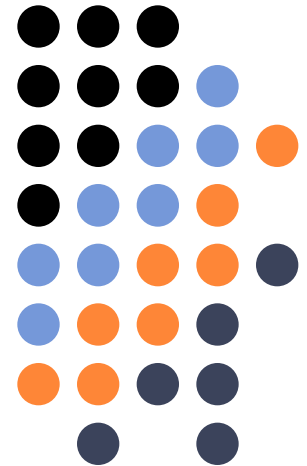


# Status and Outlook of Global Carbon Market

Presentation prepared for JICA training  
program in Sri Lanka

July 15, 2011  
JICA Expert Team





# Content & Objective

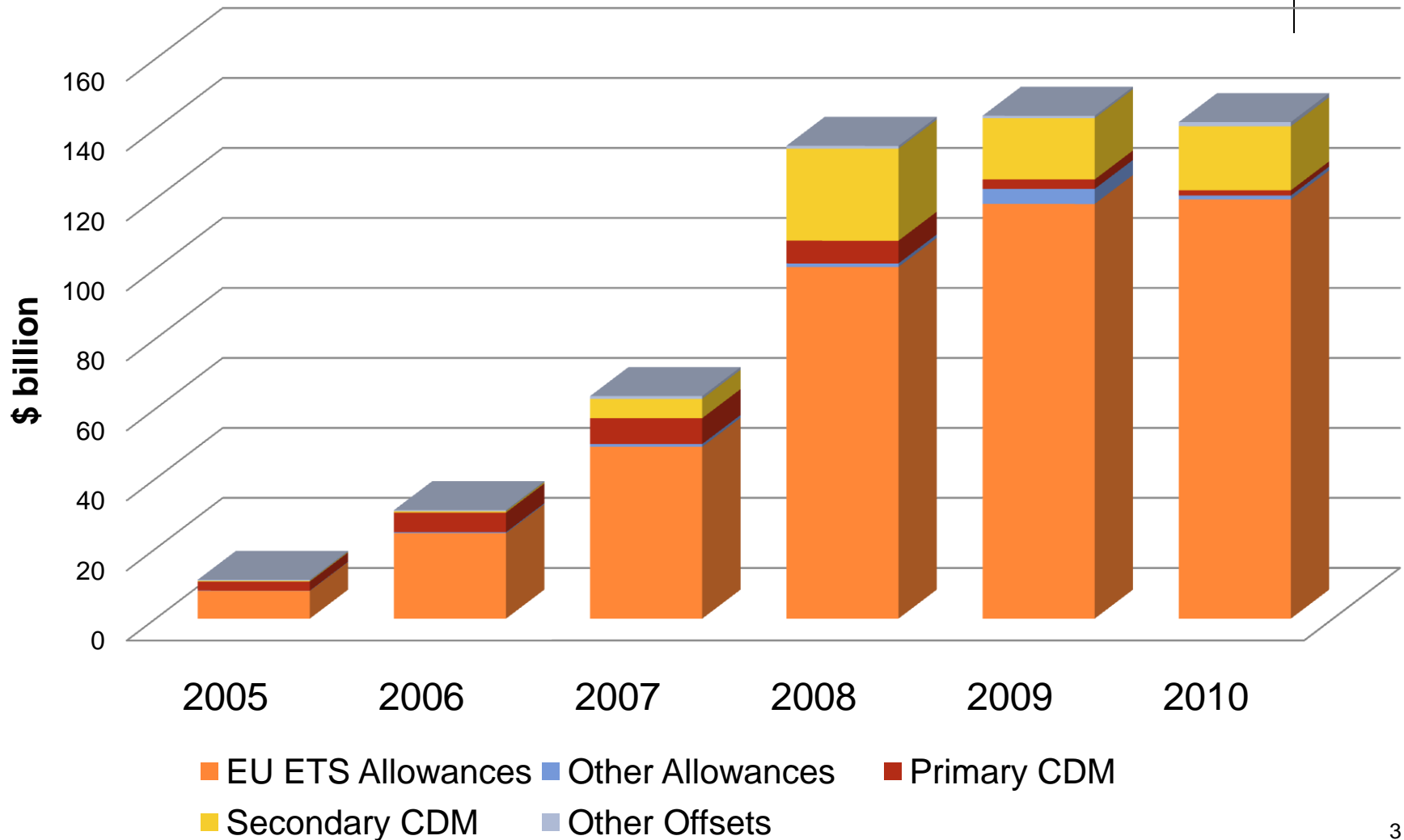
## Status and Outlook of Carbon market

- Demand
- Supply
- “Carbon Credit Pricing 101”
- Environment of “Environment” markets

## Objectives

- Understand “big-picture” of carbon and energy market
- Provide clues to understand driving forces of carbon price’s move

