Climate Change Technology Transfer in the U.S. Energy Policy Act of 2005:

The Institutional Context for an Expansion of the Climate Change Agenda of Government and Business

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Abstract

This paper analyzes the implications for government and business of Title XVI, the "Climate Change" title, in the U.S. Energy Policy Act of 2005. An important feature of the title is that it explicitly reframes international climate change issues to be issues for (a) international trade negotiations and (b) export promotion programs. The title accordingly mandates roles for the Office of the U.S. Trade Representative (USTR) and other executive agencies involved in trade issues. These new emphases for international technology transfer issues are linked to provisions concerning the national government's strategy, structure and programs for addressing climate change, including the development an inventory of technologies, assessing their cost-effectiveness and funding demonstration projects. The title also includes requirements for reports to Congress, and this will draw Congressional committees into international climate change technology transfer, trade and investment issues. The paper complements two articles published in *Climate Policy* (Brewer, 2003; 2004a) that discuss a wide range of issues in the nexus of international trade and climate policies.

1. Introduction

The "Climate Change" title (XVI) of United States Energy Policy Act of 2005 expands the agenda for international climate change by casting issues concerning technology transfers to developing countries as issues of international trade negotiations and government export promotion. As for negotiations, the title specifically requires the Office of the U.S. Trade Representative (USTR) to:

> (1) identify developing countries' barriers to U.S. exports of greenhouse gas reducing technologies,
> (2) negotiate their removal, and
> (3) report to Congress annually on progress in achieving their removal.

The negotiations could occur within the context of bilateral, regional and multilateral international trade agreements; they could involve investment and intellectual property issues, as well as trade issues; and they could cover international business transactions in the services,

manufacturing and agricultural sectors. This mandate for the USTR and other executive agencies therefore expands the international climate change agenda for both business and government along numerous dimensions.

As for export promotion, the title requires an inter-agency working group to implement a Greenhouse Gas Intensity Reducing Technology Export Initiative to review the performance of U.S. government agencies in promoting such technologies. It also provides for the development of demonstration projects in developing countries and other forms of assistance (though without any funding levels specified). These export promotion activities will also expand the climate change agenda for U.S. business as well as government agencies.

These expansions of the climate change agenda will also extend to Congress because additional committees in both the House of Representatives and the Senate will become more involved in key aspects of climate change issues.

In order to increase understanding of the implications for the international climate change agenda, this paper discusses these and other provisions of Title XVI in detail. The full text of the amendment is reprinted in the appendix of the paper.[1]

2. Key Provisions in the Act

The U.S. Energy Policy Act of 2005 is also known as the Domenici-Barton Energy Policy Act, after the members who chaired the energy committees, respectively, of the Senate and House of Representatives and who were the leaders of the legislative processes in their chambers. The entire act is 550 pages long (in the printed version) and includes 18 titles; the "Climate Change" title is XVI. The other titles of the act with provisions concerning climate change cognate issues include: Energy Efficiency (I), Renewable Energy (II), Oil and Gas (III), Coal (IV), Vehicles and Fuels (VII), Hydrogen (VIII), and Energy Policy Tax Incentives (XIII).[2]

Title XVI is commonly known as the Hagel-Pryor Amendment, after the senators who introduced it. The amendment was based on two bills (S. 883 and S. 887) that had previously been submitted by Senator Hagel but not passed. The Hagel-Pryor amendment passed the Senate by a vote of 66-29 and thus received the most support of any of the climate change amendments offered in the Senate during the deliberations on the Energy Policy Act during the summer of 2005 (see U.S. Congressional Research Service, 2005). The votes on the climate change amendments and more generally the patterns of political economy in the domestic policymaking process are analyzed in Brewer (2006, forthcoming).

