

The potential of regional policy approaches to global climate change mitigation

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CENSES Annual Meeting 10 December 2013



Structure of Presentation

- Policy Analysis in the Research Project Links
- The Status of Global Climate Policies 2013
- Comparing climate policies of China, the US and the EU
- EU 20-20-20 – a Best Practice for Regional Solutions?
- Regional Approaches to Global Climate Change Mitigation
- Conclusions



Policy Analysis in LinkS

Research Question: **How can a region** (group of countries) **contribute to a global strategy of sustainable development** (i.e. GHG mitigation) **in the energy sector** (region specific challenges, barriers and options are taken into account)?

- Climate-specific and -relevant energy efforts in the U.S., China and EU mapped
- Two important reference points
 - Kyoto protocol
 - EU-20-20-20

Status Global Climate Policies 2013

- **No central global political authority**
- Commitments have been made to the Kyoto Protocol (United Nations Framework Convention on Climate Change), but **implementation is in the hands of national governments**
- Unless international climate co-operation is made mandatory with binding targets, **regions will be the key stakeholders for GHG emission reductions**
- Could **interlinked regional approaches** represent an alternative to a global agreement?



Photo: renewable-energy-news.info; inhabitat.com; blog.foreignpolicy.com

Why Regions Matter: U.S. States Can Have Significant Impact

Top ten countries by CO₂ emissions (2006)

Country	Million Metric Tons CO ₂ (2006)
China	6,017.69
United States	5,902.75
Russia	1,704.36
India	1,293.17
Japan	1,246.76
Germany	857.60
Canada	614.33
United Kingdom	585.71
Korea, South	514.53

**Source: EPA, 2009

A comparison of CO₂ emissions among European Union Member States and US States (2006)

	Million Metric Tons CO ₂ (2006)
Maryland	77.46
Denmark	59.13
Norway	45.15

**Source: EPA, 2009

A comparison of CO₂ emissions among European Union Member States and US States (2006)

	Million Metric Tons CO ₂ (2006)
Germany	857.60
Texas	670.24
United Kingdom	585.71
Italy	468.19
France	417.75
California	397.19
Spain	372.62
Poland	303.42
Pennsylvania	271.05
Ohio	261.09
Netherlands	260.45
Florida	258.10
Turkey	235.70
Illinois	235.09
Indiana	231.64
Louisiana	197.98
New York	194.54
Georgia	181.34
Michigan	178.29

**Source: EPA, 2009

Why Regions Matter: Chinese Province Guangdong Carbon Market – World's 2nd Largest

China's Guangdong carbon market, world's second biggest, to start in December

BY KATHY CHEN AND STIAN REKLEV
BEIJING Wed Nov 27, 2013 11:53am IST

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(Reuters) - Guangdong, China's most populous province with more than 100 million people, is to launch a carbon permits market next month that will be the world's second biggest after the European Union.

China, the world's biggest emitter of greenhouse gases, has pledged to reduce its carbon dioxide emissions per unit of GDP by up to 45 percent by 2020. Shanghai launched a carbon market on Tuesday and Beijing follows on Thursday.

Comparing the climate policies of China, the United States and the European Union

What are the major differences between the EU, USA and China with respect to;

- a) The **anchorage of climate policy efforts**: From which policy level do the climate policy initiatives stem?
- b) The importance of **issue linkage**: To what extent are **climate policy** initiatives linked to other relevant policy fields - and in particular **energy policy**?



U.S. Anchorage of Global Climate Policies

- **The US has rejected the Kyoto protocol** as a policy instrument for mitigating emissions.
- The Bush administration it chose to focus on **voluntary emission reductions and technology initiatives** (WRI, 2007).
- President Obama committed the US (2009) to greenhouse gas emission reductions of 17% below 2005 levels by 2020. **No legislative action has been undertaken** to enforce or meet this commitment - several legislative initiatives have failed in Congress.
- The Obama administration has decided (2013) that the **Environmental Protection Agency (EPA)** will move forward in regulating greenhouse gas reductions through the Clean Air Act
- While federal policy has languished **US states have moved forward...** The US states have significant potentials in formulating climate and energy policy.