# Carbon Market Status Recovery & Uncertainty



Source: "Status and Trends of the Carbon Market 2010" Table 3



# Who's buying?

		Potential Demand	Contracted CERs and ERUs		AAUs	Residual Demand
			nominal	adjusted for performance		
		MtCO <sub>2</sub> e	MtCO <sub>2</sub> e	MtCO <sub>2</sub> e	MtCO <sub>2</sub> e	MtCO <sub>2</sub> e
		a		b	c	d = a - (b+c)
EU						
	Government (EU-15)	315	270	132 (48.9%)	54	129
	Private Sector (EU ETS)	750	1,598	751 (47.0%)	0	-1
Japan						
	Government	100	34	21 (61.8%)	76	3
	Private Sector	200	338	159 (47.0%)	115	-74
Rest of Annex B						
	Government	22	34	21 (61.8%)	1	1
	Private Sector	5	3	1 (33.3%)	0	4



# Carbon Market Status

2009

- ◆ Lehman Shock
- ◆ Financial drawbacks impacts CDM.
- ◆ CDM Project origination reduced.
- ◆ Annex I country's economy down-turn results in less demand for credits.
- ◆ Trade down-turn over all stringent forcing players to exit the businesses.



2010

- ◆ Subtle recovery
- ◆ The growth in *non-CDM* renewable energy projects in Europe, US and domestic market outgrows the CDM project development.
- ◆ Rule modifications are made in insignificant details, but not drastically improve performance of CDM.



2011

- ◆ Final stretch to the end of 1<sup>st</sup> commitment period.
- ◆ No significant improvement or forecast provided regarding "Post Kyoto", so far.
- ◆ Japan hit by a earthquake and shut-down Nucs.
- ◆ Germany shut down Nucs followed by Incidents.

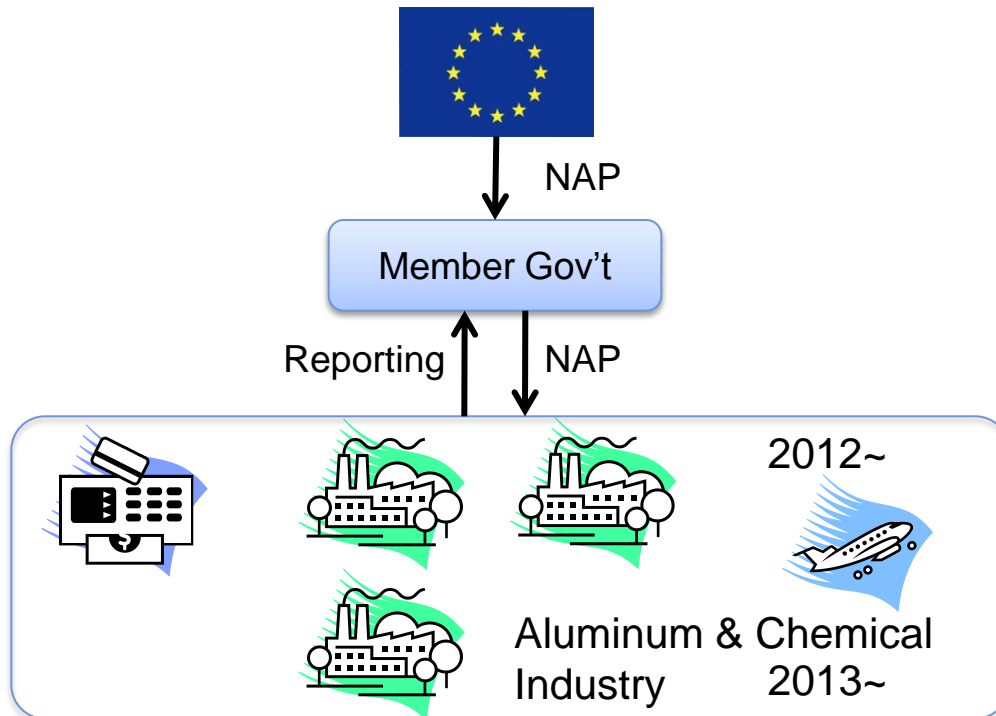


	Extension of Kyoto Protocol		Comments
Japan Russia Canada	No	Participation of major emitting nations (especially USA and China) is required to achieve meaningful emission reduction.	If the Kyoto protocol is extended, only 27% of the global GHG emission is under the legally binding emission target.
EU Australia New Zealand	Yes Conditional	Extension of the Kyoto protocol and development of another protocol for USA, China and India which will run in parallel.	If we can not reach an agreement now, then there will be a period at which even the developed nations has no legally binding emission target.
USA	Yes	Democrats lost against the Republicans in the mid-term election → Obama administration is unable to agree on legally binding emission target.	USA will not participate in the Kyoto Protocol 2 <sup>nd</sup> commitment period. Voluntary approach is appropriate.
China, India and & Non-Annex 1 Countries	Yes	Continuation of the Kyoto Protocol. Non-Annex 1 parties will have no legally binding targets. All countries will plan its emission reduction plans.	The Principle of “Common But Differentiated Responsibilities(CBDR)” must be adhered.