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[1] Previous publications and reports have identified a broad range of issues in the interactions of the world's trade and climate regimes. See Assuncao (2000), Brack, Grubb and Windram (2000), Brewer (2003a, 2004a, 2004b, 2005), Charnovitz (2003, 2005), Hoerner and Muller (1996), Müller (2002), Petsonk (1999), Sampson (1999), Werksman (1999), Werksman and Santoro (1999), Werksman, Bauman and Dubash (2001) and Zhang (1998).

[2] The text of the entire act is available at http://frwebgate.access.gpo.gov or http://thomas.loc.gov/cgi-bin/query/D?c109:37:./temp/~c109X7YfVi::.

Subtitle A: National Climate Change Technology Deployment

Subtitle A, which revises the Energy Policy Act of 1992, is focused on "greenhouse gas intensity reducing strategies," as are all the other sections of the title. It establishes organizational arrangements in the executive branch, including a Committee on Climate Change Technology, chaired by the Department of Energy, with representatives from the Council on Environmental Quality and Office of Science and Technology Policy in the Executive Office of the President, the Environmental Protection Agency, and the departments of Agriculture, Commerce, and Transportation (and a provision for the possibility of adding others in the future).

Key industries are given direct access to the advisory process through the creation of the Climate Change Technology Advisory Committee consisting of the following:

- Energy producing trade organizations – 3 members
- Energy-intensive trade organizations – 3 members
- Energy end-use and other consumer organizations – 3 members
- Federal government experts in energy technology, intellectual property and tax – 3 members
- Higher education experts in energy technology, recommended by National Academy of Engineering – 3 members
- Federal government national laboratories – 1 each from Department of Energy National Laboratories (there were 22 National Laboratories as of January 2006).

Subtitle A also provides for the development of a domestic inventory of technologies and the creation of demonstration projects. Although it "authorizes" future expenditures, it does not indicate any dollar amounts; in any case, specific future actions by the Congress and the executive branch in subsequent budget cycle appropriations processes are required in order for the various provisions to be funded – as is normal practice.

Subtitle B: Climate Change Technology Deployment in Developing Countries

Subtitle B revises the Global Environmental Protection Assistance Act of 1989 by adding two sections. There are two closely related, complementary emphases: the reduction of "trade-related barriers to export of greenhouse gas intensity-reducing technologies" in developing countries (section 734) and the promotion of U.S. exports through a "greenhouse gas intensity reducing technology export initiative" (section 735).

The key language of Section 734 follows: "Not later than 1 year after the date of enactment of this part [in July 2005], the United States Trade Representative shall (as appropriate and consistent with applicable bilateral, regional and mutual [*sic*] trade agreements) …identify trade-relations barriers maintained by foreign countries to the export of greenhouse gas intensity reducing technologies and practices from the United States to the developing countries identified [as the 25 that are the largest greenhouse gases emitters]; and … negotiate with foreign countries for the removal of these barriers". Further, the United States Trade Representative must annually submit to Congress "a report that describes any progress made with respect to removing the barriers…." A preliminary, unofficial list prepared by the author of 25 developing countries appears in Table 1.

Table 1. Twenty-Five Largest GHG Emitters among Developing Countries in 2000*

Country	MtC	% of World Total
China	1,347.6	14.67%
India	514.2	5.60%
Brazil	232.3	2.53%
Korea (South)	142.2	1.55%
Mexico	139.7	1.52%
Indonesia	137.2	1.49%
Iran	131.1	1.43%
South Africa	113.9	1.24%
Saudi Arabia	93.0	1.01%
Argentina	79.0	0.86%
Pakistan	77.9	0.85%
Thailand	72.2	0.79%
Venezuela	65.4	0.71%
Taiwan	62.9	0.68%
Nigeria	52.8	0.57%
Uzbekistan	49.4	0.54%
Egypt	48.5	0.53%
Malaysia	45.4	0.49%
Kazakhstan	43.9	0.48%
Colombia	43.7	0.48%
Vietnam	36.6	0.40%
Philippines	36.3	0.40%
Algeria	34.4	0.37%
Bangladesh	33.4	0.36%
United Arab Emirates	32.0	0.35%
Subtotals	**3,665**	**39.90%**

* N.B. This is not an official list. There was no list of countries in the legislation, nor was there a reference year specified. The government list was being compiled as of the date of writing, and it was expected to be submitted to Congress in February. The list in this paper will be revised accordingly after the official list is made available.

