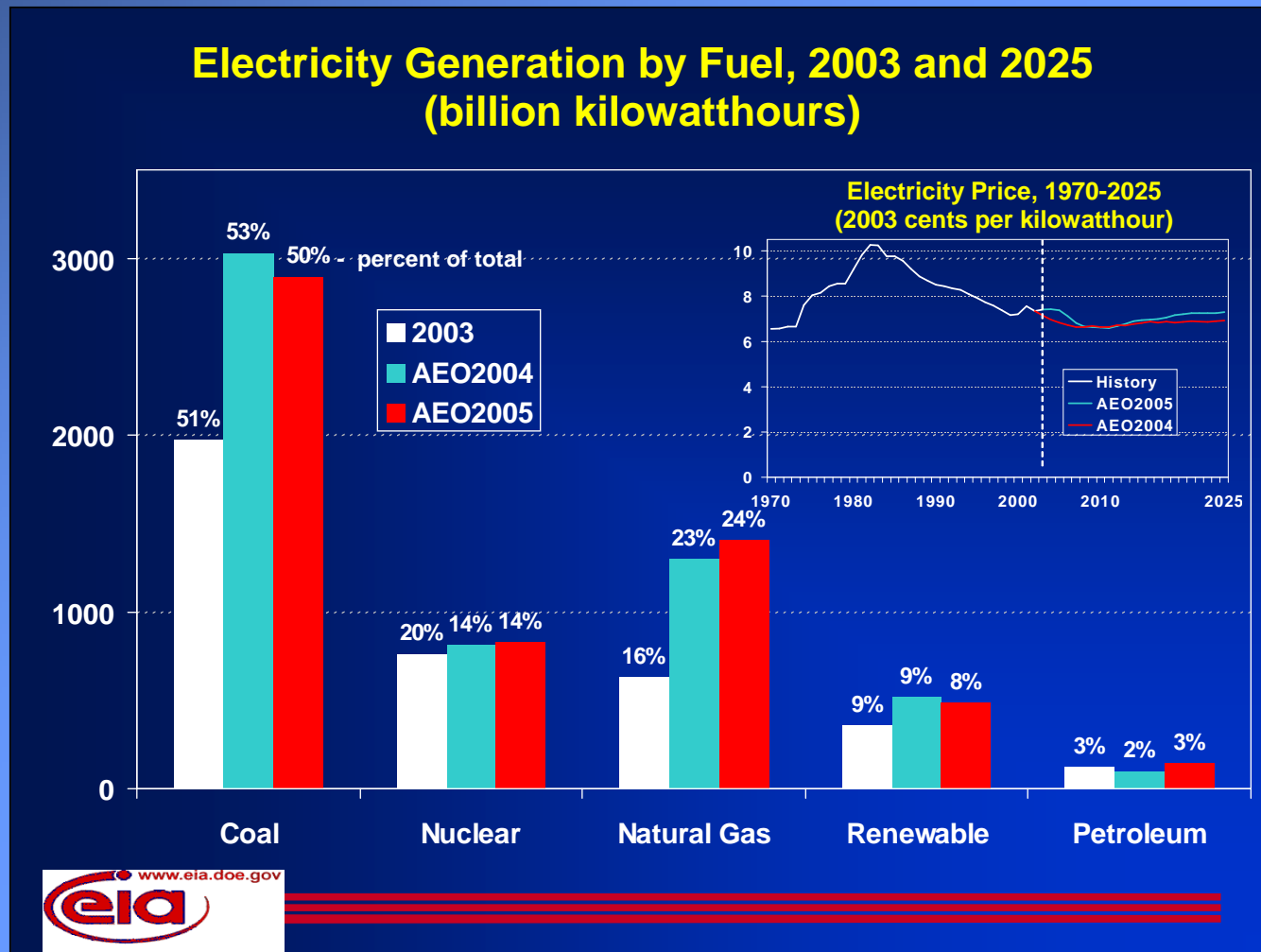
Estimated Ranges for Mitigation Costs

● Illustrative GHG mitigation prices

✦ US Offsets (Climate Trust)	\$4 - \$7/ton
✦ Kyoto CDM offsets	\$9 - \$12/ton
✦ Allowances in Europe	\$~15+/ton
✦ Efficiency	\$15 - \$40/ton
✦ Wind Green Tags (\$10/mWh)	\$~15/ton
✦ Geo-Sequestration	More

