

International Climate Change Policy – From Copenhagen to Cancún, & Beyond

Robert N. Stavins

Albert Pratt Professor of Business and Government, Harvard Kennedy School

Director, Harvard Environmental Economics Program

Director, Harvard Project on International Climate Agreements

The Global Climate Policy Challenge

- Kyoto Protocol came into force in February 2005, with first commitment period, 2008-2012
- Even if the United States had participated, the Protocol's direct effects on climate change would be very small to non-existent
- Science and economics point to need for a credible *international* approach
- Climate change is a classic global commons problem — so it calls for international (although not necessarily global) cooperation

Can the Kyoto Protocol Provide the Way Forward?

- The Kyoto Protocol has been criticized because:
 - The costs are much greater than need be, due to exclusion of most countries, including key emerging economies – China, India, Brazil, Korea, South Africa, Mexico (conservative estimate: costs are four times cost-effective level)
 - The Protocol will generate *trivial* climate benefits, and *fails* to provide any long-term solution
 - Short-term targets are excessively ambitious for some countries
 - So, the Kyoto Protocol is “*too little, too fast*”
- Whether the Kyoto Protocol was a good first step or a bad first step, a next step is needed

Searching for the Path Forward for Post-2012

The Harvard Project on International Climate Agreements

Mission: To help identify key design elements of a scientifically sound, economically rational, and politically pragmatic post-2012 international policy architecture for global climate change

Drawing upon research & ideas from leading thinkers around the world from:

- Academia (economics, political science, law, international relations)
- Private industry
- NGOs
- Governments

Please see Aldy, Joseph E., and Robert N. Stavins. *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. Cambridge University Press, 2007.

ISBN: 9780521692175.

Developing Insights for Post-2012 Climate Regime

35 research initiatives in Europe, United States, China, India, Japan, & Australia

Outreach with governments, NGOs, and business leaders throughout the world

Summary for Policymakers (2009) builds upon lessons emerging from research initiatives

Complete book with 30 chapters on principles, architectures, and design elements published by Cambridge University Press, January 2010

Please see Aldy, Joseph E., and Robert N. Stavins. *Post-Kyoto International Climate Policy: Summary for Policymakers*. Cambridge University Press, 2009. ISBN: 9780521138000.

Potential Global Climate Policy Architectures

- Targets & Timetables (as in Kyoto Protocol)
 - *Formulas for National Emission Targets*
- Harmonized National Policies
- Independent National Policies
 - *Portfolio of Domestic Commitments*
 - *Linkage of National & Regional Tradable Permit Systems*

Formulas for National Emission Targets

Core: Key principles lead to design of targets

- Formula used to set national emission caps to 2100 using three key elements
- *Progressivity factor*: richer countries make more severe cuts
- *Latecomer factor*: nations that did not achieve targets under Kyoto make gradual emission cuts to account for post 1990 emissions
- *Equalization factor*: moves targets of all countries in direction of global average per capita emissions

Formulas assign quantitative emission caps to countries to 2100

- Developing countries are not asked to bear any cost in early years
- Developing countries are not asked to make any sacrifice different from sacrifices of developed countries, accounting for differences in income
- No countries have targets costing more than 1% of GDP

Please see:

Frankel, Jeffrey. "An Elaborated Proposal for Global Climate Policy Architecture: Specific Formulas and Emission Targets for All Countries in All Decades." Discussion Paper 08-08, Harvard Project on International Climate Agreements, October 2008.

Every country contributes no more than its fair share

Portfolio of Domestic Commitments

Each participating nation registers to abide by its domestic climate commitments

- Australia, EU, China, India, Japan, New Zealand, and U.S. announced domestic commitments or plans *prior to Copenhagen* (December 2009)

Also known as “pledge & review” or “schedules”

Support

prior to Copenhagen from a diverse set of countries,
including Australia, India, and the United States

But can this bring about sufficient stringency?

- *No*

Can it be an effective bridge to further steps?

- *Yes*

Please see Stavins, Robert N. "A Portfolio of Domestic Commitments: Implementing Common but Differentiated Responsibilities." Policy Brief, Harvard Project on International Climate Agreements, October 19, 2009.