Source: Data extracted by the author from Climate Analysis Indicators Tool (CAIT) Version 3.0, of the World Resources Institute; downloaded January 17, 2006. Subtotals were computed by the author.

The precise list of 25 countries was still under development within the executive branch of the government at the time of writing. There was no list of countries in the legislation, nor was there a reference year specified. However, most of the countries in the list in Table 1 are likely to be included. The top three countries as of 2000 – Brazil, China and India – accounted for approximately 23 percent of the world total.

Reporting Requirements in Title XVI

Title XVI has extensive reporting requirements. There are two required reports of inventories – one of technologies developed in the United States and the other of technologies that are "suitable" for transfer to developing countries (the latter presumably being a subset of the former). There are also reports of barriers – one of barriers in the United States to the commercialization and deployment of technologies, another of foreign countries' barriers to the export of technologies from the United States. These and other reports are, for the most part, required to be submitted to the Congress generally, or specific committees of the Congress, as well as the public. Most must be submitted annually after the initial report. Other details of the various reporting requirements are indicated in Table 2.

Table 2. Mandated Reports

Topic of Report [Section] Subtitle A	Who Reports*	To Whom	Initial Report Due	Subsequent Reports
National Strategy** [1610(c)]	CCCT	President, Sec. of Energy, Public	Within 18 months after enactment	Every 5 years, or more often
Technology Inventory [1610(e)]	Sec. of Energy	Congress, Public	Not specified	"Periodically"
Barriers to Commercialization and Deployment [1610(f)]	CCTAC	CCCT	Within 1 year after enactment	Annually
Demonstration Projects [1610(g)]	CCCT	President, Congress, Public	Within 18 months after enactment	Every 5 years, or more often
Subtitle B				
Developing Country GHG Emitters [732(a)]	Sec. of State	Congressional authorizing and appropriating committees	Within 180 days after enactment	Update 18 months after initial report and then annually
Inventory of Technologies for	Sec. of State and Sec. of	Congress	Within 180 days after	None

Transfer to Developing Countries [733(a)]	Energy		completion of Inventory in sec. 1610(e) above	
Foreign Countries' Trade Barriers [734(a)(1)]	U.S. Trade Representative	Not specified	Within 1 year after enactment	[None specified but annual needed for sec. 734(b)]
Foreign Countries' Trade Barriers [734(b)]	U.S. Trade Representative	Congress	Within 1 year after report in sec. 734(a)(1)	Annually
Performance Review of Export Promotion [735(c)]	Interagency Working Group	Congressional authorizing and appropriating committees	Within 180 days after enactment	Annually

* Full names of the reporting entities are as follows:
CCCT = Committee on Climate Change Technology
CCTAC = Climate Change Technology Advisory Committee
Interagency Working Group = Interagency Working Group for Greenhouse Gas Intensity Reducing Technology Export Initiative
** Strategy "to promote the deployment and commercialization of greenhouse gas intensity reducing technologies and practices"

Source: Compiled by the author from the text of Title XVI of the U.S. Energy Policy Act of 2005 (see appendix of the paper for the complete text).

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3. Bilateral, Regional and Multilateral Trade Arenas

The trade negotiations mandated by Title XVI are actually already within the purview of the USTR, and some of the issues concerning the interactions of the international climate change regime embedded in the Kyoto Protocol and the international trade regime embedded in the WTO have already received some attention within the context of the work program of the WTO Committee on Trade and Environment (WTO, 1998, 2001). In addition to the WTO, the negotiations mandated by Title XVI could occur in the context of a broad array of international trade agreements to which the U.S. is already a party (see Brewer, 1999, and Brewer and Young, 2000). These trade agreements are of course the result of decades of negotiations with virtually all countries in the world, and they have been conducted independently of the separate negotiations on multilateral, regional and bi-lateral climate change agreements. The significance of Title XVI, therefore, does *not* concern the scope of the *trade* negotiating authority of U.S. government agencies.