# Demand Side: Europe

- In the middle of EU-ETS Phase 2
- Phase 2 period continues up to 2012
- Phase 3 sets as 2013 – 2020.



EU-ETS allows participants to use CERs to attain its allowance limits. However, the amount of CER adopted is limited to 6%.

The quality of CER used in the scheme also restricted.

- ◆ Hydro: <10MW, WDC check requires if it is larger.
- ◆ No more industrial gas origin credits approved for EU-ETS



# Demand Side: Japan

Before 3.11

- Government announced its procurement program had target amount of credits, particularly from GIS, through NEDO and other program..

After 3.11

- 64% of Nuclear Power stations stop its operations.
- Obvious downturn of economy, GDP negative growth expected for 2011.
- Japan may not able to attain target of Kyoto P target

Origin	Amount
Slovakia	15 Mil t
Ukraine	30 Mil t
Czech	40 Mil t

## Uncertainty 1

Does Japan maintain Kyoto target “by all means”?

## Uncertainty 2

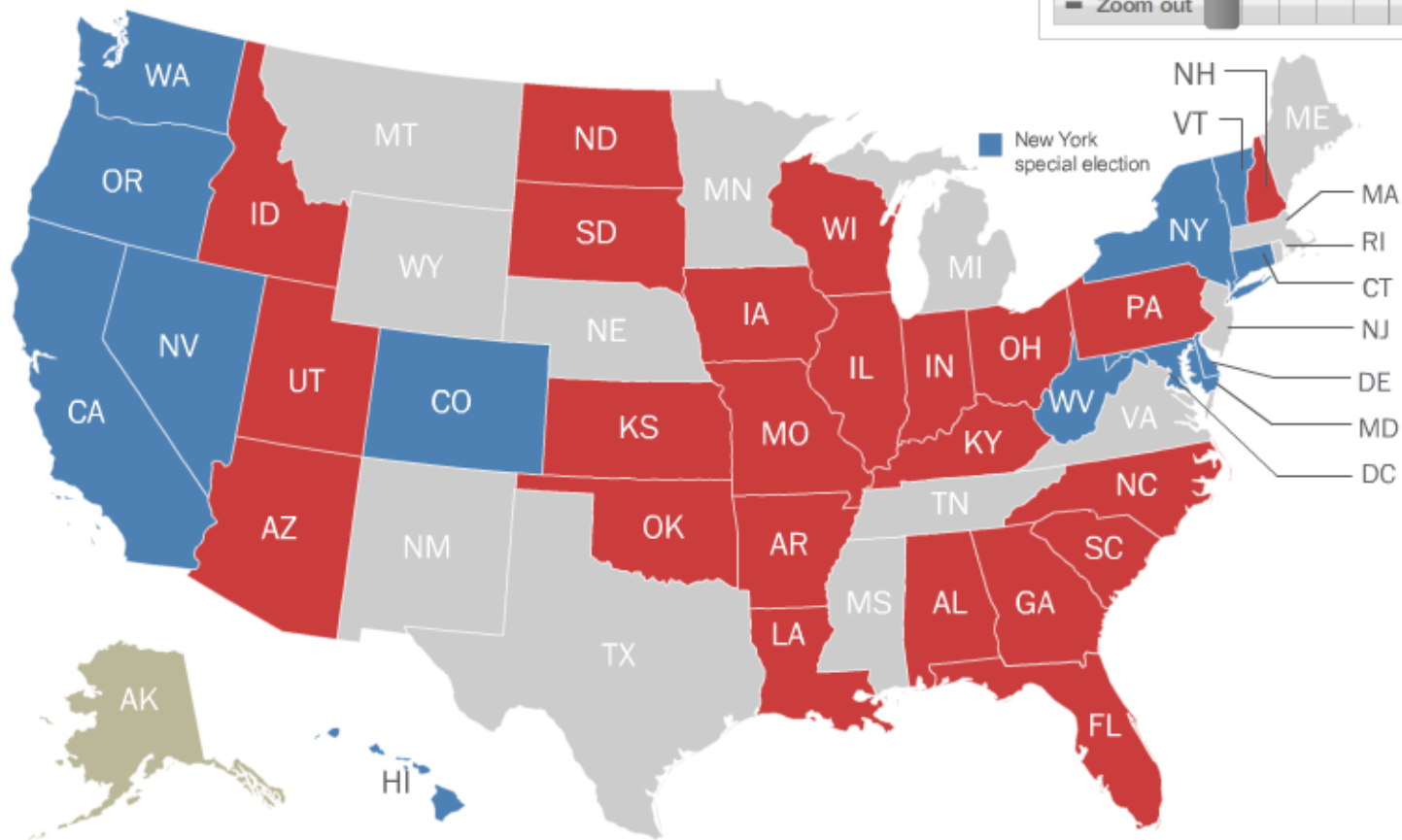
How does economic downturn and loss of power affect emissions?

