

Intensity-based GHG Regulation

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IETA-IEA-EPRI Emissions Trading Workshop

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Example of Intensity Framing

S7090

CONGRESSIONAL RECORD — SENATE

June 22, 2005

SA 867. Mr. BINGAMAN submitted an amendment intended to be proposed by him to the bill H.R. 6, to ensure jobs for our future with secure, affordable, and reliable energy; which was ordered to lie on the table; as follows:

On page 437, after line 22, add the following:

SEC. 7. IMPACTS OF USE OF SPECIAL FUEL FORMULATIONS.

In determining whether to approve an application by a State for the use of a new gasoline blend or other fuel formulation under the Clean Air Act (42 U.S.C. 7401 et seq.), the Administrator of the Environmental Protection Agency, in consultation with the Secretary, shall take into consideration impacts that the use of the blend or formulation would have on the supply, demand, and pricing of gasoline and other fuels.

SA 868. Mr. BINGAMAN submitted an amendment intended to be proposed by him to the bill H.R. 6, to ensure jobs for our future with secure, affordable, and reliable energy; which was ordered to lie on the table; as follows:

At the end of the bill, add the following:

TITLE XV—ACTIONS TO ADDRESS GLOBAL CLIMATE

SEC. 1501. SHORT TITLE.

This title may be cited as the “Climate and Economy Insurance Act of 2005”.

Subtitle A. Domestic Programs

(B) the forecasted GDP for that calendar year.

(5) FORECASTED GDP.—The term “forecasted GDP” means the predicted amount of the gross domestic product of the United States, based on the most current projection used by the Energy Information Administration of the Department of Energy on the date on which the prediction is made.

(6) GREENHOUSE GAS.—The term “greenhouse gas” means—

- (A) carbon dioxide;
- (B) methane;
- (C) nitrous oxide;
- (D) hydrofluorocarbons;
- (E) perfluorocarbons; and
- (F) sulfur hexafluoride.

(7) INITIAL ALLOCATION PERIOD.—The term “initial allocation period” means the period beginning January 1, 2010, and ending December 31, 2019.

(8) NONFUEL REGULATED ENTITY.—The term “nonfuel regulated entity” means—

(A) the owner or operator of a facility that manufactures hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, or nitrous oxide;

(B) an importer of hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, or nitrous oxide;

(C) the owner or operator of a facility that emits nitrous oxide associated with the manufacture of adipic acid or nitric acid;

(D) the owner or operator of a facility that produces cement or lime;

(E) the owner or operator of an aluminum smelter.

President designates another officer of the Executive Branch to carry out a function under this subtitle.

(15) SUBSEQUENT ALLOCATION PERIOD.—The term “subsequent allocation period” means—

(A) the 5-year period beginning January 1, 2020, and ending December 31, 2024; and

(B) each subsequent 5-year period.

SEC. 1513. QUANTITY OF ANNUAL GREENHOUSE GAS ALLOWANCES.

(a) INITIAL ALLOCATION PERIOD.—

(1) IN GENERAL.—Not later than December 31, 2006, the Secretary shall—

(A) make a projection with respect to emissions intensity for 2009, using—

(i) the Energy Information Administration’s most current projections of covered greenhouse gas emissions for 2009; and

(ii) the forecasted GDP for 2009;

(B) determine the emissions intensity target for 2010 by calculating a 2.4 percent reduction from the projected emissions intensity for 2009;

(C) in accordance with paragraph (2), determine the emissions intensity target for each calendar year of the initial allocation period after 2010; and

(D) in accordance with paragraph (3), issue the total number of allowances for each calendar year during the initial allocation period.

(2) EMISSIONS INTENSITY TARGETS AFTER 2010.—For each calendar year during the initial allocation period after 2010, the emissions intensity target shall be the emissions

Translates Intensity into Absolute Target in 5-10 year Blocks

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(C) in accordance with paragraph (2), determine the emissions intensity target for each calendar year of the initial allocation period after 2010; and

(D) in accordance with paragraph (3), issue the total number of allowances for each calendar year during the initial allocation period.

(2) EMISSIONS INTENSITY TARGETS AFTER 2010.—For each calendar year during the initial allocation period after 2010, the emissions intensity target shall be the emissions intensity target established for the preceding calendar year reduced by 2.4 percent.

(3) TOTAL ALLOWANCES.—For each calendar year during the initial allocation period, the quantity of allowances to be issued shall be equal to the product obtained by multiplying—

(A) the emissions intensity target established for the calendar year; and

(B) the forecasted GDP for the calendar year.