Rather, the significance of Title XVI is that it expands the climate change agenda in the U.S. by linking it explicitly to trade issues and by requiring that issues concerning technology transfers to developing countries be framed at least in part as trade issues. Consequently, in order to understand the full range of U.S. climate change policies, it is necessary to understand the array

of *trade* agreements that will bear upon climate change technology transfer issues in the future. The balance of this section of the paper examines those agreements, especially in the context of the WTO.

A list of U.S. trade agreements compiled by the U.S. government's Trade Compliance Center in the Department of Commerce lists 271 separate agreements (USTCC, 2006). However, it includes a large number of highly specialized agreements that have been reached within the context of other more basic agreements.[3] The list includes the core trade agreements, which can be conveniently grouped as 13 bilateral trade agreements (plus 39 bilateral investment treaties, i.e. BITS), three regional agreements and the large set of multilateral agreements in the WTO (see Brewer and Young, 2000; U.S. Department of State, 2006; and U.S. Trade Representative, 2006).

The bilateral trade agreements, including those with regional trade groupings in which the U.S. is not a member, are with: ANDEAN countries, Australia, Bahrain, Chile, Central America-Dominican Republic, Israel, Jordan, Morocco, Oman, Panama, Peru, Singapore, and Southern African Customs Union. The regional agreements include: Asia Pacific Economic Cooperation [forum] (APEC), Free Trade Agreement of the Americas (FTAA), and the North American Free Trade Agreement (NAFTA).

There are 27 WTO agreements to which the U.S. is a signatory, according to the list of the Trade Compliance Center (2006). It is also possible to count as many as 50 or more, depending on how one defines an agreement. See Brewer and Young (2001a) for an analysis of U.S. policies in the WTO; see Brewer and Young (2000) for a discussion of the WTO agreements, especially in regards to international investment.[4] The agreements that are potentially directly relevant to climate change technology transfer include: the General Agreement on Tariffs and Trade

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[3] For instance, there is a Memorandum of Understanding on Provincial Beer Marketing Practices with Canada, and a Grade-marked Lumber Agreement with Japan. The specialized agreements are mostly focused on a small number of countries – 33 with Japan, 18 with South Korea, and 12 with Taiwan, for instance. There are 13 with the EU as an entity and another 15 with individual members of the EU. Although many of these and other agreements are obviously of much interest to particular industries and individual firms within them, they are not of general interest. Nor are any of them of specific interest to climate change technology transfer issues, though they do indicate that specialized agreements on such issues might be possible.

[4] In Title XVI of the U.S. Energy Policy Act, in some trade agreements, and in analyses of international business transactions more generally, the term "trade" is commonly used in a general and encompassing way so that it can be interpreted to include foreign direct investment (FDI), which identified by international economists and other specialists as a distinctive type of international business transaction. In particular, FDI refers to a transaction in which a firm in one country (the "home" country) gains control over physical assets in another country (the "host" country) through an acquisition of an existing firm or establishment of a new firm. FDI includes joint ventures with local firms and/or firms from third countries. These and other distinctions about the "mode of supply" adopted by firms in international business are especially important in the General Agreement on Trade in Services (GATS), as discussed below in this section of the paper.

(GATT), which itself incorporates for instance agreements on technical barriers to trade and on agriculture; the General Agreement on Trade in Services (GATS), which includes provisions on foreign direct investment as well as trade; the agreement on Trade Related Intellectual Property Rights (TRIPs), which are of course important for many technological goods and services; an agreement on Government Procurement, which is a so-called "plurilateral" agreement not signed by most WTO members; and an Understanding on Dispute Settlement, which could become important in the event of conflicts over the implementation of any agreements pertaining to climate change technology transfers.