Electric Sector GHG Projections

3.3 Billion Tons CO₂/Year Added Tons (80% Coal)



Source: EIA Annual Energy Outlook 2005

Offsets Fill a Crucial Need: Now

Critical to Transition to Lower Carbon Economy

● Electricity sector economics

- ✦ Fuel price dynamics: Lower cost = higher GHGs
- ✦ IGCC coal is in early commercial stages
- ✦ Geological sequestration: ~15 years, if it works
- ✦ Renewables and efficiency: “GHG-free” options can meet only part of growth

● Role of offsets

- ✦ ***Help electric sector deliver lower carbon power during transition to next generation coal, renewables, and efficiency***



Who is The Climate Trust?

A National Leader

The Climate Trust Mission: Offsets

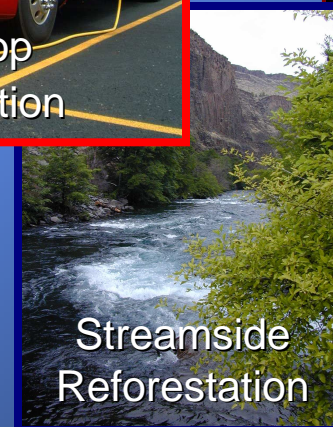
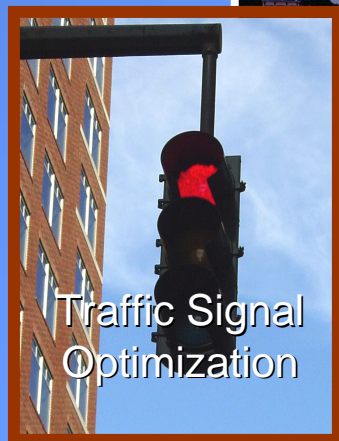
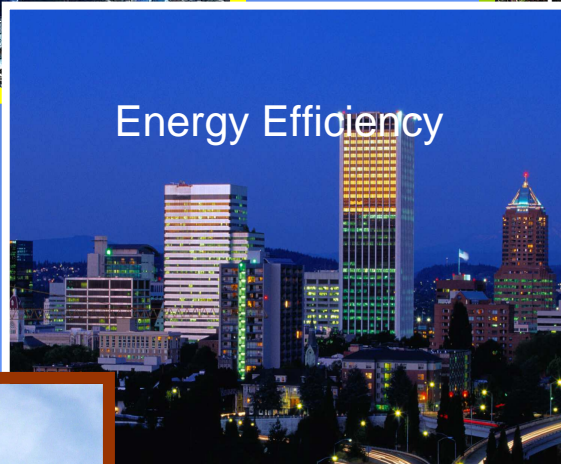
The Trust is a 501(c)(3) Non-Profit Corporation

“The Climate Trust promotes climate change solutions by providing high quality greenhouse gas offset projects and advancing sound offset policy.”

3 Main Programs

- Oregon Power Plant Offset Program
- Greenhouse Gas Offset Partnership Program
- Offset Policy Initiative

Diverse, High Quality Offset Portfolio



Who is The Climate Trust?

Independent Buyer of GHG Offsets

● Market Leader

- ✦ One of the largest, most experienced offset buyers in US and world markets
- ✦ Only state-recognized offset provider
 - ➡ **Portfolio:** 11 projects, \$4.5 million, 1.7 million metric tons CO₂
 - ➡ **Pipeline:** Placing \$5-\$6 million more now

● 2 Major Programs

- ✦ Oregon Power Plant Carbon Dioxide Offset Program
- ✦ GHG Offset Partnership Program
 - ➡ Large Emitters, Donate-to-Offset, Carboncounter.org

● Offset Policy Resource

- ✦ Contributing directly to viability and integration of offset policy at national, regional and state levels

The Climate Trust

Key Words From Our Values Statement

- Global leader and innovator
- High standards of integrity
- Measurable results
- Cost-effective offsets; leverage funds
- Partnerships with reliable offset providers
- Environmental, economic, and social co-benefits
- User-friendly solutions to customers