Linkage of National & Regional Tradable Permit Systems

Cap-and-trade systems are preferred approach in many countries and regions

- Linking these cap and trade systems reduces overall costs, market power, and price volatility
- But linking causes automatic propagation of cost containment design elements: banking, borrowing, and safety valve
- Therefore, advance harmonization required

The Emerging International Regime

- If cap and trade systems link with common emission reduction credit system, such as CDM, the cap and trade systems are indirectly linked
- All the benefits of linking are achieved – cost savings, etc.
- But propagation of design elements across systems greatly diminished
- May be evolving as part of *de facto* post Kyoto architecture

Please see

Jaffe, Judson, and Robert N. Stavins.

"Linkage of Tradable Permit Systems
in International Climate Policy Architecture."

Discussion Paper 08-07, Harvard Project
on International Climate Agreements, September 2008.

Placing COP 15 – Copenhagen – in Perspective

- Cliché about American baseball season applies to international climate change policy: it's a marathon, not a sprint
 - Scientifically: stock, not flow environmental problem
 - Economically: cost-effective path is gradual ramp-up in target severity (to avoid unnecessary capital-stock obsolescence)
 - Economically: technological change is key, hence longterm price signals
 - Administratively: creation of durable international institutions is essential
- International climate negotiations will be an ongoing process – much like trade talks – not a single task with a clear end-point.
- Bottom-Line: sensible goal for Copenhagen was progress on sound foundation for meaningful long-term action, not some notion of immediate “success”

What actually happened in Copenhagen?

- Organizational failure (47,000 advance credentials – capacity of 15,000)
- Lack of consensus
- But last-minute, direct negotiations among key national leaders
 - Leaders of Brazil, China, India, South Africa, and the United States
 - Virtually unprecedented in international negotiations
 - Saved COP-15 from complete collapse
 - Produced a significant political framework, the Copenhagen Accord
- Accord departs from Kyoto Protocol in two important ways:
 - (1) expands coalition of meaningful commitments to include all major emitters
 - (2) extends time-frame of action

The Copenhagen Accord

- The “good news”
 - Provides for real cuts in greenhouse gas emissions by all major emitters
 - Establishes a transparent framework for evaluating countries’ performance against their commitments
 - Initiates a flow of resources to help poor, vulnerable nations carry out both mitigation and adaptation
 - Submissions received from 140+ parties, which account for >80% of 2006 global emissions

- The “bad news”
 - Not on track for 450 ppm (2° C)
 - Annex I/non-Annex I distinction remains, in words (but blurred in action)
 - Future of UNFCCC threatened (?)

Another Outcome of Copenhagen: Thinking About Institutions for Climate Governance

- Copenhagen illustrated concerns with process under United Nations (Framework Convention on Climate Change – UNFCCC)
 - Size: 194 countries, when 20 account for about 80% of global emissions
 - UN culture & process seems to polarize debate: developed vs developing world
 - UNFCCC *de facto* voting rule: unanimity required

Lack of consensus behind Copenhagen Accord due to objections of 6 of 194 countries (*none* major emitters)

Alternative Institutions for Climate Governance

- Major Economies Forum – 80% of global emissions; initiated & led by U.S.
 - Australia, Brazil, Canada, China, *European Union*, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, United Kingdom, and United States
- G20 – finance ministers; since 1999; have met on climate change
 - Countries of Major Economies Forum plus Argentina, Saudi Arabia, Turkey
- Other multilateral (C30); bilateral, including China-U.S.
- Other venues for specific aspects – example: World Bank & finance
- UNFCCC – too soon for obituaries
 - Kyoto Protocol continues through 2012
 - International legitimacy, and substantial constituency
- In the meantime, U.S. (& Chinese) domestic policy action is critical

