

Carbon Trading

Sumon Sumetchoengprachya

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องค์การบริหารจัดการก๊าซเรือนกระจก (องค์การมหาชน)

Thailand Greenhouse Gas Management Organization (Public Organization)



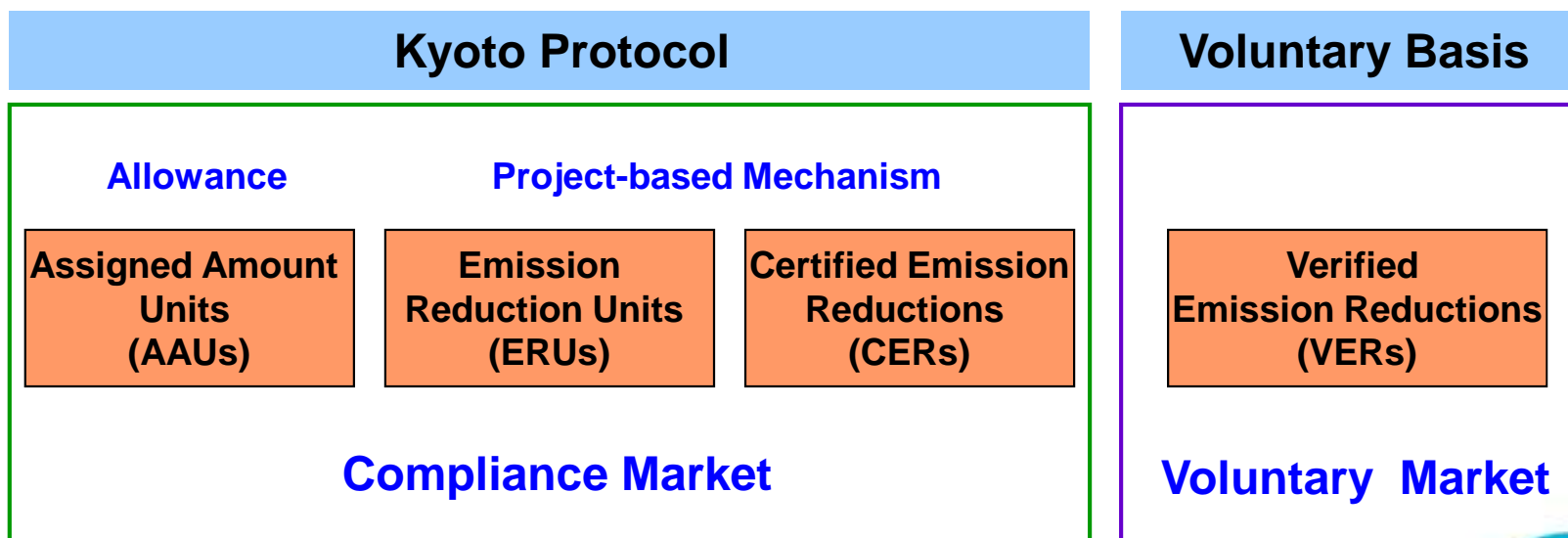
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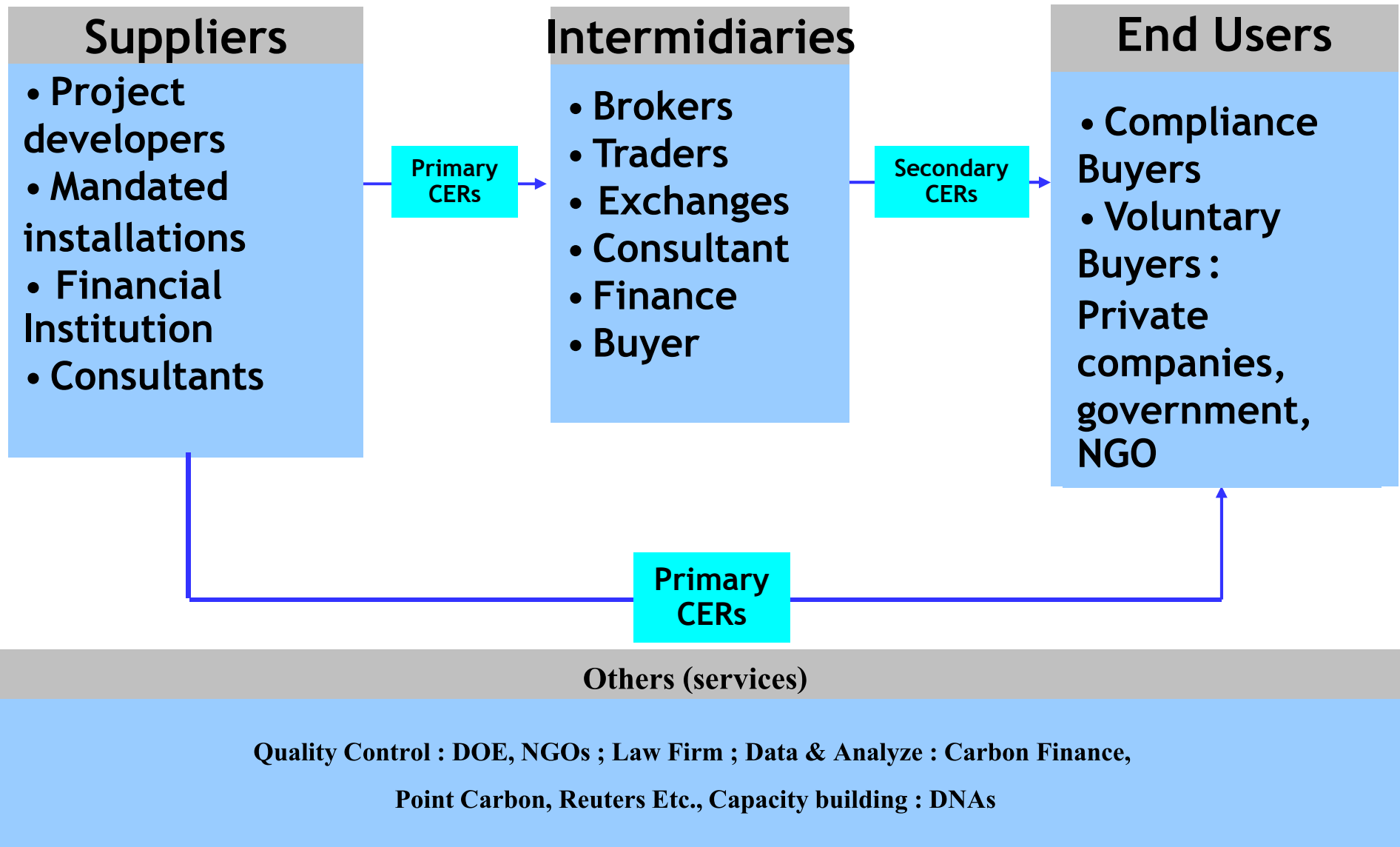


