

Alternatives to Quantity-Based Climate Policy

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Price Carbon

Roadmap to Global Cooperation

1. Avoid **cap-or-tax** fight
2. Avoid problems of **Kyoto and Copenhagen**
3. Replace **cap & trade** game with **pricing + green fund**
4. How **price commitment** works
5. **Cheap & effective**
6. **Oil security, China and climate**

INTERNATIONAL AGREEMENT

Pricing Is Not Taxing

□ Under Global Carbon Pricing

- Every country could use cap and trade
- With **no carbon taxes anywhere** !!
- Or countries can use any mix of cap, tax & feebate they want.

International commitment ≠ National policy

What Do We Want in a Commitment?

1. Make cooperation easy
2. An easy path to stronger commitments

COPENHAGEN

APPENDIX I: QUANTIFIED ECONOMY-WIDE EMISSIONS TARGETS FOR 2020

DEVELOPED COUNTRY	<i>Quantified economy-wide emissions targets for 2020</i>	
	Emissions reduction in 2020	Base year

APPENDIX II: NATIONALLY APPROPRIATE MITIGATION ACTIONS OF DEVELOPING COUNTRY PARTIES

DEVELOPING COUNTRY	<i>Actions</i>

Rich-Poor Polarization

- Developing countries agree to business-as-usual or worse
- Developed countries agree to significant cuts (and demand same from developing countries)

The Problems: Perverse Incentives

1. Caps are **risky** and **unfair**
2. Poor countries paid **not to commit**
(with CDM projects)
3. There is **no enforcement**
4. Polarizing incentives
5. 100 unique commitments

Global Carbon Pricing with Green Fund

1. Countries vote (name a P_i) for global price
2. P^T = the **lowest** price named
3. Countries pay $G \times$ (above average emissions)
Countries receive $G \times$ (below avg emissions)
4. $G = 0.036 \times P^T$
($G = \$1.10/\text{ton}$ if $P^T = \$30/\text{ton}$)

So what P^T will countries vote for?

Three Country Example

Country	e	Voted P	P^*	Benefit	Cost	G.F.
	Ton/cap	\$/ton	\$/ton	\$/capita/year		
U.S.	18	\$26	\$26	\$28	-\$12	-\$4
China	5	\$30	\$26	\$31	-\$14	\$0
India	1.1	\$26	\$26	\$6	-\$2	\$4

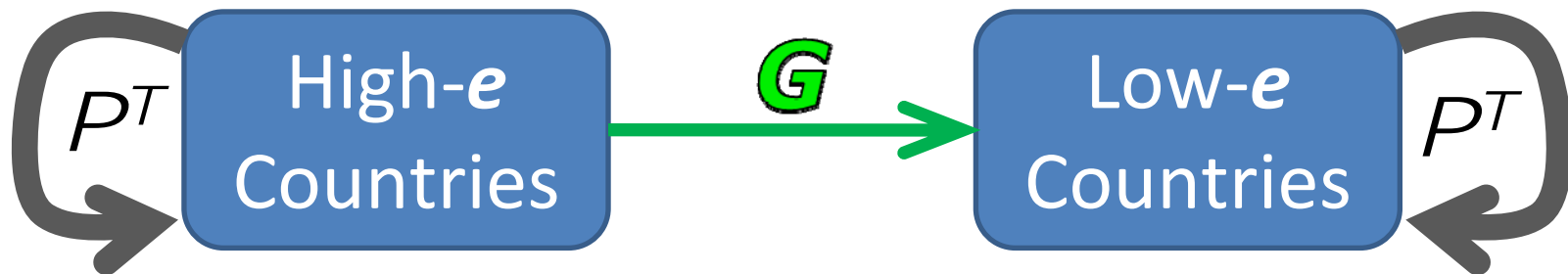
□ \$26 is very close to optimal (\$30)

□ Poorest countries gain even without climate benefits!

Pricing Overview

Two global parameters

- Global carbon price target = P^T ~ \$30/ton
- Global Green-Fund price = G ~ \$2/ton
(Clean Development Incentive, CDI)



e = the country's emissions / person

Rule #1: National Policy Flexibility

- ❑ Every country could *use cap and trade*,
- ❑ But carbon taxes or a mix are fine

Rule #2: Carbon Price Flexibility

❑ What if you don't meet the global **price target**?

What if you exceed it?

- Buy/Sell **carbon-revenue credits**
- from another country, through a central “market”

Target revenue: $R^* = Emissions \times P^T$

The country must pay $Z \times (R^* - R)$, where $Z \approx 10\%$

#3: Hitting the Carbon Price Target

- Higher $Z \rightarrow$ Higher global carbon revenues
- Global Average Price =
(total revenues) / (total emissions)

- Adjust Z annually

to make Global Average Price = P^T
(the price target)

#4: Green Fund Payments (example)

- ❑ World average emissions, $\text{avg}(e) \approx 5$ tons/capita/year
- ❑ Consider a country with $e = 10$ tons/capita/yr
- ❑ Assume $G = \$2/\text{ton}$

- ❑ The country pays $(e - \text{avg}(e)) \times G$

$$(10 - 5) \times \$2 = \$10/\text{capita}/\text{yr}$$

- ❑ A country emitting 1 ton/cap/yr would receive $-(1 - 5) \times \$2 = \$8/\text{capita}/\text{yr}$

Why Price Carbon?

CHEAP AND EFFECTIVE

U.S. EPA: Carbon Pricing Is Cheap

Abatement Cost = $\frac{1}{2}$ × Price × Abatement

- ❑ The $\frac{1}{2}$ is because sensible abatements cost between \$0 and the price of carbon
- ❑ For several reasons this is likely too high

Example: $P^T = \$30/t$, $G = \$2/t$

	Starting Emissions per Capita	Abatement Costs	Green Fund Cost	Total Cost
	(tons/year)	(cents / person / day)		
India	1	0.8 ¢	- 1.7 ¢	- 0.9 ¢
Average Country	5	4.1 ¢	0.0 ¢	4.1 ¢
United States	20	16.4 ¢	6.6 ¢	23.0 ¢

Assumes **emissions reduced by 20%** from values shown.
China is close to average.

Conclusion

1. Carbon Pricing is *designed* for cooperation
2. It does not cap India and China
3. One price target, not 100 caps
4. No offset payments to *not* cooperate
5. Green Fund rewards (1) setting a high target, and (2) meeting that target

Conclusion

6. It's easier to comply with
(Anyone can tax gasoline)
7. It's easier to enforce
(Checkups at end of every year)
8. Oil savings brings immediate benefits
(Not distant and uncertain benefits)