## Uncertainty 3

Does contracted GIS project implemented successfully?

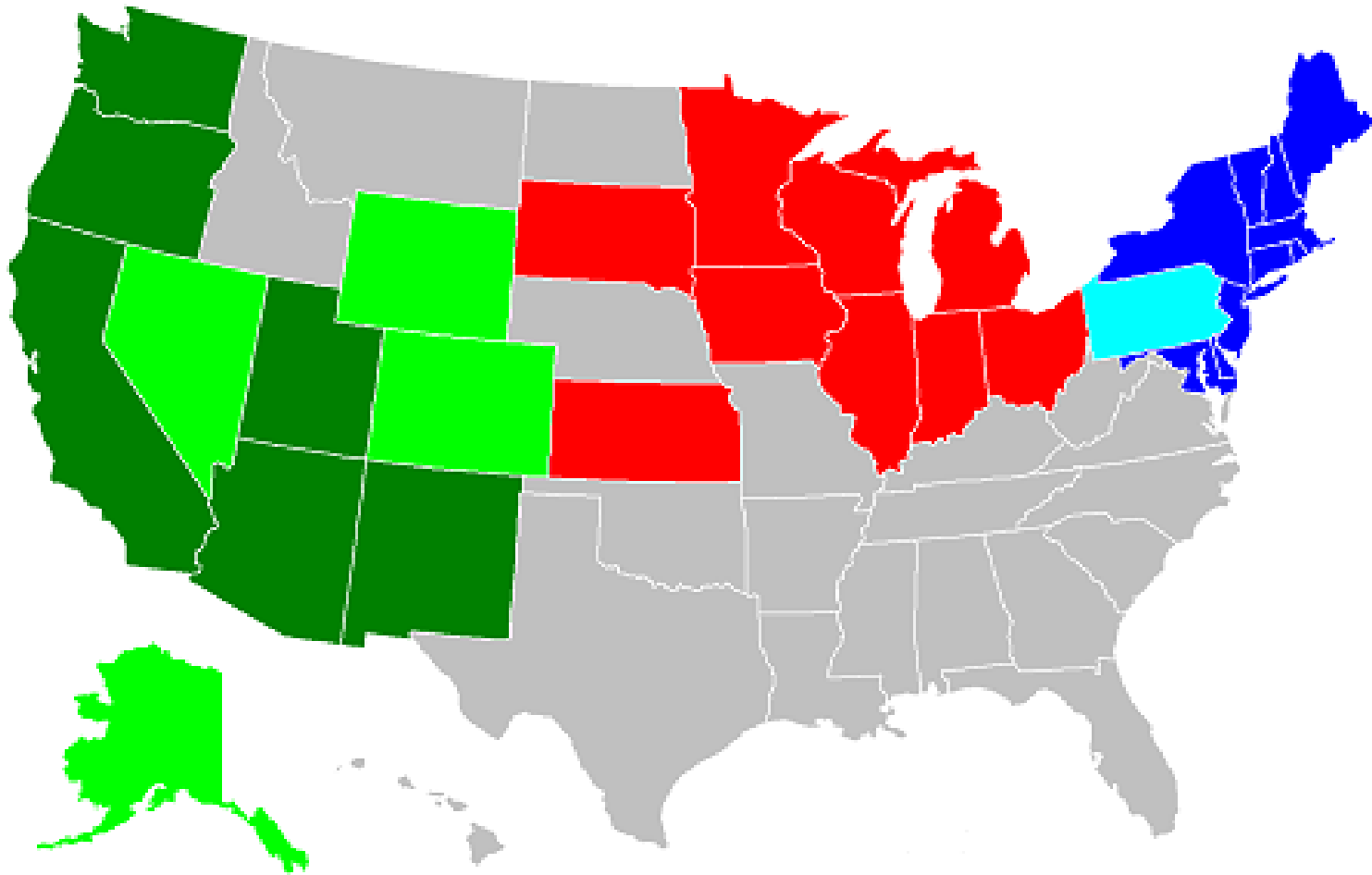


# Blue = Democratic Party Lead, Red = Republican Party Lead



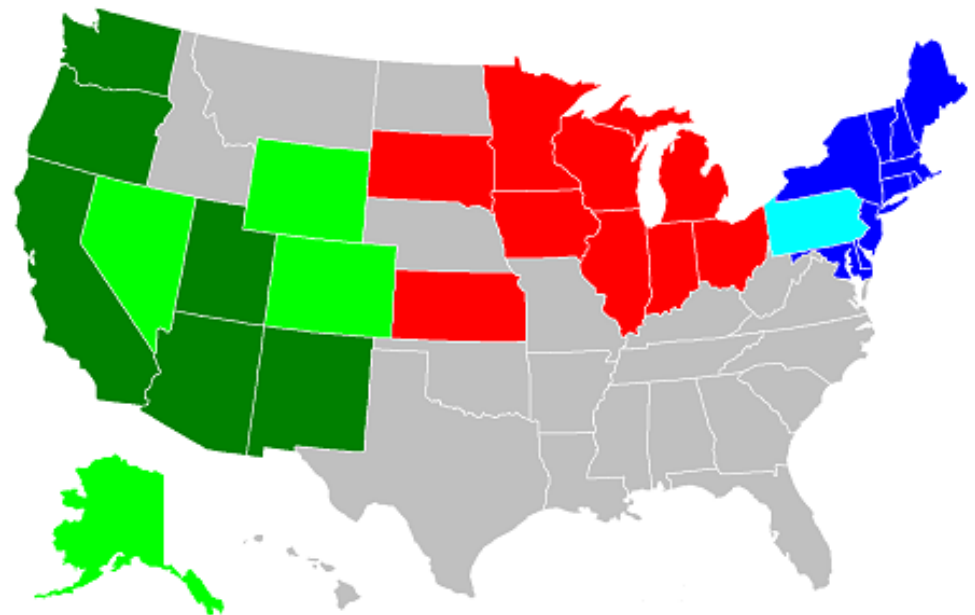
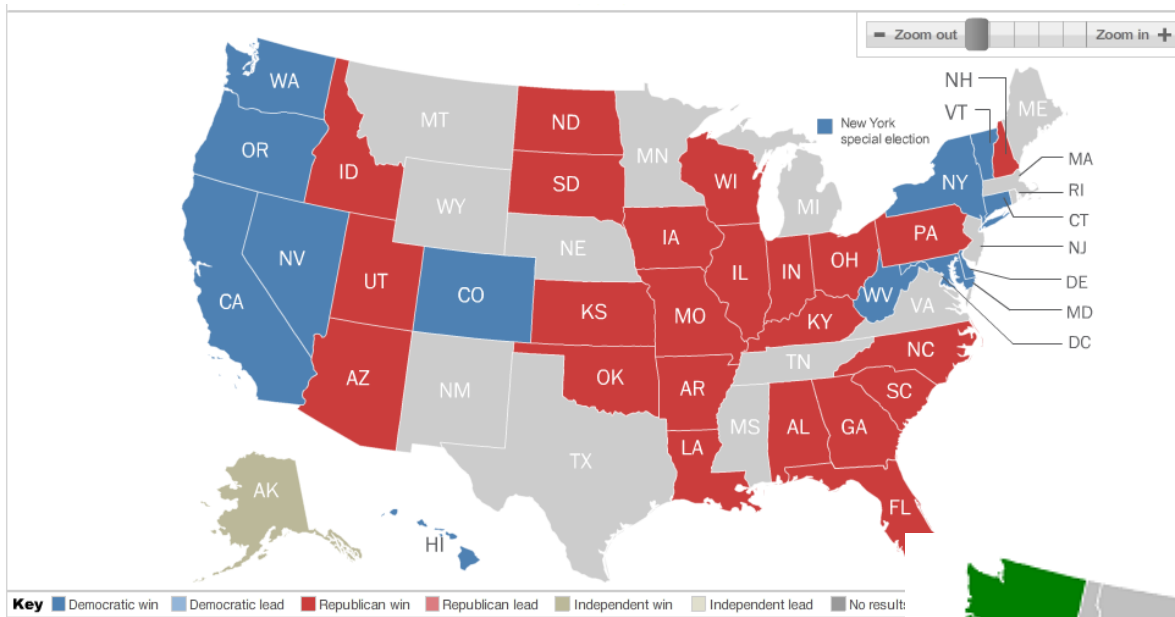
Source: Washington Post Website

**Blue = Regional Greenhouse Gas Initiative**  
**Red = Midwestern GHG reduction Accord**  
**Green = Western Regional Climate Action Initiative**



**Source: No Right Turn**  
**website:**

<http://norigturn.blogspot.com/2007/11/climate-change-working-around-bush.html>



US is also prepared at the state level to cut emissions, regardless ideological differences.



# Demand Side: USA, Australia

## USA

Likelihood of ETS implementation

- US economy's recovery
- Recovery of president's leadership

Republican States even start to consider introduction of ETS

- Texas
- Florida
- Colorado
- Utah

The demand for project-based reduction efforts tend to focus on Latin American countries and not in Asia or Africa.