Carbon Trading

- **Carbon Credit** = The amount of reduced GHG emission generated from GHG emission reduction projects
- There are several types of carbon credit from **different origin** and trade in **different markets**



Main Players in Carbon Market



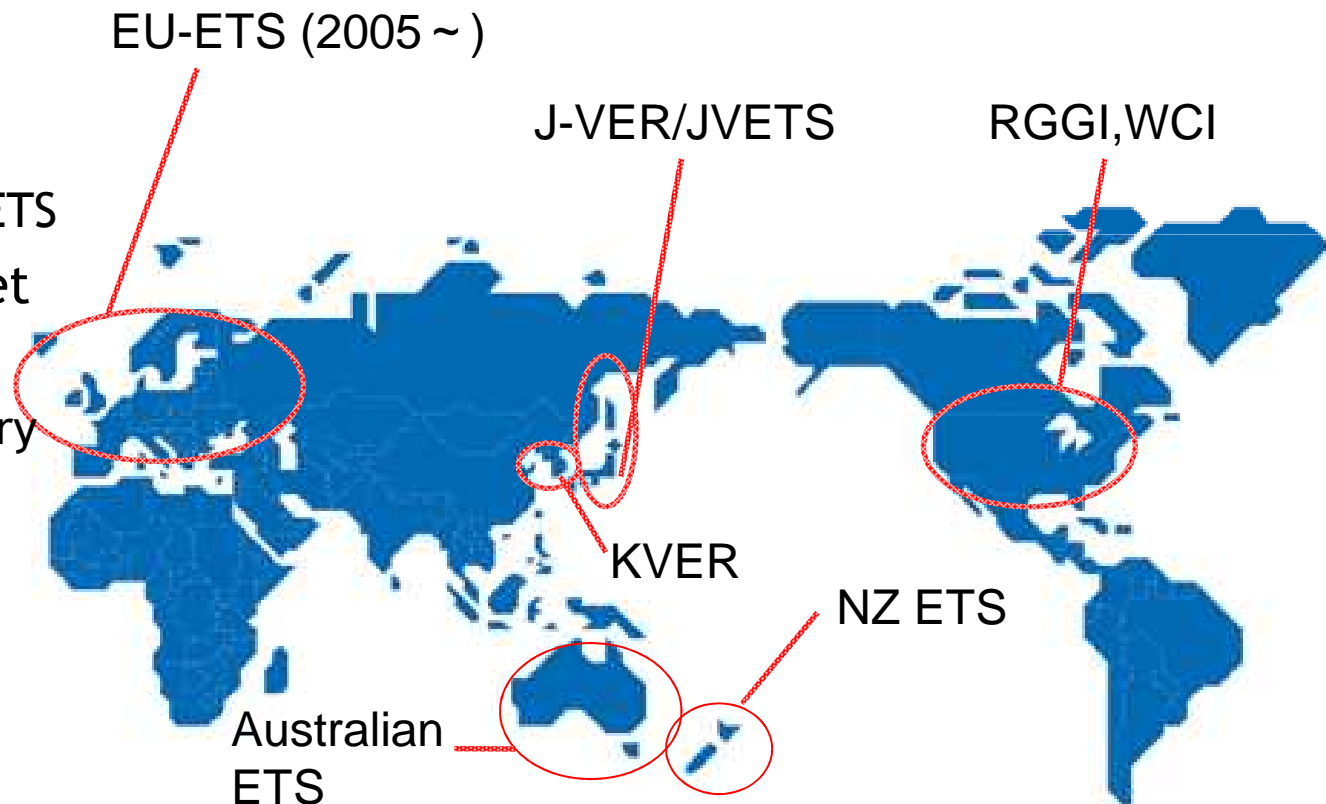
Examples of Carbon Markets in the World

■ Compliance Market

- EU-ETS
- RGGI
- WCI
- Australian ETS
- New Zealand ETS

■ Voluntary Market

- Japan VERs
- Japan Voluntary Emission Trading Scheme
- Korean VERs



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Scope of EU-ETS

- Credit unit of EU-ETS : European Union Allowances (EUAs)
- Phase I (2005-2007): +8.3% (2005) - Trial period (15 member states)
- Phase II (2008-2012): -5.6% (2005)
 - 27 member states and includes Iceland, Liechtenstein and Norway
 - Coverage: Limit CO₂ emission (Power sector, and energy-intensive Industrial sector - about 11,000 facilities); In 2012, incl. aviation sector into the scheme
 - Penalty: 100 EURO/t-CO₂

Trading System in EU-ETS

Acceptable offsetting credits:

- ❑ All credits from JI (**ERUs**) and CDM (**CERs**) projects (1 EUA = 1 CER = 1 ERU)
- ❑ Open to link with compatible mandatory cap-and-trade systems in third countries that have ratified the Kyoto Protocol
- ❑ **Not accept** credits from nuclear facilities and from land use, land-use change and forestry projects
- ❑ Now it bans credit from industry projects

Future of EU-ETS

- **Phase III (2013-2020): -21% (2005)**
 - Cap CO₂, N₂O, and PFCs
 - Power, industrial, and aviation sectors (plus aluminum, ammonia)
 - **Penalty:** Index to Consumer Price (dynamic pricing)
- **Acceptable offsetting credits:**
 - **CERs issued before 1 Jan 2013 from CDM projects registered before 1 Jan 2013 can be used until 31 Mar 2015**

Source: Directive 2003/87/EC (OJ L 275, 25.10.2003, p. 32)

Future of EU-ETS (2)

- ❑ CERs, emission reduction achieved **after** 31 Dec 2012 from CDM projects **registered before** 1 Jan 2013 can be **used until** 2020
- ❑ CERs, emission reduction achieved **after** 31 Dec 2012 from CDM project **registered after** 31 Dec 2012 can be used **only** if the CERs are **from LDCs**
- ❑ **Not accept** credits from land use, land-use change and forestry projects

Source: Directive 2003/87/EC (OJ L 275, 25.10.2003, p. 32)

