

Voluntary Carbon Market A Bottom Up Innovative Alternative?

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PART I: Compliance & Voluntary

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Carbon + Market ?

- A carbon market is a market for
 1. greenhouse gas **emission reductions** (credits) and
 2. **rights to release** greenhouse gas **emissions** (allowances).
- (Erik Haites, 2007)

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Compliance vs. Voluntary⁽¹⁾

- | | |
|----------------------------------|----------------------------------|
| □ Mostly KP Members | □ Including Non State & others |
| □ Open Ending Participation | □ Not Universal Participation |
| □ Regulations, Large Scale | □ Project Base, Small Scale |
| □ Binding Targets & Timetable | □ No Binding Targets & Timetable |
| □ Cap-and-Trade | □ Cap-and-Trade & Maybe not |
| □ Additionality | □ Suspicious Additionality |
| □ Tradable Credits or Allowances | □ Offsets |
| □ Compensation by Essence | □ Variable Value Purposes |

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Compliance vs. Voluntary⁽²⁾

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|--|--|
| □ A Common & Credible Procedures | □ Not a Common & Credible Procedure |
| □ Credible Monitoring Process | □ Non-Crediable Monitoring Process |
| □ Unambiguous Property Rights (Value) for Reduction Credits & Allowances | □ No Clear Property Right Characters for Offsets |
| □ Transparency regarding Credibility | □ No so Transparent |

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Contemporary Voluntary Carbon Market

- During 2006 the voluntary market accounted for estimated sales of about **13.4 MtCO₂e** at an average price of about 2006 **US\$4.10/tCO₂e**.
- According to the forecast addressed by Erik Haites the annual sales of Voluntary Carbon Market will hit 250 MtCO₂e (120 to 400 MtCO₂e) during 2008-2012 at an average price of 2006US \$10/MtCO₂e.
- At that time, the voluntary market would represent about 15% of the total market. (P.S., KP market: Annually, 475 MtCO₂e(CDM), 16(JI), 820 MtCO₂e(EU phase I), 280 MtCO₂e(EU phase II)

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The Vision for Voluntary Carbon Market

- Trexler estimated that US demand for voluntary offsets could almost double annually to 250 MtCO₂e by 2011.
- With a compliance market of 2006 US \$5 to \$25 billion, the voluntary market would represent about 15% of the total market.

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Why Voluntary Market⁽¹⁾

- **Innovative and Flexible** for variable supplies.
- **Lower Transaction Cost:**
For a CDM offset project approved the cost is US\$50,000 – US\$ 250,000 (Krolik, 2006 op.ct. Ricardo Bayon & etc. p.12) ; for a small scale project, according to UNDP, it's 14-22% of the net present value of its revenue from carbon credits (Id., p.13).
- **Lower Entry Barrier:** the registration process when lacking of jump-start capital.

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Why Voluntary Market⁽²⁾

- **Easier Financing Conditions:** for wider coverage of methodologies; i.e., Nature Conservation can work to obtain a forest protection project finance which has yet been recognized as an admissible concept under “avoided deforestation” illustrated by the KP.
- **Public Awareness:** It provides a means for individual participation vis-à-vis company and organization which might benefit to the transportation and residential sector target. Environmentalist take this as an educational tool
- **Avoid the Possible Political Postpone**

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The Main Obstacle of the Voluntary Carbon Market Development

- According to Erik Haites, the growing vision of the voluntary market is contingent on satisfactory resolution of concerns about the **integrity of the emission reductions being sold.**
- **Trust building shall be the top issue.**

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Crucial Features for a Reliable Voluntary Carbon Market

- The **integrity of the offsets** offered varies significantly with regard to the: (Erik Haites, 2007)
 - **Additionality** (reductions not already occur),
 - **Actual existence of the emission reductions** (monitor & claim verification),
 - **Exclusion of double-counting** (the same emission reductions are not sold to several buyers),
 - **Permanence of the reduction**, and
 - **Existence of community benefits**

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Who are the Stakeholders

- Governments
- Companies
- Non-profit organizations offer to offset emissions from vehicle use, air travel, and other energy consumption for individuals
- Other entities not subject to a regulatory obligation to reduce their emissions.
- Individual under a bundled product scheme (i.e., sale of green energy products)