## Australia

- Girdard Administration announced an introduction of cap & trade scheme from July 2012.
- The credit priced at A\$23(LKR2,720) per ton of CO<sub>2</sub>.
- The carbon emission cuts 5% from 2000 by 2020.
- Targets are set for
  - ◆ Stationary combustion
  - ◆ Waste
  - ◆ Rail
  - ◆ Domestic aviation
  - ◆ Shipping
  - ◆ Off-road transport
  - ◆ Industrial process
  - ◆ Fugitive emissions



# Supply Side: China & India



- Chinese CDM projects are overflowed in the market
- Markets are become more selective to choose Chinese projects in terms of project size, seeking other verification to prove project integrity
- Within China, there are domestic markets established to trade credits for the sake of investment.



- Unilateral CDM project owners are started to sell their credits but the contracts only up to 2012.
- Domestic energy saving efforts are implemented in parallel.
- Performance, Achieve and Trade (PAT) scheme examined by BEE(Bureau of Energy Efficiency).
  - PAT allocates a cap for 700+ industry facilities in India.
  - Energy reduction certificate will issue from 2014.

Not many people believes the two countries remain as a “supplier” of credits.



# Supply Side: CDM or New CDM?

Some projects currently explored offers large amount of credit to deteriorate market balance. Would these projects development is a positive or negative??

	Registered	CER (ktCER)	% yield	Average CER (ktCER/year)
REDD	---	---	---	400~1,000
CCS	---	---	---	1,000
HFC	18	266,642	109%	14,813
Hydro	274	35,584	86%	129
Biomass	138	17,476	86%	126
LFG	59	13,352	38%	226

Source: UNEP Resoe Centre

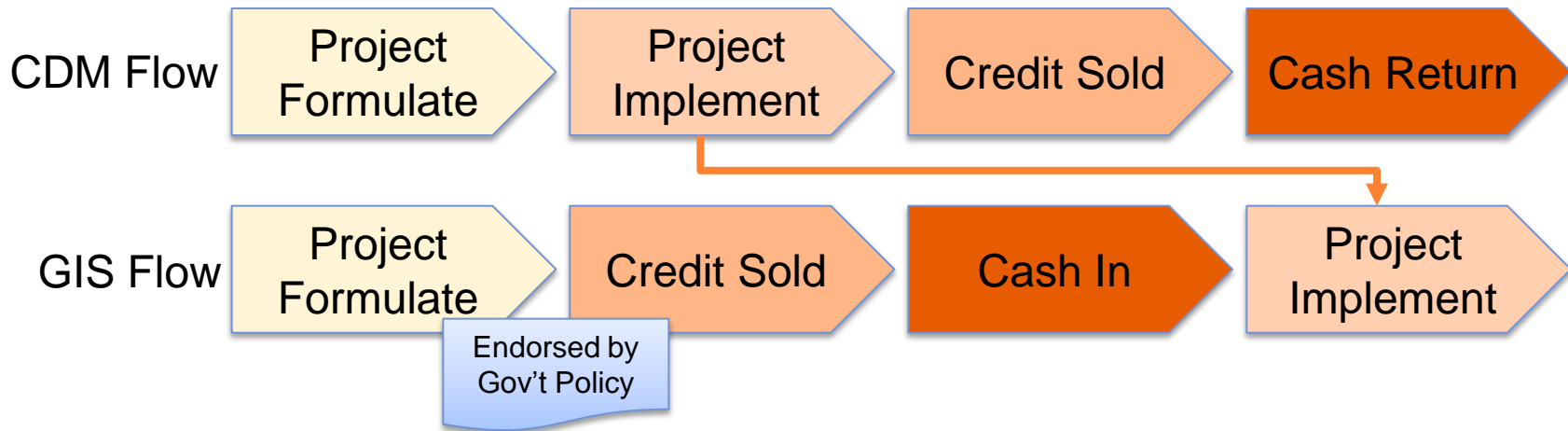
Large amount of credit inflow distort current market balance and plunge CER price to the bottom.



# Supply Side: GIS, Bi-lateral Offset Mechanism & More

## GIS (Green Investment Scheme)

- ◆ International Emission Trading outlined under Kyoto Protocol between developed nations.
- ◆ Trade surplus allowances called “Hot-Air”.
- ◆ Japan purchased credit through GIS 135 Mil tones. (275 Mil tons from CDM).