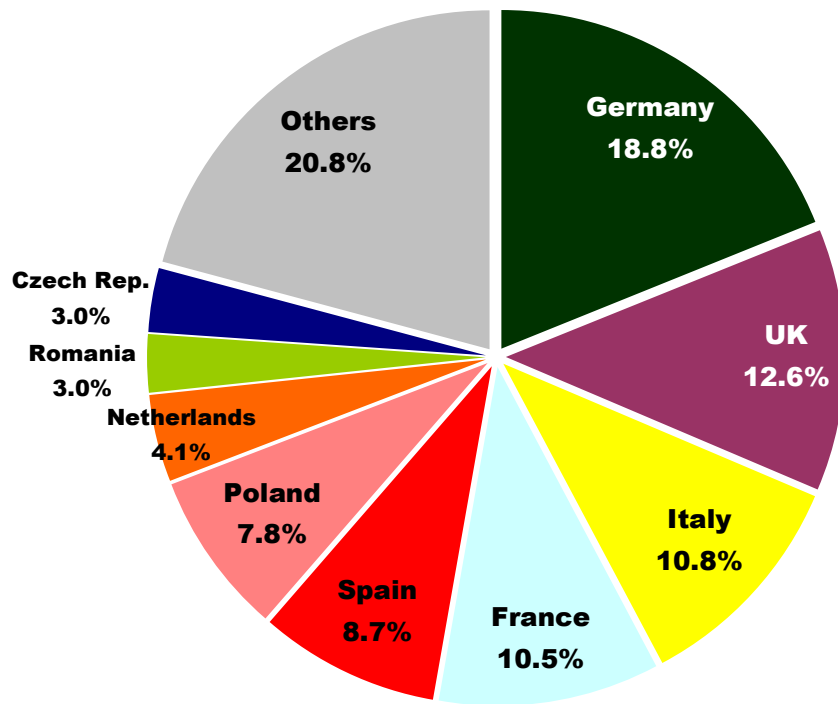
Where are Main Exchanges of EU-ETS?

- ECX: EUA/CER (mainly futures deal)
- Bluenext: EUA (mainly spot deal)
- Nord Pool
- EEX

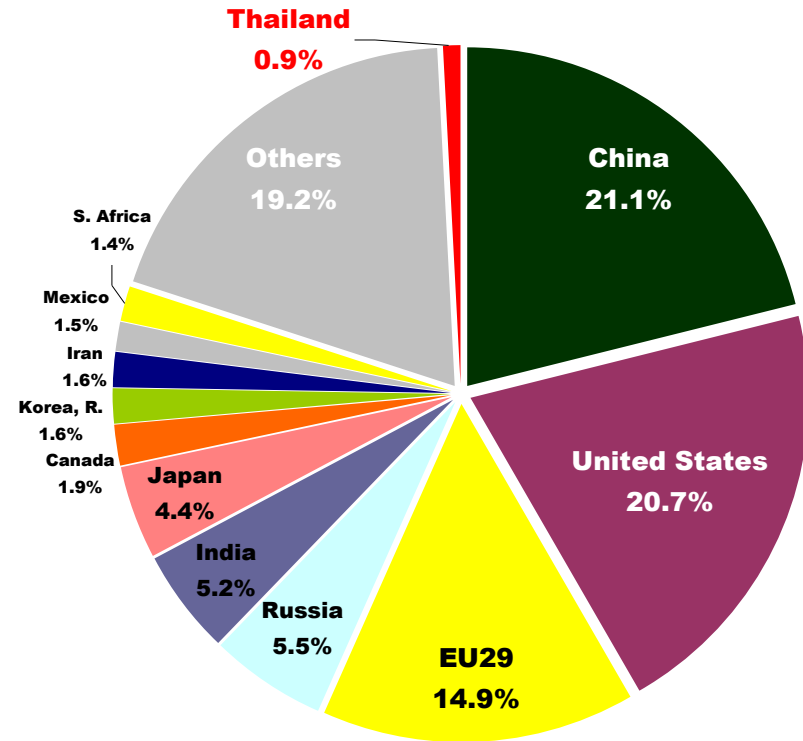


Important Buyers in EU-ETS

EU-ETS (29) GHG (2007)