One result of these several WTO agreements is that there is a complex patchwork in terms of their coverage according to two key dimensions – namely, type of business transaction or relationship (trade, investment, licensing, movement of persons), and type of product or industry (goods or services). Table 3 summarizes the patchwork in terms of the coverage of three key WTO agreements (GATT, GATS, TRIPs).

Table 3. Coverage of WTO Agreements

Methods of Technology Transfer	**Types of Products**	
	Goods	Services
Trade	GATT	GATS: Modes of Supply 1 & 2*
Investment	Only TRIMS are covered*	GATS: Mode of Supply 4*
Movement of Persons	none	GATS: Mode of Supply 3*
Licensing	TRIPs	TRIPs

* See discussion in the text for an explanation of these terms.
Source: Developed by the author. Also see Brewer and Young (2000).

In the column of the table for *goods*, note the absence of an agreement covering foreign direct investment, except for some Trade Related Investments Measures (TRIMs) such as export performance requirements associated with foreign direct investment projects. Thus, for instance, limitations on foreign ownership of firms in industries of special significance for climate change technology transfer such as the energy sector and the automotive sector are not covered.

Although these and other restrictions on foreign ownership constitute only indirect barriers to climate change technology transfers, they may nevertheless be significant.

In the column for *services*, the patterns of coverage are quite because of the structure of the services agreement, i.e. GATS. In particular, the table reflects the fact that there are four separate "modes of supply" in the GATS: (1) export from the seller's country for consumption in the buyer's country, i.e. analogous to the traditional mode of supply for goods, as well as some services such as consulting reports; (2) consumption abroad in the supplier's country by buyers who are temporarily in the seller's country, as in tourist consumption of lodging and restaurant services; (3) the movement of natural persons, which means international transfers of employees by multinational firms in this context; and (4) "commercial presence," which can be approximately translated as foreign direct investment, as that term is commonly used in economics and business. Each signatory to the GATS has specified its commitments about its barriers for each one of these modes of supply, and in some instances the barriers are more restrictive for some types of modes than others.

It is thus important to recognize that the types and levels of barriers to international business transactions vary between *goods and services*, and they also vary between *trade and investment*.

Because services transactions, by their nature, are more likely to occur in face-to-face interactions, barriers to the international mobility of people and barriers to foreign direct investment are more important than they are for goods transactions. Because of this difference between goods and services, as well as for other reasons, it is also important to note the difference between trade barriers and investment barriers.

Trade barriers include of course a wide variety of non-tariff barriers such as import quotas and customs procedures, as well as tariffs. Investment barriers, on the other hand, occur as restrictions on foreign ownership and as domestic industry regulations. Thus, whereas tariff schedules, as agreed in the context of the GATT, are useful for examining barriers to climate change technology transfers in the form of goods trade, they are not relevant for understanding barriers to climate change technology transfers through services – either transfers that occur via trade or investment. In order to analyze barriers to international services transactions, instead, one must consult the "schedules of specific commitments" of the GATS signatories.

Although the GATT tariff schedules and GATS schedules of specific commitments are both lists of barriers to international business transactions, including climate change technology transfers, the formats and the contents of the two are quite different. The differences are evident in Tables 4 and 5.

Countries' tariff schedules for their goods imports, as agreed in the context of GATT, are organized according to the Harmonized System of Tariffs (HST), which has 99 product/industry chapters organized within 22 sections (some of which are identified in Table 4). There are typically about 5000 lines representing specific types of goods, though some countries have many more than this. (See World Customs Organization, 2006, and U.S. International Trade Commission, 2006, for details about the contents of the HST.) Only a small proportion of these lines are directly relevant to climate change technology goods, but they are spread over a wide

range of industry categories. For instance, in the U.S. schedule, Section XVIII, Chapter 90 on "Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof" includes the four-digit entry 9026 covering a wide range of "Instruments and apparatus for *measuring* or checking the *flow*, level, pressure or other variables of liquids *or gases* … [italics added]."