Major Options for Climate Policy in the United States

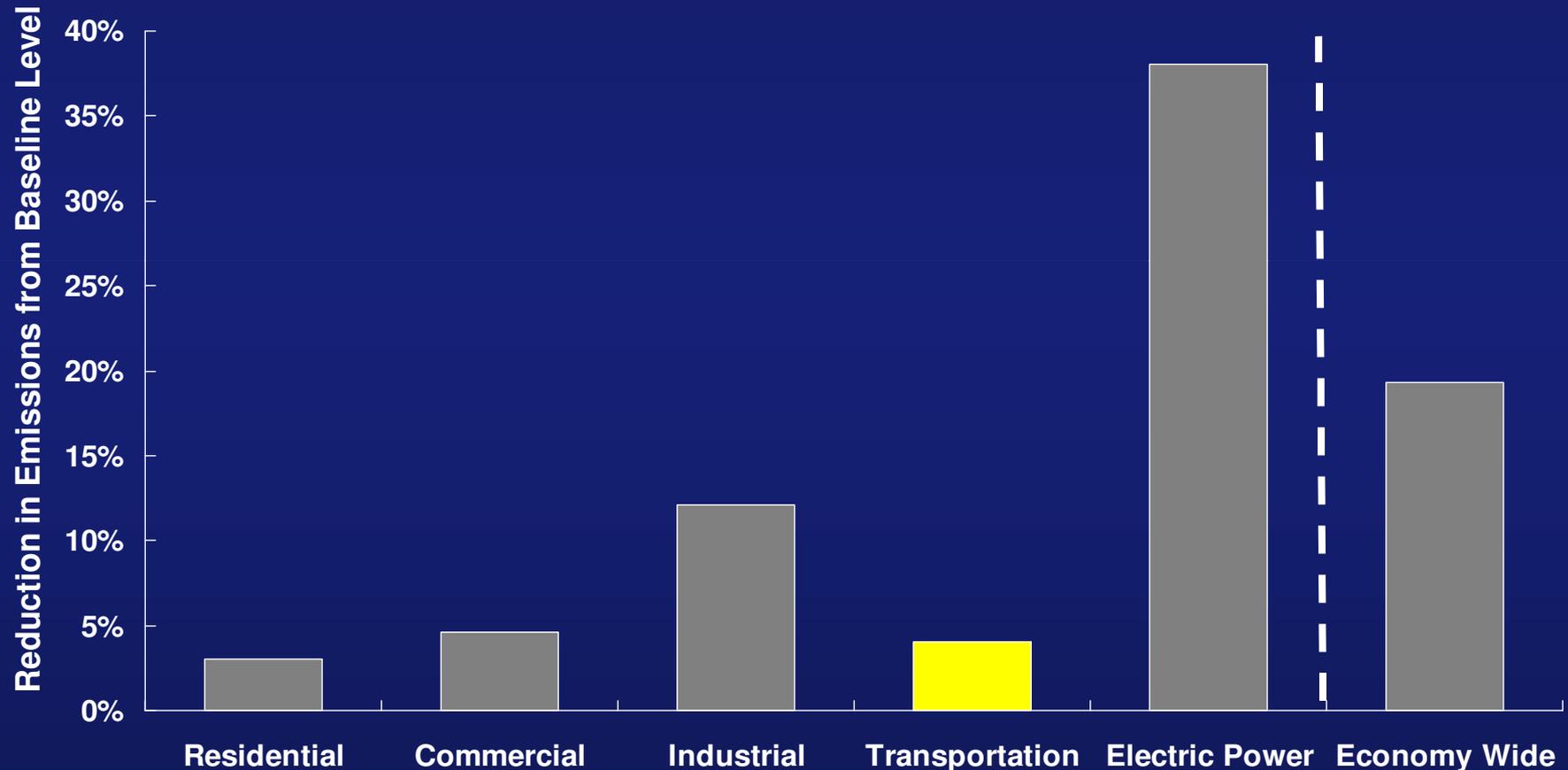
- **Federal Policy**
 - Pricing Instruments
 - Cap-and-Trade
 - Carbon Taxes
 - Other Instruments
 - Regulation Under the Clean Air Act
 - Energy Policies Not Targeted Exclusively at Climate Change
 - Public Nuisance Litigation
 - NIMBY and Other Interventions to Block Permits
- **Sub-National Policy**
 - Regional, State, & Local Policies
 - National Linkage of Sub-National Policies

National Carbon-Pricing Policy

- **Most economists & other policy analysts favor this approach. Why?**
 1. No other feasible approach can provide truly meaningful emissions reductions (such as an 80% cut in national CO₂ emissions by 2050)
 2. It's the least costly approach in short term (heterogeneous abatement costs)
 3. It's the least costly approach in the long term (incentive for carbon-friendly technological change)
 4. It's a necessary – but not sufficient – component of sensible climate policy
- **But, carbon-pricing is a hot-button political issue**
 - It makes the costs transparent (unlike conventional policy instruments), and is easily associated with the T-word; indeed, in Washington, cap-and-trade has been *demonized* as “cap-and-tax”
 - A meaningful, national, economy-wide carbon-pricing policy is unlikely to be enacted before 2013
- **Does that mean there will be no Federal climate policy? *No.***

Cost-Effective Economy-Wide Climate Policy Achieves Very Different Reductions from Different Sectors