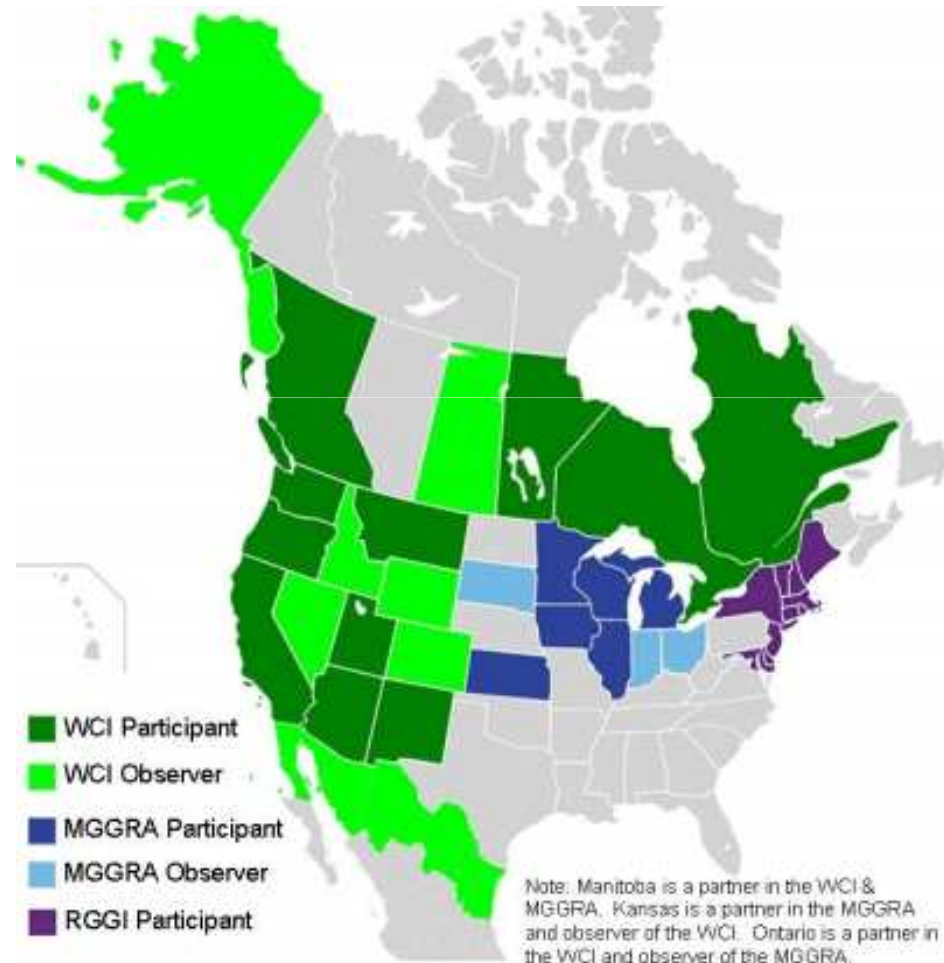
World (212) CO₂ (2006)



Source : Dr. Kazuhito YAMADA, JICA expert team

USA Carbon Trading

Source: World Resources Institute



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Western Climate Initiative (WCI)

- Regional **cap-and-trade** program released on September 23, 2008.
- WCI's **Members**:
 - **USA**: Washington, Oregon, California, Arizona, New Mexico, Utah, Montana
 - **Canada**: British Columbia, Manitoba, Ontario, Quebec
- **Common Commitment**: to build a green economy and reduce GHG emissions that are leading to climate change.
- When fully implemented in 2015, it will **cover nearly 90 percent of the GHG emissions in WCI states and provinces** and will **reduce** those emissions to **15% below 2005 levels by 2020**.

WCI Regional Plan

- **Carbon emissions limits:** market-based cap-and-trade system
- **Offset credits:** limited number of emissions offset credits for projects in industries **outside the capped sectors (forestry, agriculture)**
- **Complementary policies:** exploring policies that work in concert with cap-and-trade to lower carbon emissions and reduce the cost of transitioning to a green economy. (EE, Clean car std., renewable energy, low-carbon fuel std.)