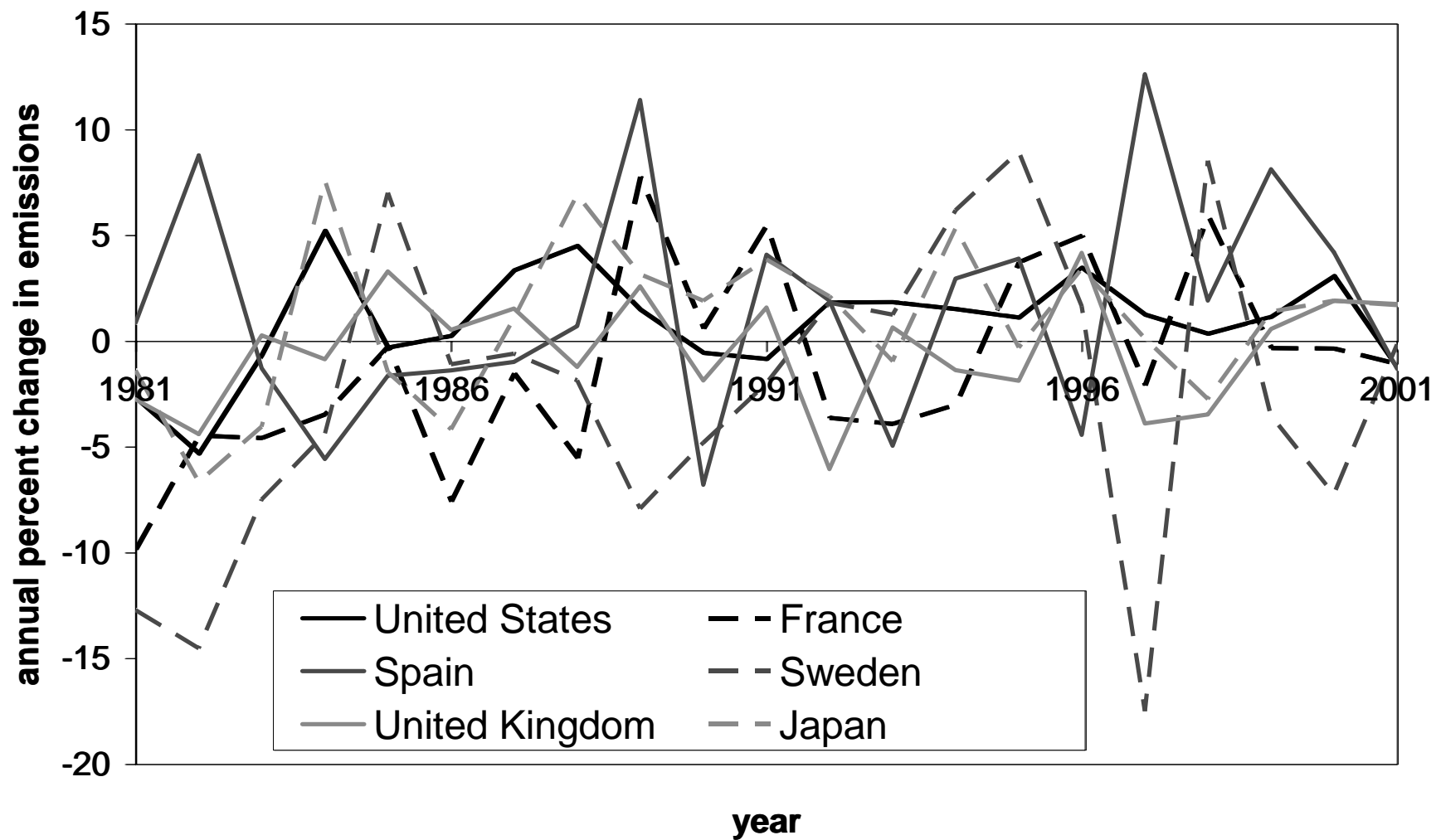
Why Describe Absolute Target in Intensity Terms?

- (Note complete equivalence, in general, with a given GDP forecast)
- **More neutral way to present growth targets**
- Appealed to Bush administration
- Appealing to some developing countries