China's Anchorage of Global Climate Policies

- China has quantified targets for climate change mitigation, and will:
 - endeavor to lower its carbon dioxide emissions per unit of GDP by 40-45% by 2020 compared to the 2005 level;
 - increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020;
 - increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels;

Since China is a developing country, these mitigation actions are voluntary in nature and will be implemented in accordance with the principles and provisions of the UNFCCC (Article 4, para 7)

EU's Anchorage of Global Climate Policies

- EU has played an important role for global climate development, in particular in the UNFCCC
 - EU has committed to 20% reduction of GHG emission compared to 1990 levels, according to the EU 20-20-20- targets (including energy efficiency and share renewable), under the Kyoto Protocol
- EU has made a conditional offer (dated 2009) to move to a 30% reduction provided that other developed countries commit themselves to comparable emissions and reductions
- EU targets are set at the supra-national level and the implementation is in the hands of the Member States
- However, a "burden sharing" agreement between EU-15 (Kyoto joint fulfilment), according to each Member State's relative wealth, was adopted in 2002 in order to collectively reach a reduction of 8% in the period 2008-2012

Legally binding target for GHG emission reduction for 2008-2012 (change from base year)	
EU-15	-8%
Austria	-13%
Belgium	-7.5%
Denmark	-21%
Finland	0%
France	0%
Germany	-21%
Greece	+25%
Ireland	+13%
Italy	-6.5%
Luxembourg	-28%
Netherlands	-6%
Portugal	+27%
Spain	+15%
Sweden	+4%
United Kingdom	-12.5%

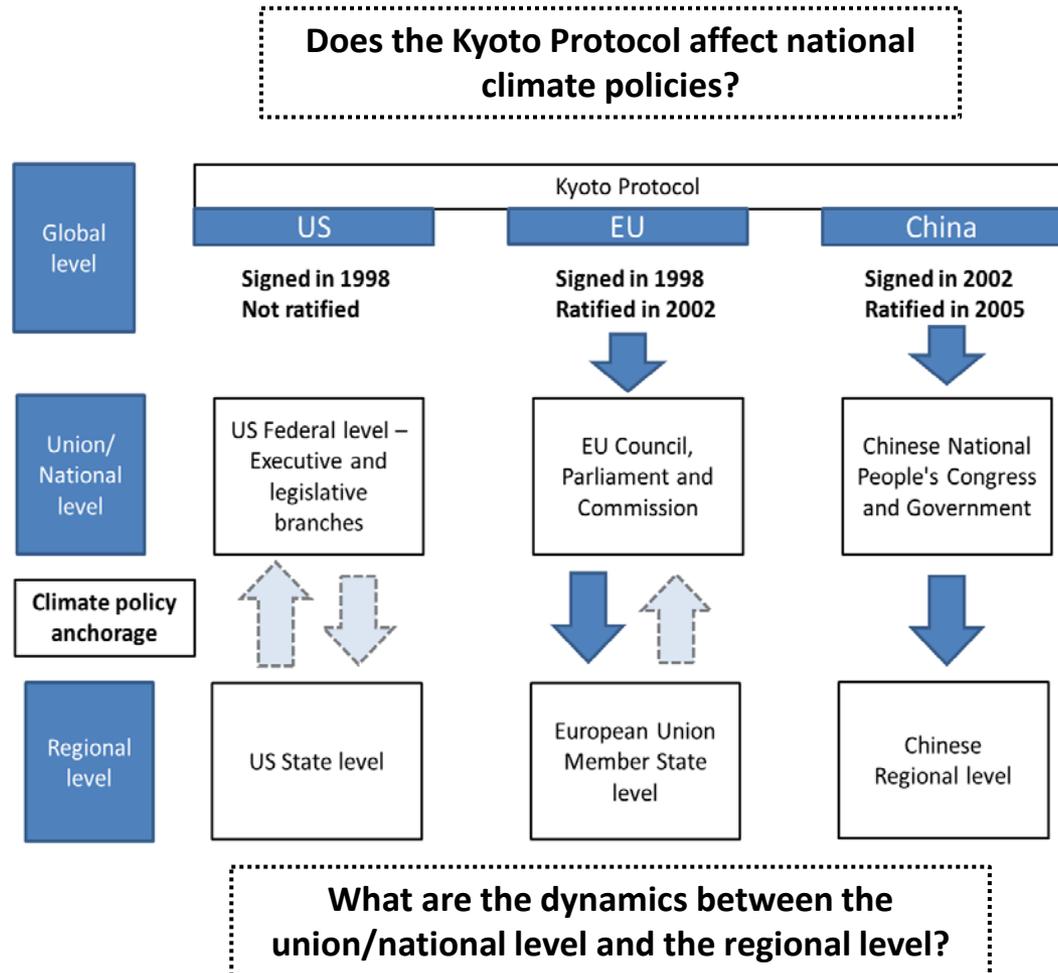
[Source: ec.europa.eu/clima/policies/gas/kyoto/index_en.htm](http://ec.europa.eu/clima/policies/gas/kyoto/index_en.htm)