Source: <http://www.westernclimateinitiative.org/>

Tokyo Cap-and-Trade (T-CAT)

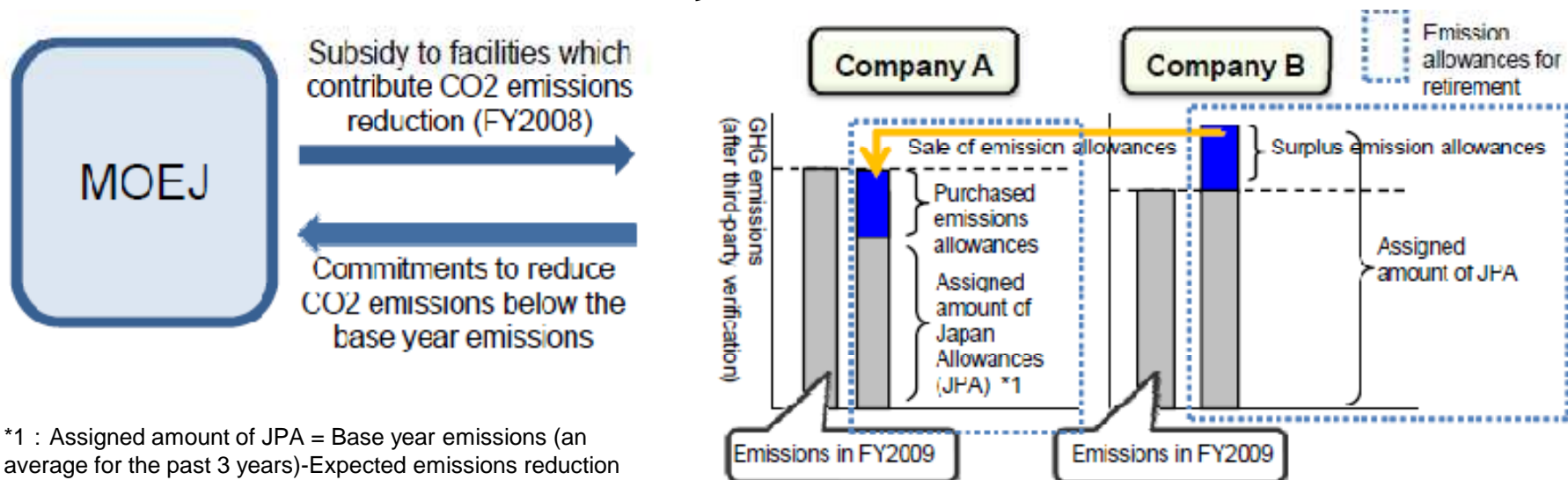
- **Start:** 1st April 2010
- **Target Gas:** energy-related CO₂
- **Cap coverage :** 1,400 installations (including 1,100 business facilities and 300 industrial facilities)
- **Targeted facilities:** consumption of fuels, heat and electricity >1,500 kl/year (crude oil equivalent)
- **Compliance period: 5 years**
 - 1st: 2010 to 2014 - reduction target: 6% or 8%
 - 2nd: 2015 to 2019 - reduction target: 17% (planned)
- **Monitoring and Reporting:** every year
- **Penalty:**
Non-compliance is required to reduce 1.3 times in the next period

Japan's Voluntary Emission Trading Scheme: JVETS?

- support voluntary CO2 reduction activities by private entities and to ensure their target achievement in a cost-effective way using
 - (1) a subsidy to facilities which contribute CO2 emissions reduction,
 - (2) participants' commitments to reduce CO2 emissions below their base year emissions, and
 - (3) emissions trading.

Japan's Voluntary Emission Trading Scheme: JVETS

- Candidates should be factories and offices which are NOT included in Voluntary Action Plan (VAP)
- Total participants: 232 companies
- Emissions reduction in FY2007 by 2nd phase (FY 2006) participants: **280,192t-CO₂** (25% of the total emissions in the base year emissions) cf. their original emissions reduction plan: 19% of the total emissions in the base year emissions