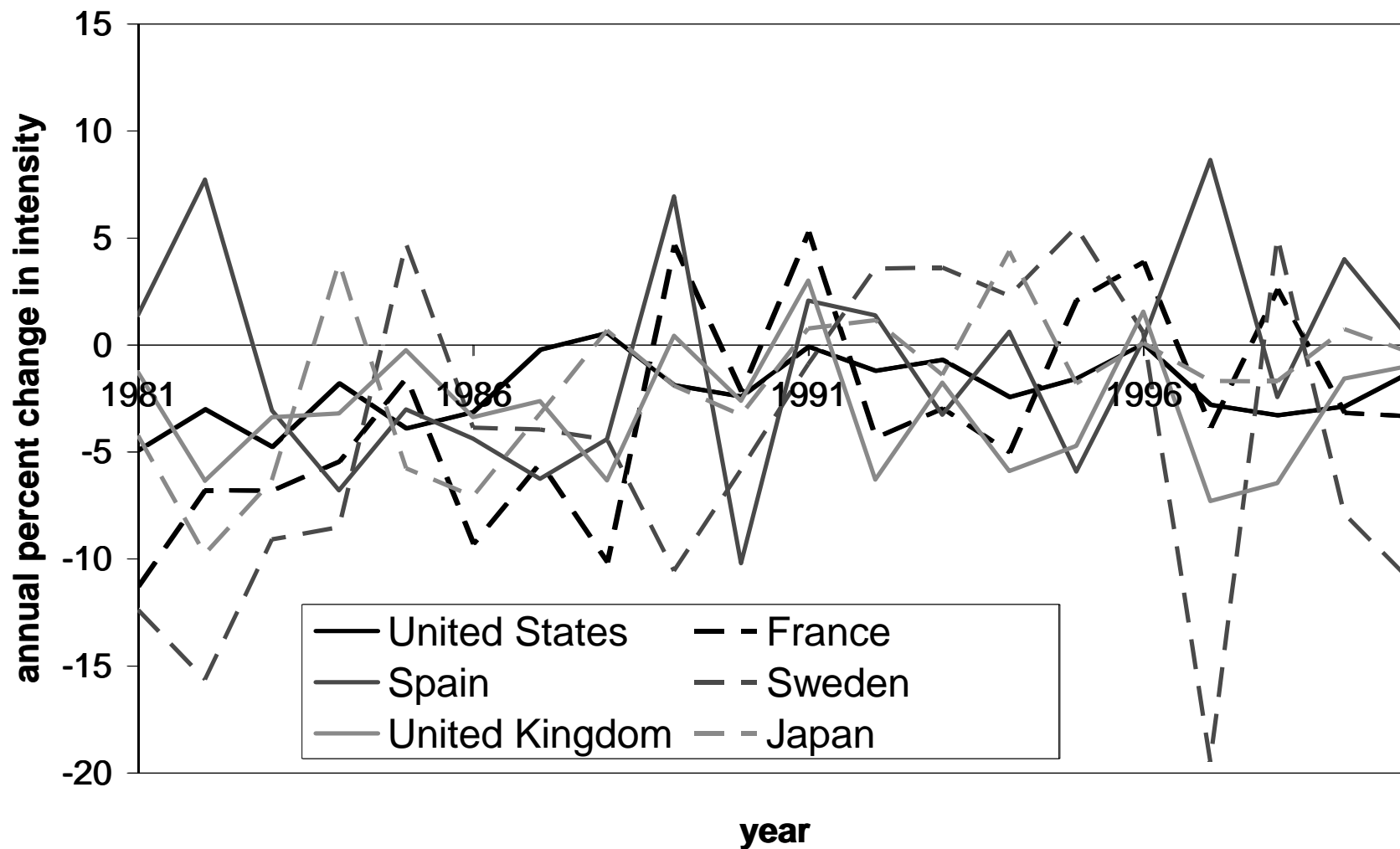
What about a real intensity target?

- Distinction between *intensity* target & *indexed* target.
 - target = GDP x (intensity)
 - target = fixed target +
(index rate) x (GDP - Expected GDP)
- Effectiveness hinges on correlation of GDP to emissions and (for intensity) relative magnitude of variation in GDP versus emissions.
- From theory:
 - damages are roughly linear over range of annual emissions
 - prices always preferred
 - indexed no worse than absolute
 - intensity ambiguous relative to absolute

Annual Emissions Fluctuate Randomly by ~5%



Annual Intensity Level Fluctuates Randomly ~5%



Comparing Price, Quantity (absolute), & Intensity / Indexed (\$m)

Variation in emissions

Price v. quantities

Intensity v. absolute

Indexed v. absolute

	GDP	Corr.				
Australia	0.026	0.016	0.20	19	-2	1
Brazil	0.046	0.032	0.72	44	22	22
Canada	0.035	0.023	0.54	45	12	12
China	0.030	0.030	0.74	195	85	96
France	0.046	0.018	0.10	51	-4	1
India	0.040	0.021	0.20	102	-5	4
Indonesia	0.042	0.047	0.45	33	-7	6
Iran	0.052	0.066	0.51	59	-15	15
Italy	0.035	0.014	0.31	35	3	3
Japan	0.037	0.028	0.19	102	-25	3
Korea (South)	0.062	0.036	0.65	102	42	42
Mexico	0.048	0.034	0.53	51	12	14
Netherlands	0.047	0.021	0.35	35	4	4
Poland	0.072	0.068	0.40	83	-9	13
Saudi Arabia	0.045	0.045	0.42	40	-5	7
South Africa	0.040	0.022	0.19	37	-3	1
Spain	0.054	0.019	0.28	60	4	4
United Kingdom	0.028	0.018	0.25	29	-2	2
United States	0.024	0.018	0.70	230	97	97
U.S. Electricity	0.025	0.020	0.84	91	55	56
World	0.014	0.011	0.55	431	77	90

Other Considerations

- Businesses may like the idea of indexing to sectoral or firm output; accommodates growth
- May be hard to measure output at firm or sector level
- Subsidizes output (assuming allocation goes with firm output)
- Negative correlation of intensity & GDP