Benefits to Oregon

GHG Standard Highly Beneficial to Oregon
Economy

● Priority for Oregon-based projects

- ✦ Most projects in Oregon
- ✦ Most co-benefits located in Oregon
- ✦ Helping Oregon's clean energy industry cluster
- ✦ Advancing Oregon's leadership in sustainability

Lessons Learned

Lessons Relating to the Oregon Standard: 1

- **New power plants can bear the cost of CO₂ mitigation**
 - ◆ Adds < 0.5% to the life cycle cost of a new gas power plant
 - ◆ Power plants prefer the monetary path

- **Carbon dioxide mitigation is practicable and available**
 - ◆ Quality offsets are available, but the market is thin
 - ◆ Assembling a diverse offset portfolio is achievable

- **Non-profit trust is effective for acquiring offsets**

Lessons Learned

Lessons Relating to the Oregon Standard 2

- **CO₂ mitigation provides important co-benefits**
 - ◆ Benefit to cost ratio: \$10 of in-state benefit per \$1 paid by power plants.
 - ◆ Two projects alone save Oregonians \$80 million in energy payments: Traffic signals, building energy efficiency
- **Partnership Program is a viable mechanism for stabilizing intermittent Oregon Program revenues**
- **Our experience is valuable to policy makers & corporations**

Lessons Learned

Lessons Relating to The Climate Trust

- **Reliability of technology and offset developer are paramount when selecting projects.**
- **Offset developers will sign contracts structured to mitigate The Climate Trust's environmental and financial risk**
 - ◆ Preserve capital by paying after mitigation has been implemented
 - ◆ Include guarantees and performance milestones
 - ◆ Actively manage offset contracts
- **Manage S&C costs by selecting fewer, larger projects and recovering costs from offset providers**



Quality Criteria

Quality is Paramount

Cornerstones of Our Offset Portfolio

Quality Offsets are Trust's Highest Priority

- **High eligibility standards, rigorous review**
- **Diverse technology**
- **Strong offset contracts**
 - ◆ Preserve capital and ensure performance
- **Competitive price compared to offset market**

Quality Projects: Selection Criteria

Rigorous Internal and External Review Process

● Primary selection factors

- ◆ Additionality
- ◆ Cost effectiveness: \$/metric ton of GHG benefit
- ◆ Reliability of technology
- ◆ Reliability of project partner

● Other project selection factors include:

- ◆ Monitoring & verification - Replicability
- ◆ Permanence
 - Leakage/Expandability
- ◆ Guarantees
 - Portfolio diversity
- ◆ Location of project
 - Co-benefits

Quality Projects: Additionality

Projects Must Create New Emissions Benefits

❖ Mitigation measures that would not occur without offset project funding

- ✦ Excludes common practice, regulated activities
- ✦ Money making projects eligible, if other barriers