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How the Market Functions

- The voluntary carbon market can be;
 1. Accomplished by a single entity; i.e., HSBC's carbon neutral operation project of 2004 in purchasing offsets from Germany, India, Australia and New Zealand. (US\$750,000 in amount)
 2. Backed up with a Regional Greenhouse Gas Initiative (RGGI) or a private trading system; CCX
 3. A national supported project; i.e., Energy Integration Project of China Steel, Taiwan

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A Model Market

- Members of the Chicago Climate Exchange (CCX) made a **voluntary, legally-binding commitment** to reduce their GHG emissions by 1% per year from their 1998-2001 baseline, a 4% reduction during 2006. 40
- The members had an **overall emissions limit** of 221 MtCO₂e for 2006. 41 The CCX transacted 10.3 MtCO₂ in 2006 at an average price of US\$3.80.42 p.14

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PART II

Voluntary Market as a Bottom Up Approach:

Following the Track of US REC's Experiences

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Long Existing Energy Sector Related Voluntary Markets

- The voluntary carbon market predated all regulated carbon markets (since 1989)
- The evolving history has been closely related to the Energy sectors; i.e., AES (American Electricity Company's investment in an agro-forestry project in Guatemala) (Bayon, 2007, at p.11)

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Energy Policy in Reflection of the National Differentiation

- It's been kept emphasized on the innovative and creative energy policy to tackle the GHG control issues. (3E Strategy)
- Also, it was argued that different energy policy shall be applied to adapt to each country's unique security, environment and industry conditions.

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The Compatibility between RECs & GHG Voluntary Markets

- For the energy sector, the GHG regulations tend to be taken as part of the traditional Air Quality Control efforts.
- In turns, energy industry's experiences in voluntary market becomes important; e.g., Renewable Energy Certificates (RECs) trading system of US.

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PART III

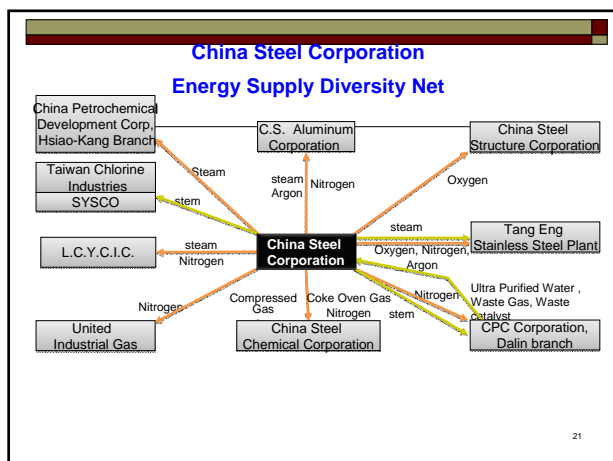
A Combination Model of Taiwan: A Regional Based Energy Integration Project of China Steel

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Regulation + Voluntary Trading + Policy Support

- The Clean Air Act regulation concerning variable type of gases or steam.
- The Trading Scheme Initiated by China Steel since 1997 (Regional Energy Integration Project of Seashore Industrial Zone)
- Under the auspices of government policy in overcoming the legal and other obstacles

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Energy Integration Project

Between China Steel Corp. and Seashore Industrial Park

- During the process of steelmaking, tremendous amount of steam emit into atmosphere. Those energies can be recycled for cogeneration.
 - For instance, air separation plants produce O₂, N₂ and Ar.
 - O₂: the key material of steelmaking
 - N₂: difficult to be recycled
 - Neighborhood factories can use two gases together to prevent resources from wasting.
- Recycled steam may enhance energy efficiency and reduce CO₂ emission.

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A Glance on the Project & Its Achievements

- The industrial zone is located in Kaoshung of Taiwan. Most of the enterprises therein are energy consumption oriented;
- The Project encourages the trading among the residing factories to exchange their wasted and/or surplus resources for others' uses.

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- While the Project may facilitate the clean air law's implementation to improve the air quality in the region, also, it's been proved to be beneficial to the GHG control by diminishing the petroleum consumption for steam generation.
- The trading volume has increased significantly by 20-30% annually.