Summary Climate Policy Anchorage

EU two way interaction, but with a more prominent top-down focus; targets set at the EU level. **The only case with binding commitment from global level to binding target in the region.**

China mainly top-down, US loosely coupled two-way interaction

However: Top-down or bottom-up patterns are not mutually exclusive



Issue Linkage Climate and Energy in the US

Three agendas:

- Improving U.S. **energy security** through cheap, reliable energy supply
- Scheduled reduction of GHG emissions (addressing **climate change**)
- Maintaining **competitiveness** of domestic industry

However,

- Energy security and industrial competitiveness concerns overshadow emission reductions
- "Asymmetric distribution of climate regulations worldwide"

Examples of policy instruments

- Tax incentives such as renewable production tax credit
- Legislation with provision to invest in clean energy R&D
- Environmental Protection Agency (EPA) – 25th of June 2013 – Obama will further develop the EPA mandate to create pollution standards for both new and existing power plants

'We Need to Act': Transcript of Obama's Climate Change Speech



U.S. President Barack Obama speaks as he unveils his plan on climate change, June 25, 2013 at Georgetown University in Washington, D.C. Photographer: Alex Wong/Getty Images

Issue Linkage Climate and Energy in China

- Energy policy so far focused on **energy conservation**, mainly **energy security concerns**, but also **climate change**
- Integrated with industry and economic development through the Five Year Plan
 - 11th Five Year Plan first time quantitative targets of energy saving (- 20% in energy intensity)
 - 12th Five Year Plan – energy intensity isolated from energy saving
- Examples of policy instruments to reach targets
 - Decomposition of energy-saving goals by regions
 - Elimination of backward production capacity
 - Implementation of major energy saving actions
 - Energy Conservation Law of China



Issue Linkage Climate and Energy in EU

- **Climate** and **Energy** policies since early 1990's, (including **energy security**)
 - EU's 20-20-20 targets for 2020 – 20% reduction in **GHG** emissions, 20% share **renewables** in final energy consumption, 20% increased **energy efficiency**
 - However large degree of freedom for national implementation
-
- Important policy instruments (both EU and national)
 - Emission Trading System
 - Feed-in tariff Germany versus Green Certificate market Norway-Sweden
 - Funding or research and development – both EU and Member state level (SET Plan, Horizon, Intelligent Europe)
 - EU legislation on energy efficiency

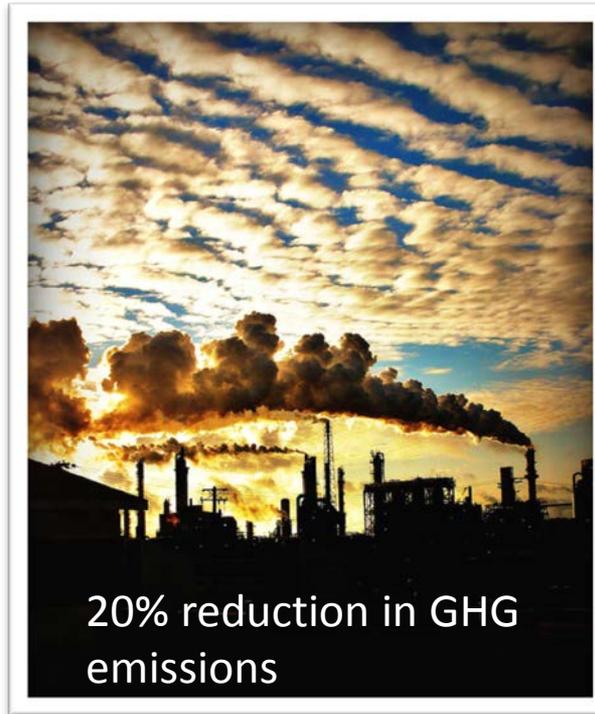


EU 20–20–20 – a Best Practice for Regional Solutions?