❖ Types of barriers offset funding overcomes

- ✦ Capital unavailable
- ✦ Investment hurdle rate
- ✦ No economic return

Carbon Funding and the Project Development Cycle

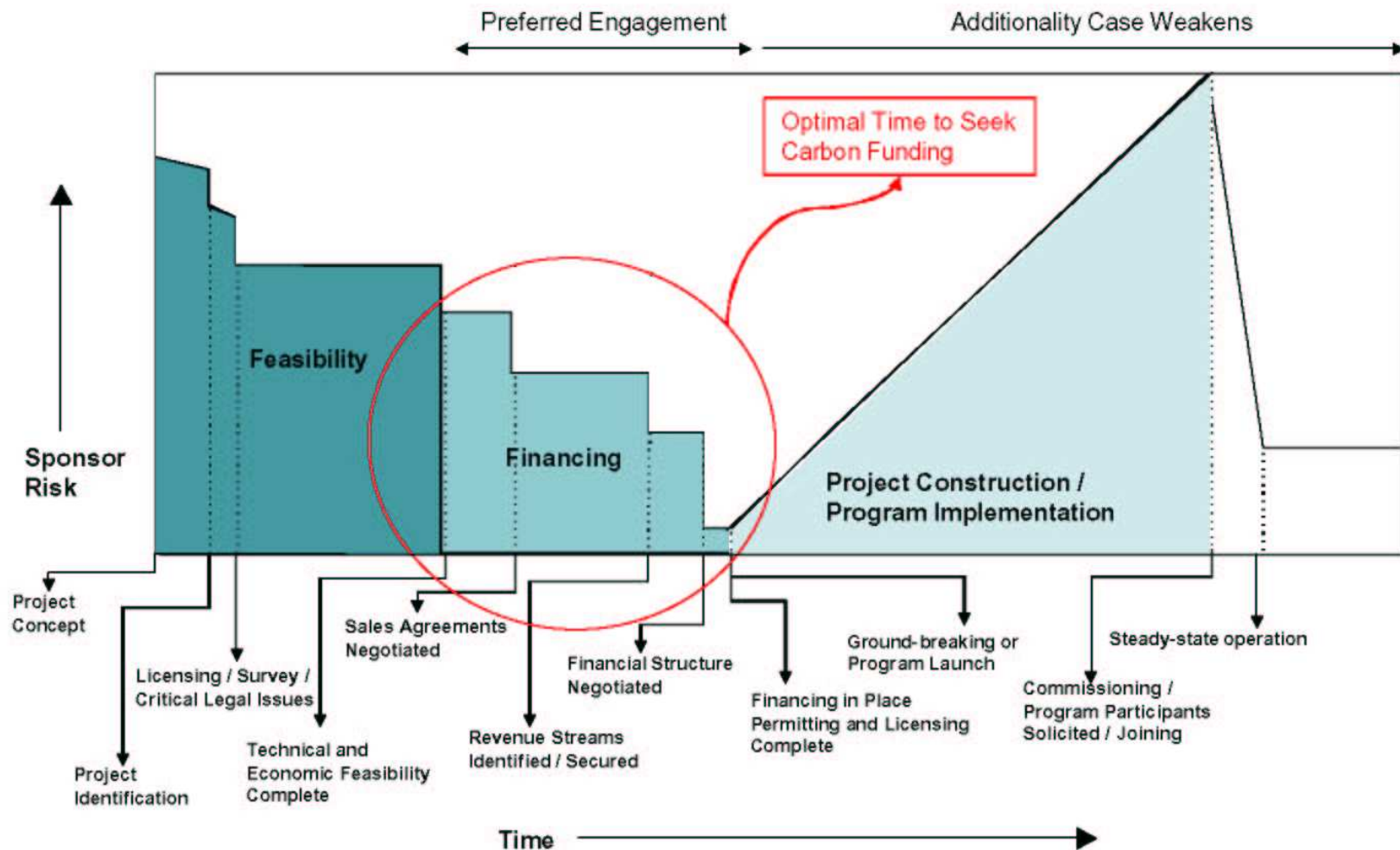


Diagram Provided Courtesy of Eoenergy International Corporation

Quality Projects: Quantification

Experts Prepare Baseline Studies and M&V Plan

● **Baseline study**

- ✦ Build in expected changes from business as usual

● **Monitoring & Verification Plan**

- ✦ Measurement technique
- ✦ Periodic measurement
- ✦ 3rd party verification
- ✦ Funding plan
 - ➡ Escrow to ensure sufficient M&V funding

● **Results used in contracts to verify delivery**

Quality Offsets: Permanence

Forestry's Most Challenging Offset Criteria

- ❖ **Permanent emissions reductions last forever: Avoided emissions**
- ❖ **Sequestered emissions reductions might be returned to the atmosphere, typically inadvertently**
 - ◆ Fire, insects, disease, and illegal harvest
- ❖ **Contrasting catastrophes:**
 - ◆ Tornado in wind farm
 - ◆ Fire in reforestation



Solicitation Process

Rigorous Review

Solicitation Structure

Two-Phase Process

● **Phase 1: Short form proposals**

- ✦ Provides project summary information
- ✦ Limited to 10 pages
- ✦ Project budget spreadsheet
- ✦ CO₂ Benefit spreadsheet

● **Phase 2: Detailed proposals**

- ✦ Selected bidders will be invited to submit detailed proposals and respond to project specific questions from staff

● **Phase 3: Negotiation and Contracting**

- ✦ Climate Trust enters into negotiation with selected bidders

Review & Approval Process

Phase 1

- Applications screened for completeness, review by staff and outside experts
- Project cut recommendations made by Offset Committee to Board:
 - ✦ Meeting additionality threshold
 - ✦ Viability