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Air Quality Improvement Project

- Supply of waste steam can reduce the operation and emission of boiler works

Year	Plant	Benefits from the sales of steam (tonne/year)			
		TSP	SOx	NOx	CO ₂
before 2004	China Steel Chemical Corporation	2	21	15	6,559
	C.S. Aluminum Corporation, Linhai Branch	2	22	15	6,779
	L.C.Y.C.I.C.	29	294	204	91,235
	China Steel Chemical Corporation	11	110	76	34,076
	Total	44	446	310	138,649
2004 added	Tang Eng	3	32	22	10,007
	Taiwan Chlorine Industries	7	70	48	21,583
	SYSCO	3	32	22	10,007
	Total	13	134	93	41,597
added in the future	CPC Corporation, Dalin branch (Phase1)	34	343	238	106,436
	CPC Corporation, Dalin branch (Phase2)	68	686	476	212,871
	ISK TAIWAN	2	17	12	5,241
	Total	103	1,045	725	324,548
	Total	161	1,626	1,128	504,794

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Special Features of the Case

- Various types of Participants.
- Most of the participants are energy consumption oriented.
- Exchange wasted and/or surplus resources/industrial gases.
- Trading volume: increase 20-30% annually.
- Added benefits (so-called **co-benefits effect**):
 - (1) Improve air quality in the region under Taiwans' Air Pollution Controlling Act.
 - (2) Diminish the usage of petroleum for steam generation among participants.
 - (3) Save energy cost of some participants.
 - (4) Reduce CO₂ emission consequentially.

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Highlights on the Case

- Neither a binding nor legally binding project.
- Trading targets: Not greenhouse gases.
- Does Not create tradable offsets or allowances.
- No baseline and timetable.
- Business-as-usual (BAU) emission.
- No Cap, no additionally.
- No Standards and methodologies.
- No Monitoring and Verification Process.
- No credibility.

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PART IV What's in Need to Turn a Voluntary Project into A Market

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The Formulation of Market Features

- For all the important factors need be included; it's convincible to categorize them into three dimensions:
 1. Policy & Law
 2. Technology & Standard (including certify)
 3. Business Model & Financial Accountability

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Dimension One: Law & Policy

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A Comprehensive Four Stage Coverage

- Stage One: Product Creation
- Stage Two: Product Verification & Certification
- Stage Three: Product Distribution
Stakeholders: Retailers, Investors, Brokers, Exchange & Registries
- Stage Four: Product Consumption

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Issues (1)

- Stage One: Concept vs. Project (Is Buyer's Funding Available?)
- Stage Two: **Life Cycle** of Creation Recognized by the Market; VERs count on Legitimate Third Party Verification; e.g., how many years to generate VERs for the pay back of various technologies, the amount of GHG destroyed, displaced or stored. For others, **Additionality, Performance, Leakage** (transfer emission to another location), **Double Counting, Ex-ante & Ex-post Accounting, Co-Benefits**. (Certify Program: CCB Standards, CCX, Climate Neutral Network, Green-e, ISO 14064 Standard, Voluntary Carbon Standard, Voluntary Gold Standard, WRI/WBCSD Protocol)

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Issues (2)

- Stage Three: **Stakeholders & Value Chain Creation**. Also the **finance mechanism & Exchange Platform** (CCX is the only exchange trading voluntary carbon credits on the membership basis.) Public Trust and Registration (Database to record The Accomplishment)
- Stage Four: To offset 4 types of emissions; Internal Emission, Product Life Cycle Emission, Event Emission, Individual Emission.

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Core Policy Issue: Additionality

- Making sure a real GHG emission is being allowed into the atmosphere for each offset retired.
- It's crucial to maintain the integrity for each credit or allowance granted.
- The key work is to figure out the "baseline"
- Five tests developed by WRI/WBCSD Greenhouse Gas Protocol for Project Accounting has now been widely accepted. (including Investment, Technology, Regulatory, Common Practice and Timing) (Bayon & etc.P.24)

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In Taiwan

- In addition to the contemporary Clean Air Act, We proposed a very first GHG Mitigation Act (Draft) in the world.
- We mainly follow the WRI/WBCSD Protocol for the certification and verification.
- The government is promoting the related services industry and support the possible VERs related cases, including the forestry project.