20%
increased
energy
efficiency



20% share renewables in
final energy consumption



EU 20-20-20 has its strengths and weaknesses – however to spread the strategy to a global scenario is a interesting hypothesis – and so we did in an integrated assessment model (GCAM) and policy analysis

Climate Policy Anchorage

EU has transformed global climate commitment into binding commitments for the Member States

Issue Linkage Climate and Energy

EU has had interwoven climate and energy policies since the early 1990's

No such thing as a Best Practice Policy: Success dependent of policy terrain and political context.

(Wiener, 1999) (Bemelmans-Vidéc, Rist & Vedung, 1998)

Does a 20-20-20 Strategy Fit the Policy Framework and Political Contexts in China and the US?

China

- **Issue Linkage Climate and Energy**

- already has climate-relevant policies, especially connected to energy efficiency
- 5 year system allows for policy packages → National level package possible

- **Climate Policy Anchorage**

Top-down system allows for target co-ordination, so if national level settle on a 20-20-20 strategy – implementation will be possible on a local level

US

- **Issue Linkage Climate and Energy**

- already has climate-relevant policies, not least at the state level

- **Climate Policy Anchorage**

- Possible climate policy changes on a national level following the recent statement from Pres. Obama on the use of Environmental Protection Agency
- Regional cap-and-trade schemes → Federal level package less likely

The Potential of Regional Policy Approaches to Global Climate Change Mitigation

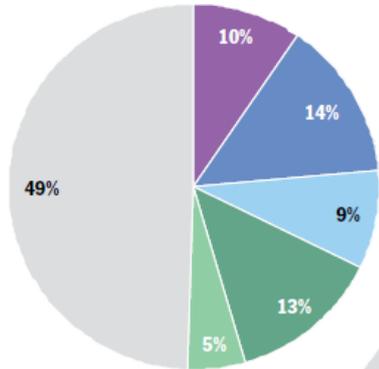
Transferability of EU 20-20-20 measures / to regions	EU	China	USA	Regionalized global model
CO2 emissions	good	moderate	moderate	low
Renewable energy	good	good	good	moderate
Energy efficiency	moderate	good	moderate	moderate
'EU package'	high	good	low	low

Elements in the EU-20-20-20 that can be transferred to the political contexts of China and US are found.

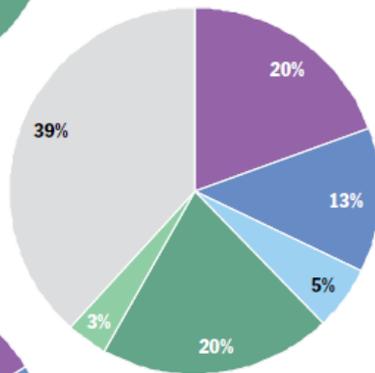
- Particularly the policy measures for renewable energy and energy efficiency might be anchored at a national/federal level
- "EU policy package" more likely in China than in US
- Policies directly targeted at greenhouse gas emissions, like the EU Emission Trading System (ETS), seem to be less transferable – both US and China have nascent systems