Table 4. Selected Sections of the Harmonized System of Tariffs on Goods

MINERAL PRODUCTS

PRODUCTS OF THE CHEMICAL OR ALLIED INDUSTRIES

MACHINERY AND MECHANICAL APPLIANCES; ELECTRICAL EQUIPMENT; PARTS THEREOF; SOUND RECORDERS AND REPRODUCERS, TELEVISION IMAGE AND SOUND RECORDERS AND REPRODUCERS, AND PARTS AND ACCESSORIES OF SUCH ARTICLES

VEHICLES, AIRCRAFT, VESSELS AND ASSOCIATED TRANSPORT EQUIPMENT

OPTICAL, PHOTOGRAPHIC, CINEMATOGRAPHIC, MEASURING, CHECKING, PRECISION, MEDICAL OR SURGICAL INSTRUMENTS AND APPARATUS; CLOCKS AND WATCHES; MUSICAL INSTRUMENTS; PARTS AND ACCESSORIES THEREOF

MISCELLANEOUS MANUFACTURED ARTICLES

Source: U.S. International Trade Commission, "Harmonized Tariff Schedule of the United States," downloaded from www.usitc.gov on January 30, 2006.

In contrast to the HST for goods, countries' schedules of specific commitments for services imports and inward investment, as agreed in the context of GATS, are organized according to 12 services industry sectors and 160 sub-sectors. The GATS classification system follows closely the United Nations Central Product Classification (CPC) system, which identifies 11 basic service sectors (plus a twelfth category for miscellaneous services). The sectors in the WTO list are indicated in Table 5, along with selected sub-sectors of special interest for issues concerning international climate change technology transfer. Relevant items can occur in many different industry sectors and sub-sectors.

The "environment" lines of these standard classification systems are not necessarily the most relevant for transaction data or policy data concerning international trade, investment and technology transfer in goods and services in international climate change technology transfers. Instead, goods and/or services in construction, engineering, fuels, instruments, minerals, transport and other categories are more pertinent. Although technical staffs in the WTO, OECD,

IMF, and other international institutions as well as governments, have addressed some of these classification issues, they remain highly problematic for collecting and interpreting data about transactions and information about policy barriers.

Table 5. Standardized List of Services for GATS Schedules of Specific Commitments: Industry Sectors and Selected Sub-sectors

1. BUSINESS SERVICES
A. Professional Services
b. Accounting, auditing and bookkeeping services
d. Architectural services
e. Engineering services
f. Integrated engineering services
g. Urban planning and landscape architectural services
C. Research and Development Services
a. R&D services on natural sciences
F. Other Business Services
e. Technical testing and analysis services
h. Services incidental to mining
i. Services incidental to manufacturing
j. Services incidental to energy distribution
m. Related scientific and technical consulting services
n. Maintenance and repair of equipment (not including maritime vessels, aircraft or other transport equipment)
2. COMMUNICATION SERVICES
3. CONSTRUCTION AND RELATED ENGINEERING SERVICES
A. General construction work for buildings
B. General construction work for civil engineering
C. Installation and assembly work
D. Building completion and finishing work
4. DISTRIBUTION SERVICES
5. EDUCATIONAL SERVICES
6. ENVIRONMENTAL SERVICES
B. Refuse disposal services
D. Other
7. FINANCIAL SERVICES
A. All insurance and insurance-related services
B. Banking and other financial services
8. HEALTH RELATED AND SOCIAL SERVICES
9. TOURISM AND TRAVEL RELATED SERVICES
10. RECREATIONAL, CULTURAL AND SPORTING SERVICES
11. TRANSPORT SERVICES
A. Maritime Transport Services

B. Internal Waterways Transport
C. Air Transport Services
E. Rail Transport Services
F. Road Transport Services
G. Pipeline Transport
H. Services auxiliary to all modes of transport
12. OTHER SERVICES NOT INCLUDED ELSEWHERE

Source: WTO Secretariat, Trade in Services Division "An Introduction to the GATS," revised version, October 1999; downloaded January 30, 2006.