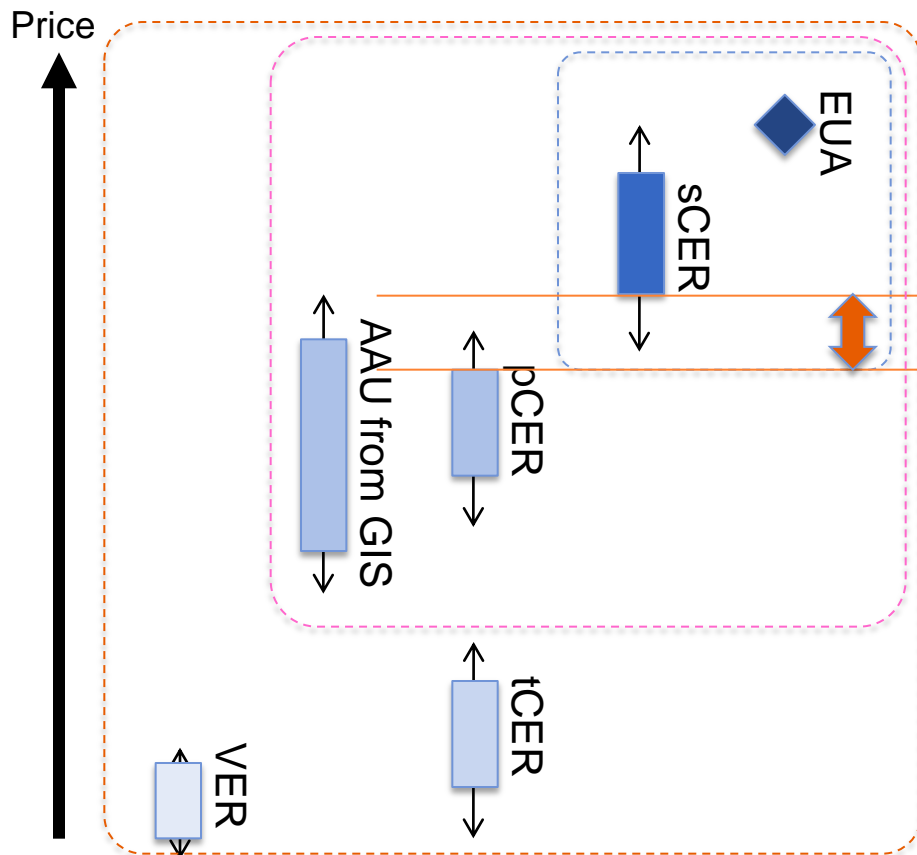


## Bilateral offsetting mechanism

- ◆ Project implemented under bilateral agreement can yield credits
- ◆ The projects has to be “MRV”ed to yield credits.
- ◆ Projects not covered by CDM can implemented through BOM.



# Price Differences of Credits



	price €/T	volume T	updated
<b>SPOT</b>			
EUA 08-12	11.96	515 000	11-07
CER	10.10	10 000	11-07
GREEN CER	10.15	115 000	11-07
ERU	10.00	0	11-07