U.S. Regional Cap-and-Trade Programs – Likely to Remain Regional

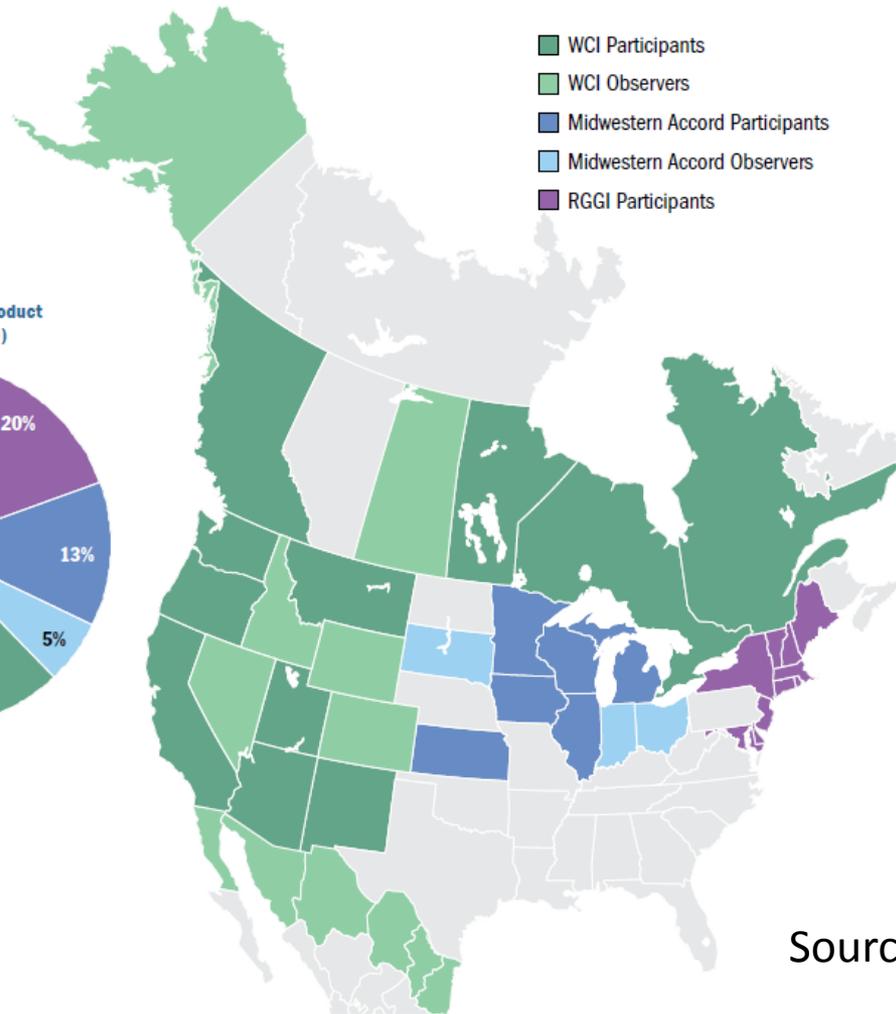
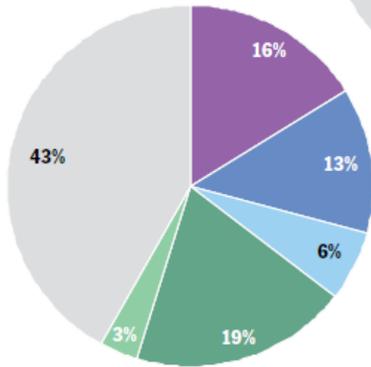
U.S. GHG Emissions in 2007
(excludes land use change)



U.S. Gross Domestic Product in 2007 (\$US 2000)