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4. Implications for the International Climate Change Agenda

The climate change provisions of the Energy Policy Act of 2005 have important implications for the agendas of government and business – internationally as well as domestically within the U.S. For a discussion of climate change issues for business generally, see Brewer (2005); for an analysis of the implications for business strategy of WTO agreements, see Brewer and Young (2001b).

Domestically, the most obvious implications concern U.S. government policymaking. Congress, business, and NGOs will all become directly involved in both the U.S. government's international trade negotiating processes and export promotion processes concerning international climate change technology transfers. As climate change policymaking thus migrates into new policymaking domains, the patterns of political economy will change. For instance, industry associations representing firms with actual or potential exports of climate change technologies may become coalition partners of environmental NGOs in trade liberalization interest groups.

Internationally, the potential expansion to bi-lateral, regional and multilateral trade arenas can change the international negotiating dynamics within both trade and climate change institutional arrangements. For instance, as a *demandeur* in trade negotiations, when the U.S. proposes that developing countries liberalize their trade policies to allow more climate change technology transfers from the U.S., it may find that the developing countries, as *demandeurs,* propose that the U.S. liberalize its agricultural trade policies to allow more imports of agricultural products from developing countries.

In any case, the climate change agendas of at least 25 developing countries may now explicitly include their international trade, investment and intellectual property policies. This will be so in the context of their bi-lateral, regional and multilateral relations with the U.S. at least. To the extent that any reductions in their barriers are extended to other countries through the most-favored nation (MFN) provisions of the WTO, then of course the countries' policies on the affected goods and services will be expanded to include all other members of the WTO as well. Thus, all WTO members potentially have a stake in the outcomes of the U.S. negotiations with the 25 selected developing countries. Ultimately, all 149 members of the WTO may therefore

have a stake in the implementation of Title XVI by the USTR and other U.S. government agencies involved in trade issues.

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Appendix: Text of Title XVI of the Energy Policy Act of 2005

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TITLE XVI--CLIMATE CHANGE

Subtitle A--National Climate Change Technology Deployment

SEC. 1601. GREENHOUSE GAS INTENSITY REDUCING TECHNOLOGY STRATEGIES.

Title XVI of the Energy Policy Act of 1992 (42 U.S.C. 13381 et seq.) is amended by adding at the end the following:

`SEC. 1610. GREENHOUSE GAS INTENSITY REDUCING STRATEGIES.

`(a) Definitions- In this section:

`(1) ADVISORY COMMITTEE- The term `Advisory Committee' means the Climate Change Technology Advisory Committee established under subsection (f)(1).

`(2) CARBON SEQUESTRATION- The term `carbon sequestration' means the capture of carbon dioxide through terrestrial, geological, biological, or other means, which prevents the release of carbon dioxide into the atmosphere.

`(3) COMMITTEE- The term `Committee' means the Committee on Climate Change Technology established under subsection (b)(1).

`(4) DEVELOPING COUNTRY- The term `developing country' has the meaning given the term in section 1608(m).

`(5) GREENHOUSE GAS- The term `greenhouse gas' means--

`(A) carbon dioxide;

`(B) methane;

`(C) nitrous oxide;

`(D) hydrofluorocarbons;

`(E) perfluorocarbons; and

`(F) sulfur hexafluoride.

`(6) GREENHOUSE GAS INTENSITY- The term `greenhouse gas intensity' means the ratio of greenhouse gas emissions to economic output.

`(7) NATIONAL LABORATORY- The term `National Laboratory' has the meaning given the term in section 3(3) of the Energy Policy Act of 2005 .

`(b) Committee on Climate Change Technology-

`(1) IN GENERAL- Not later than 180 days after the date of enactment of this section, the President shall establish a Committee on Climate Change Technology to--

`(A) integrate current Federal climate reports; and

`(B) coordinate Federal climate change technology activities and programs carried out in furtherance of the strategy developed under subsection (c)(1).