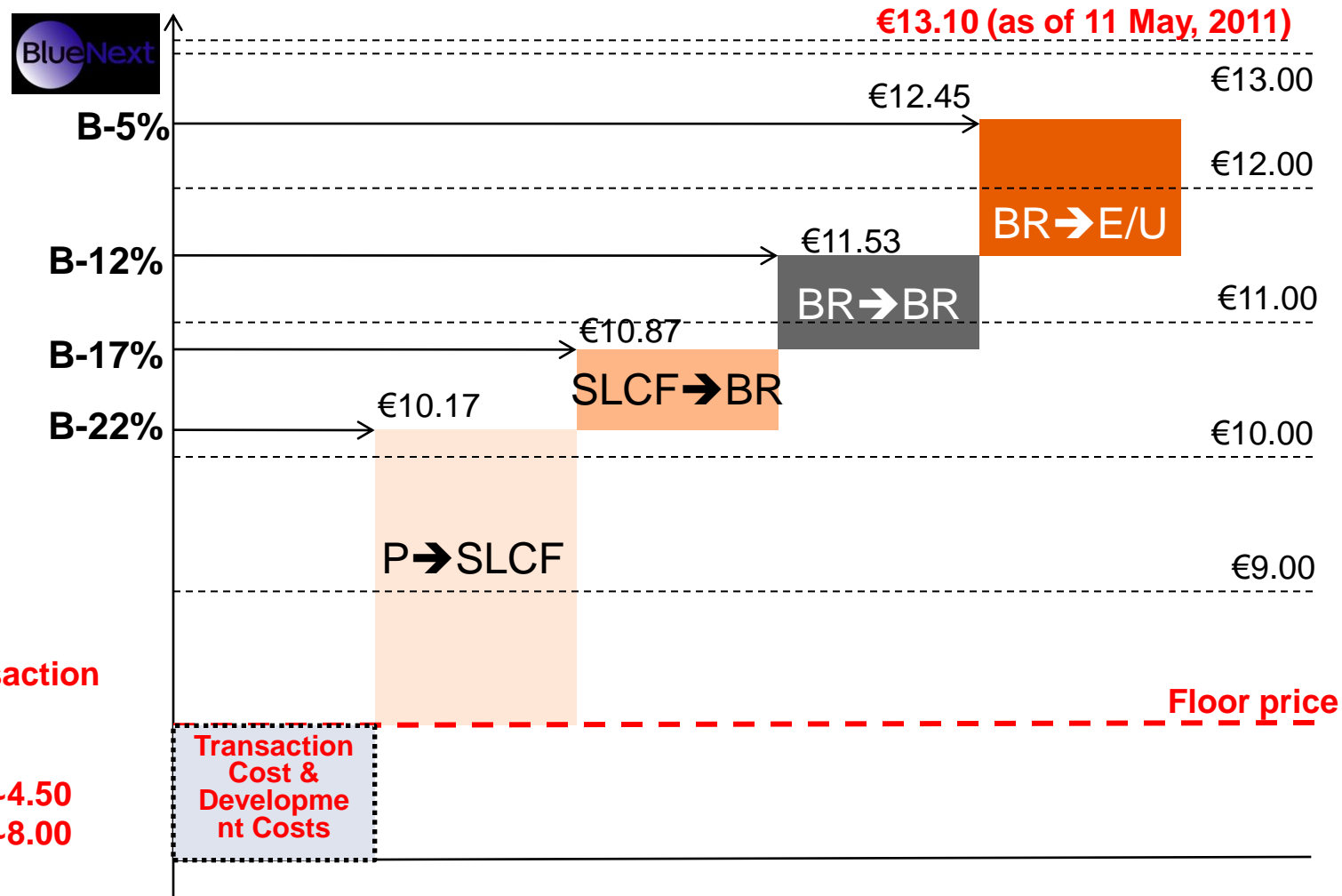
Source: <http://www.bluenext.eu/>

EU-ETS	Phase II (-2012)		Phase III (-2020)	
	EUA	sCER	EUA	sCER
Barclays	13.5-24	12-18	35	20
Deutsche B	25	n.a.	48	n.a.
Orbeo	18.8	15.9	30.1	n.a.

Source: World Bank 2010, Table 5 16



# Carbon Price Structure (Example)



**Floor Price**  
 Aimed to cover transaction costs when market collapsed.

**Floating:** EUR 3.00~4.50

**Fixed:** EUR 6.00~8.00

- Whereby transaction costs (validation, verification, registration costs) beared by project owner, the purchasing price are usually increase to compensate the expenses.
- All payments are pay-on-delivery basis, no advance payment envisaged.
- Detailed conditions are stipulated in ERPA.



# VER: Alternative Market?

- ◆ VER market does not go well due to lack of demand.
- ◆ Compliance buyers are not interested in VERs, because one cannot use it for fulfilling their reduction target.
- ◆ Demands are largely in USA, but VERs are generated within US boundary to fulfill CSR.

	Volume (M tCO <sub>2</sub> )	Value (US\$ Mil)	Price
pCER	211	2678	€8.95 \$12.69
JI	26	354	€9.60 \$13.62
Voluntary Market	46	338	€5.18 \$7.35

➔ VER price stick in lower range.

# CCX Daily Transactions



Updated 05/25/11

Trade Date	Vintage	Qty (contracts)	Price \$/mt	Type of Transaction	CFI Delivered	Country
05/18/11	2005	20	\$2.00	OTC	Forestry Offset	USA
05/16/11	2003	866	\$0.08	OTC	Allowance	
05/10/11	2008	50	\$1.50	OTC	Forestry Offset	USA
05/10/11	2008	28	\$1.50	OTC	Forestry Offset	USA
05/10/11	2008	11	\$1.50	OTC	Forestry Offset	USA
05/10/11	2007	6	\$1.50	OTC	Forestry Offset	USA
05/10/11	2006	6	\$1.50	OTC	Forestry Offset	USA
03/03/11	2003	358	\$0.05	OTC	Allowance	
03/03/11	2004	357	\$0.05	OTC	Allowance	
03/03/11	2005	358	\$0.05	OTC	Allowance	
03/03/11	2006	357	\$0.05	OTC	Allowance	
03/03/11	2008	1,770	\$0.05	OTC	Allowance	
03/03/11	2009	9	\$0.05	OTC	Allowance	
03/03/11	2010	555	\$0.05	OTC	Allowance	
02/14/11	2010	1	\$2.75	OTC	Organic Waste Disposal Methane Offset	USA
02/03/11	2007	200	\$0.10	OTC	Renewable Energy Offset	USA
02/01/11	2008	20	\$0.60	OTC	Renewable Energy Offset	Brazil
02/01/11	2008	9	\$0.80	OTC	Agricultural Methane Offsets	USA
01/18/11	2007	150	\$0.25	Platform	Landfill Methane Offset	USA



# Is Carbon Market Sustainable?

- **Global Clean Energy Investment Reached Record \$243 Billion in 2010**
- Global EV number 2009 684,000 units, 2020 3,750,000 units
- Lithium battery market
  - 2010 JPY 0.4 bil 2020 JPY 313 Bil
- Could carbon market outstrip these innovation?
- How could it be co-exist?