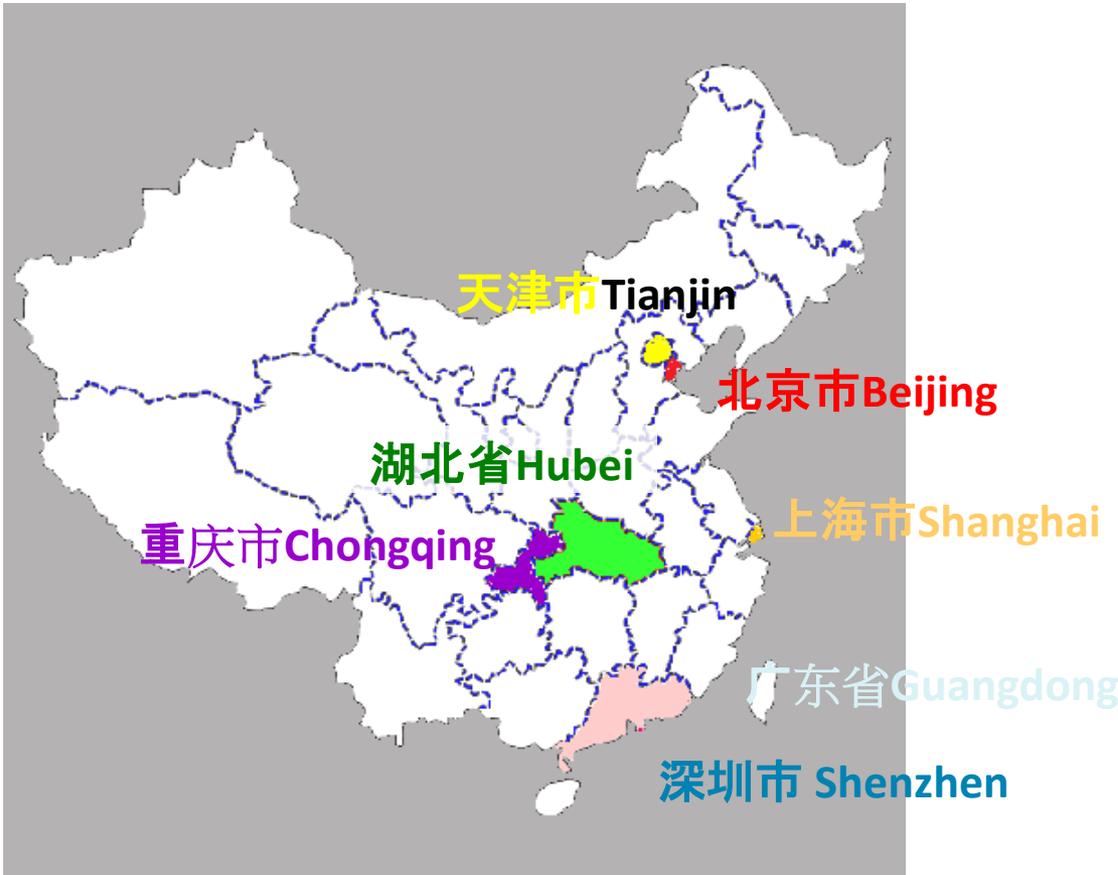
U.S. Population in 2007



Source: (WRI, 2011)

Chinese Regional Cap-and-Trade Programs – Leading Up to a National ETS

2013 – 2015: Formal regional ETS
2016: National ETS



Regions chosen on the basis of:

A) Level of economic development

- Relatively development
- Strong economic power
- Large carbon emission volume

B) Potential market volume

- Large cap
- Many market players
- Trading volume

Summary and Conclusions

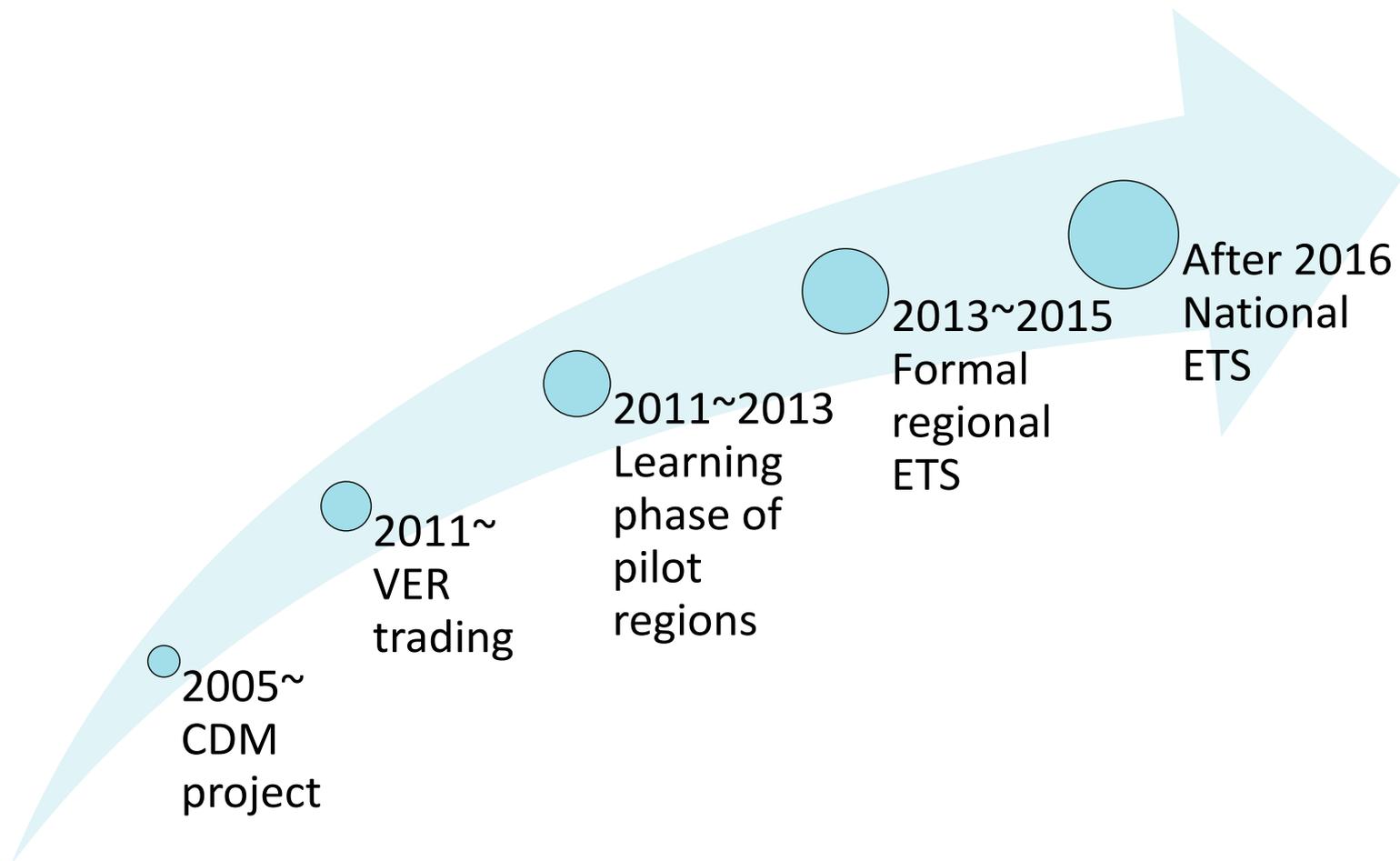
- Regional approaches are decisive in global climate change mitigation as long as there is no global authority and only voluntary implementation of committed emission reduction targets
- The different regional policy patterns, e.g. related to issue linkage and policy anchorage, advocates different regional approaches and measures, and an eventual transfer of climate mitigation policies from one region to others is not straight forward – ref. EU-20-20-20 to a global scale
- A stronger regional anchoring could induce a stronger regional engagement and eventually less requirements for overall, global coordination
- In order to get a "regional model" to work – it is important to further explore and define formalized framework for inter-regional cooperation
- Could build on existing regional political and industrial initiatives