Percent Reduction in CO₂ Emissions by Sector in 2030 Under an Economy Wide Emissions Cap Yielding a \$35/ton Allowance Price in 2030 (EIA)



Anticipated Economic Impacts of U.S. Climate Policy

- **Cumulative cost, 2012-2030** – 0.3% to 0.9% of GDP
- **Oil market** impacts relatively small
 - Essentially a **tax on coal**: coal price increases **280%** relative to BAU (2030)
 - Coal → natural gas, then nuclear & renewables for electricity generation
 - Impact on gasoline price**: increase of **9%** (35¢/gal) relative to BAU (2030)
 - Gasoline demand**: 5% fall below BAU by 2030
 - **Electricity sector** accounts for **80%-90%** of emissions reductions
 - Impacts on transportation sector & oil/heating relatively small (cost-effective)
 - **Oil imports**: **9% decrease** below BAU by 2030
- But *much more costly* if other *non-carbon-pricing options* are pursued

Other Federal Regulations in Place or On the Way

- **U.S. Supreme Court decision, EPA endangerment finding, & CAA**
 - Mobile source standards
 - Stationary sources (January 2, 2011, with or without “tailoring rule”)
- **Air pollution policies for correlated pollutants under CAA**
 - Five rules in the regulatory pipeline – SO_x, NO_x, Hg, & PM
 - Could shut some coal plants (w/o any CO₂ requirements)
- **Energy Policies** (variety of standards & subsidies, not targeted at CO₂)
 - National renewable electricity standard
 - Federal financing for “clean energy” projects
 - Energy efficiency measures

Other Legal Mechanisms

- **Public Nuisance Litigation**
 - Lawsuits pursuing injunctive relief and/or damages
 - In flux – recent court decisions
- **Other Interventions**
 - Intended to block permits for new fossil energy investments
 - Power plants
 - Transmission lines
 - Some NIMBY, some strategic
- **But, with delay in Congressional action on carbon-pricing, attention is increasingly turning to the states ...**

Sub-National Climate Policies

- Regional, state, & local policies continue to emerge
 - Regional Greenhouse Gas Initiative (RGGI)
 - California's Global Warming Solutions Act (AB 32)
 - Western Climate Initiative
 - In fact, more than half of 50 states are contemplating, developing, or implementing climate policies
- In presence of Federal policy,
 - Will state efforts achieve their objectives?
 - Will state efforts be cost-effective?
 - Answer: interactions can be *problematic, benign, or positive, ...*
 - *depending* on relative scope and stringency, and policy instruments used (Goulder & Stavins, NBER Working Paper 16123, June 2010)

U.S. Political Timing: A Challenge for the International Process

- Recession (and unemployment)
- Other domestic policy priorities: economic stimulus, health care, financial regulation, and the Gulf oil spill
- Public perceptions
- Congressional deliberation, difficult politics, and challenging numbers
- U.S. mid-term elections (November, 2010) work *against* bipartisanship, and make it more difficult to vote to raise energy prices
- So, COP-16 in Cancún in December will surely be *more enjoyable* than COP-15 in Copenhagen, but can it be *more productive*?

➤ Yes

Defining Success at COP-16

1. *Embrace* parallel processes – MEF, G20, C30 – as input to UNFCCC process
2. *Consolidate* 3 tracks – KP, LCA, & CA – to 2 tracks (or even 1 track!)
 - KP – build on key elements, including “common but differentiated responsibilities,” but move beyond simplistic Annex I/non-Annex I distinction
 - Develop better methods for comparing targets and actions
 - Move forward with financing plans in CA
3. *Focus* on productive steps within *specific narrow* agreements, such as REDD
4. *Develop* sensible *expectations* and effective *plans*
 - Negotiations are an *ongoing* process, not a single task with a clear end-point
 - The most *sensible goal* for Cancún is *not* some notion of immediate triumph, but *progress* on sound foundation for meaningful *long-term* action.

For More Information

Harvard Project on International Climate Agreements

www.belfercenter.org/climate

Harvard Environmental Economics Program

www.hks.harvard.edu/m-rcbg/heap/

www.stavins.com

MIT OpenCourseWare
<http://ocw.mit.edu>

22.081J / 2.650J / 10.291J / 1.818J / 2.65J / 10.391J / 11.371J / 22.811J / ESD.166J
Introduction to Sustainable Energy
Fall 2010

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