Phase 2

- Detailed review by staff
- Project cut made:
 - ✦ Poor additionality/baseline
 - ✦ Low likelihood of implementation
 - ✦ Potentially unreliable project partner
- Outside technical review
- Iterative review process between staff and Offset Committee
 - ✦ Prioritize and recommend to Board
- Board approval to enter into negotiations

Phase 3

- Staff leads negotiation process with outside counsel
- Offset Committee reviews and recommends
- Board approves contract terms - 30 -

Ensuring Quality & Mitigating Risk

Top Priority for The Climate Trust

● Due diligence during project review

- ✦ Technology and its offset attributes
- ✦ Offset provider

● Portfolio diversity mitigates risk

● Structuring our contracts to mitigate risk

- ✦ Preserving our capital
- ✦ Reducing the risk of underperformance
- ✦ Defining the ownership of offsets

Preserving Offset Fund Capital

Capital Preservation is a Fiduciary Responsibility

❖ Pay after the event creating the offsets

- ❖ Pay for verified tons as they occur
- ❖ Pay for program installation of measures
- ❖ Pay upon commercial operation (Engineer's or 3rd party certification)
- ❖ Conditions precedent to closing (Rely on senior lenders)
- ❖ Security interest in project equipment

Reducing Underperformance Risk

Ensuring We Get Tons After We Pay Our Money

● **Most contracts include delivery guarantees**

- ✦ Full or partial guarantee of quantity of tons

● **Takes several forms**

- ✦ Replace tons if a shortfall occurs
 - ➡ On power generating projects where we pay upon commercial operation, we require a guarantee of the anticipated quantity of tons
- ✦ Give money back
- ✦ Program offsets include performance milestones; Trust can de-obligate

● **Active role in managing our offset contracts**

- ✦ Define remedies for underperformance based on regular reporting

Defining the Ownership of Offsets

Establishing Legal Basis for a New Commodity

- Extensive legal definitions regarding offsets
- Developer transfers any and all rights to CO₂ reductions
 - ◆ Bill of Sale
 - ◆ Annual Offset Certificate
 - ◆ Third party verification of the quantity of offsets delivered
- Programmatic offsets: Participation agreements create a clear ownership trail to tons of CO₂

Avoiding Double Counting

Critical to Environmental Integrity

● Seller exclusions:

- ✦ Seller can't sell the same tons to another entity
- ✦ Seller can't use the tons for other purposes
- ✦ No sale of CO₂ in environmental products
 - ➡ E.g., Green Tags

● Disclosures and disclaimers:

- ✦ Written disclaimers from all partners & participants
- ✦ Disclose sale to regulatory authorities & others



Policies to Encourage a Forest Carbon Market

Policy to Encourage Market 1

Infrastructure to Help Accumulate Forest Carbon

- Forest industry and environmental groups should work together
 - ◆ Lack of cooperation may market for ecosystem services and inclusion of forests in carbon trading
- Establish cap-and-trade system that allows for forest carbon offsets
 - ◆ Pursue a regional trading system

Policy to Encourage Market 2

Infrastructure to Help Accumulate Forest Carbon

● Legal development

◆ Forest carbon sequestration ownership rights

➡ Distinct from land and timber property rights

◆ Enforcement mechanisms

➡ How and who?

Policy to Encourage Market 3

Infrastructure to Help Accumulate Forest Carbon

● Institutional development

◆ Mechanisms to address permanence

- ➡ Temporary crediting, insurance, pooling, discounts
- ➡ Strategies to reduce catastrophic forest fires

◆ Develop or encourage trading platforms, including market exchanges

- ➡ Create market liquidity and transparency

Policy to Encourage Market 4

Infrastructure to Help Accumulate Forest Carbon

- Invest intellectual capital needed to support market development
 - ◆ Develop rigorous and transparent protocols
 - ➡ Forest carbon measurement
 - ➡ Treatment of carbon stored in wood products
 - ◆ Develop technical assistance providers
 - ➡ Monitoring and verification services

A Viable Forest CO₂ Market

The Time to Start is Now

- Relatively small changes in forest carbon stock can contribute to – or mitigate – fossil CO₂ emissions
- The 4 kinds of forest carbon offsets face significant but addressable challenges
- There is much policy and institutional development needed to create a viable market for forest carbon

Thank You!

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