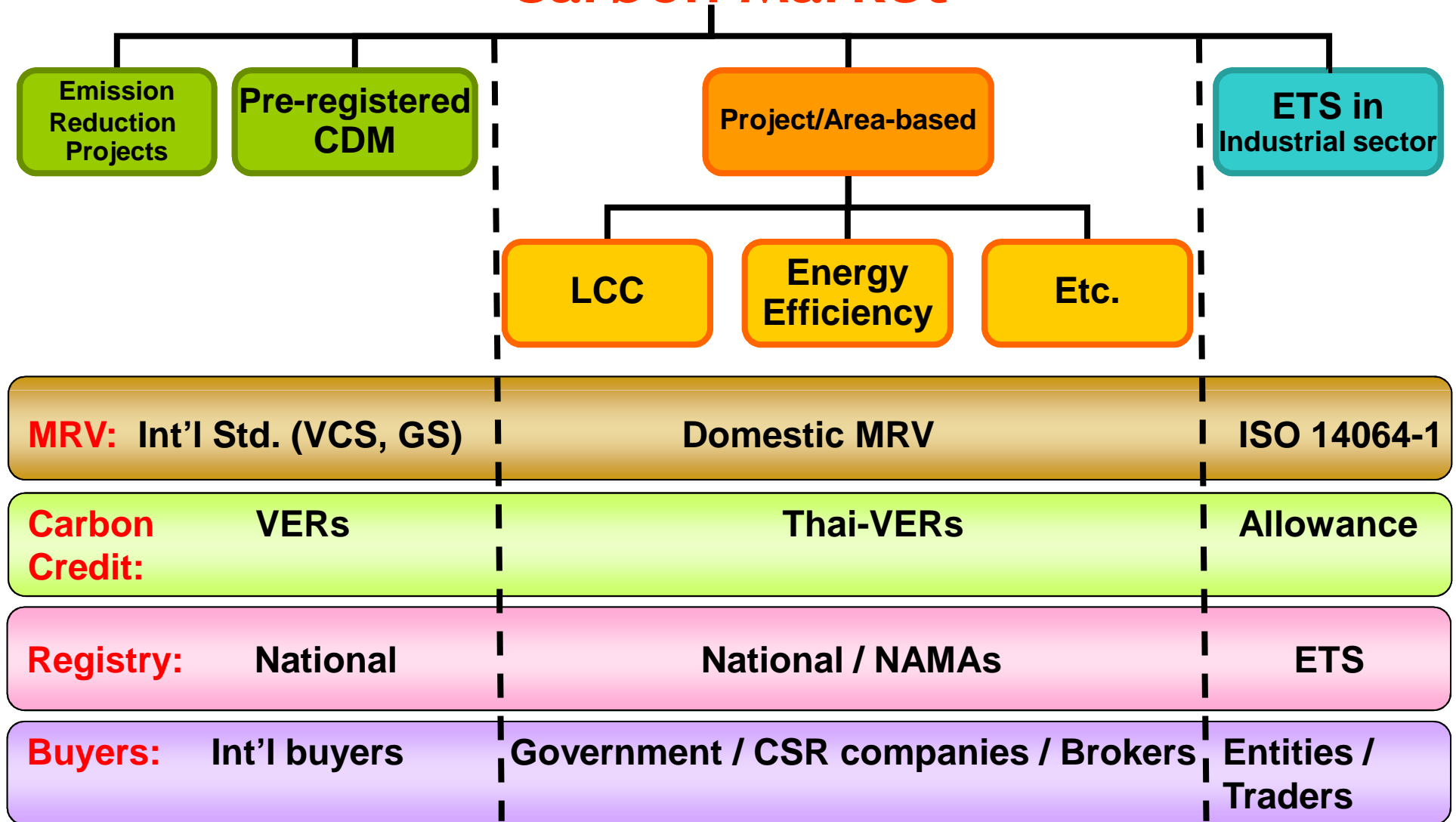


Trading Volumes and Values in 2009-2010

Markets	Volume (MtCO ₂ e)		Value (US\$ million)	
	2009	2010	2009	2010
EU ETS	5,510	5,529	\$105,746	\$106,024
Primary CDM	135	94	\$2,858	\$1,325
Secondary CDM	889	1,005	\$15,719	\$15,904
Kyoto (AAU)	135	19	\$1,429	\$265
RGGI	768	45	\$1,890	\$436
Total	7,437	6,692	\$127,642	\$123,954
Growth rate (%)		-10.02		-2.89

Source: Ecosystem Marketplace and Bloomberg

Future Plan for Thailand's Voluntary Carbon Market



Confirmation of the importance and anticipated roles of 'carbon trading'

- 'Cap and trade' is the fundamental approach of carbon trading.
- Carbon trading may be effective GHG mitigation measures if all GHG emitters in the world can be participated.
- But, carbon trading is not versatile, one and only system to mitigate GHG emissions in the world.

Thank you for your attention



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