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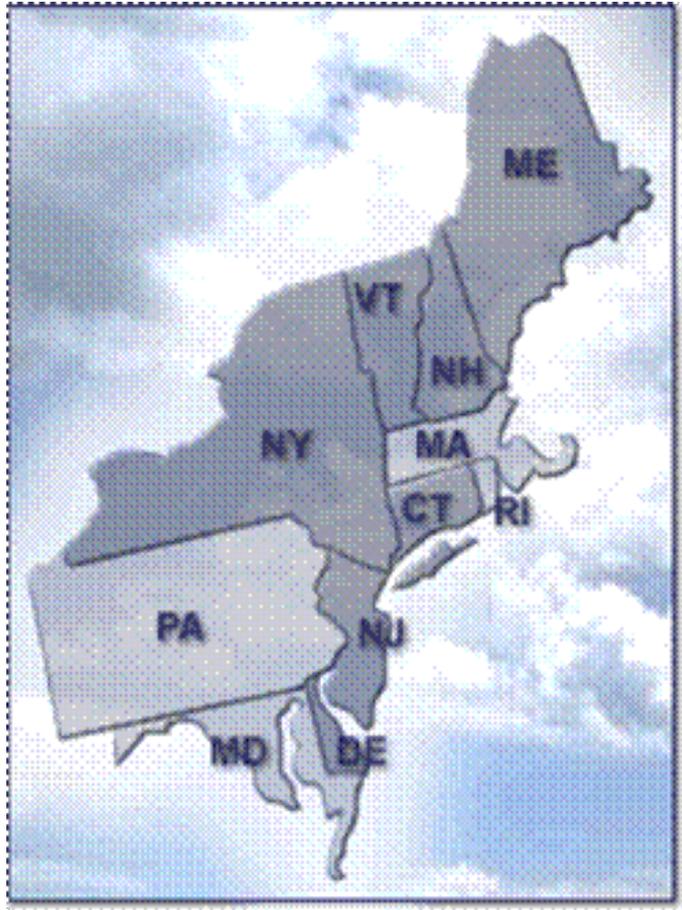
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Chinese ETS example: Overall roadmap of China's ETS



Overall roadmap of China's ETS

U.S. ETS example: Regional Greenhouse Gas Initiative



- “First market-based regulatory program in the United States to reduce greenhouse gas emissions.”
- “Ten Northeastern and Mid-Atlantic states have capped and will reduce CO2 emissions from the power sector 10 percent by 2018.”
- “States sell nearly all emission allowances through auctions and invest proceeds in consumer benefits: energy efficiency, renewable energy, and other clean energy technologies.”
- Auctions proceeds > \$860.9 million
- UMD project to help the State of Maryland evaluate joining RGGI

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