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Dimension Two: Technology & Standard

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The Integrity Issues

- This growth is contingent on satisfactory **resolution of the integrity issues** as mentioned above. The issue should be solved mainly on the technology basis.
- A cap is important. On the other hand, the **cap can be designed in an innovative way**. For instance, to establish a cap on greenhouse gas emissions associated with electricity consumption in New South Wales.
- Certificates can be generated by accredited projects that reduce emissions or **enhance removal of greenhouse gases**. (e.g., **New South Wales-ACT Greenhouse Gas Abatement Scheme**)

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Technical Compatibility

- In Nov. 2005, IEA addressed in "New Commitment Options: Compatibility with Emissions Trading" that the technical compatibility includes;
 1. Dynamic target (in associated with economic growth)
 2. Binding target with price caps
 3. Non-binding targets
 4. Sector-wide targets/mechanisms
 5. Action targets
 6. Allowances and Endowments
 7. Long-term Permits

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In Taiwan

- The inventory technology has been mature.
- The project implementation capacity is well developed.
- The regulatory related technology is in progress.

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Dimension Three: Business Model & Financial Accountability

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A Game of Smoke & Mirrors?

- Mark Trexler: "The voluntary market could grow by an order of magnitude or two orders of magnitude and it's still **not going to impact the problem**." (Trexler, 2006)
- Uniformity: **risk of non-delivery; the quality standard of the carbon credits** (NGO criticism)
- Transparency: **not legally binding** so the market suffers for fragmentation and a lack of widely available impartial information. (variable types on case by case basis)
- **Registration**
- **Regulation**: Regulation is the key to drive a large scale demand.

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What Need to be Solved from Stakeholder's Perspective

- **To company**: can not be done **in normal course of business** and hard to evaluate the **cost effective** performances; **risk of non-delivery** and **poor in quality** (loosing good will); confusing for variety
- **To environmentalist & buyers**: lack of regulation cannot reach the scale necessary to impact the problem, in turns, fail the scheme.

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Energy Industry's Experiences

- "Act locally, Benefit & Trade globally" (COP 11)
- For instance, in RECs case, a non-profit institute the Center for the Resource Solutions established in 1997 the Green-e Renewable Electricity Program to build consumer confidence in green power.(set environment product standards and ask for information disclosure form the companies)
- Green marketers pay annual fee and take an annual audit and also the Environmental Trust.

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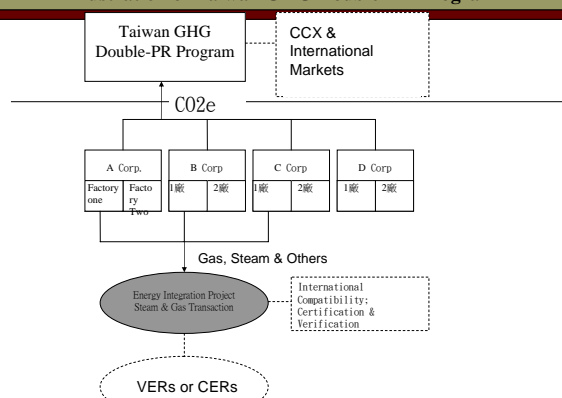
RECs Market as A Combination

- In the US
- Both buyers and sellers of RECs claim to justify their activities in terms of carbon emissions reductions
- On the other hand, the voluntary carbon credit sellers sell RECs as a substitute for CO₂ emission reductions
- It was thought that much of the voluntary RECs market will use the carbon market as a convenient outlet.

(Ricardo Bayon, Amanda Hawn & Katherine Hamilton Voluntary Carbon Markets pp.105-6)

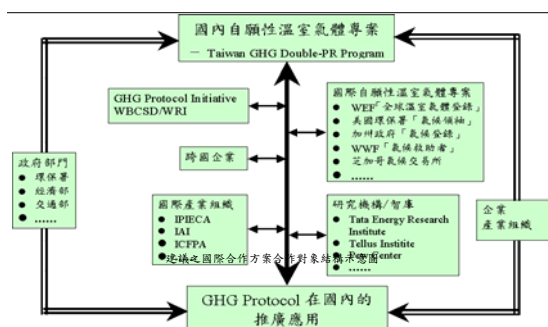
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An Illustration of Taiwan GHG Double-PR Program



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The International Cooperation in Long Term Perspective



Main References

- Erik Haites, Carbon Markets prepared for: United Nations Climate Change Secretariat Bonn (Margaree Consultants Inc. 2007/8/20)
- Ricardo Bayon, Amanda Hawn & Katherine Hamilton, Voluntary Carbon Markets (2007)

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Thanks for the Listening

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