`(2) MEMBERSHIP- The Committee shall be composed of at least 7 members, including--

`(A) the Secretary, who shall chair the Committee;

`(B) the Secretary of Commerce;

`(C) the Chairman of the Council on Environmental Quality;

`(D) the Secretary of Agriculture;

`(E) the Administrator of the Environmental Protection Agency;

`(F) the Secretary of Transportation;

`(G) the Director of the Office of Science and Technology Policy ; and

`(H) other representatives as may be determined by the President.

`(3) STAFF- The members of the Committee shall provide such personnel as are necessary to enable the Committee to perform its duties.

`(c) National Climate Change Technology Policy -

`(1) IN GENERAL- Not later than 18 months after the date of enactment of this section, the Committee shall, based on applicable Federal climate reports, submit to the Secretary and the President a national strategy to promote the deployment and commercialization of greenhouse gas intensity reducing technologies and practices developed through research and development programs conducted by the National Laboratories, other Federal research facilities, institutions of higher education, and the private sector.

`(2) UPDATES- The Committee shall--

`(A) at the time of submission of the strategy to the President under paragraph (1), also make the strategy available to the public; and

`(B) update the strategy every 5 years, or more frequently as the Committee determines to be necessary.

`(d) Climate Change Technology Program- Not later than 180 days after the date on which the Committee is established under subsection (b)(1), the Secretary, in consultation with the Committee, shall establish within the Department of Energy the Climate Change Technology Program to--

`(1) assist the Committee in the interagency coordination of climate change technology research, development, demonstration, and deployment to reduce greenhouse gas intensity; and

`(2) carry out the programs authorized under this section.

`(e) Technology Inventory-

`(1) IN GENERAL- The Secretary shall conduct and make public an inventory and evaluation of greenhouse gas intensity reducing technologies that have been developed, or are under development, by the National Laboratories, other Federal research facilities, institutions of higher education, and the private sector to determine which technologies are suitable for commercialization and deployment.

`(2) REPORT- Not later than 180 days after the completion of the inventory under paragraph (1), the Secretary shall submit to Congress a report that includes the results of the completed inventory and any recommendations of the Secretary.

`(3) USE- The Secretary shall use the results of the inventory as guidance in the commercialization and deployment of greenhouse gas intensity reducing technologies.

`(4) UPDATED INVENTORY- The Secretary shall--

`(A) periodically update the inventory under paragraph (1), including when determined necessary by the Committee; and

`(B) make the updated inventory available to the public.

`(f) Climate Change Technology Advisory Committee-

`(1) IN GENERAL- The Secretary, in consultation with the Committee, may establish under section 624 of the Department of Energy Organization Act (42 U.S.C. 7234) a Climate Change Technology Advisory Committee to identify statutory, regulatory, economic, and other barriers to the commercialization and deployment of greenhouse gas intensity reducing technologies and practices in the United States.

`(2) COMPOSITION- The Advisory Committee shall be composed of the following members, to be appointed by the Secretary, in consultation with the Committee:

`(A) 1 representative shall be appointed from each National Laboratory.

`(B) 3 members shall be representatives of energy-producing trade organizations.

`(C) 3 members shall represent energy-intensive trade organizations.

`(D) 3 members shall represent groups that represent end-use energy and other consumers.

`(E) 3 members shall be employees of the Federal Government who are experts in energy technology, intellectual property, and tax.

`(F) 3 members shall be representatives of institutions of higher education with expertise in energy technology development that are recommended by the National Academy of Engineering.

`(3) REPORT- Not later than 1 year after the date of enactment of this section and annually thereafter, the Advisory Committee shall submit to the Committee a report that describes--

`(A) the findings of the Advisory Committee; and

`(B) any recommendations of the Advisory Committee for the removal or reduction of barriers to commercialization, deployment, and increasing the use of greenhouse gas intensity reducing technologies and practices.

`(g) Greenhouse Gas Intensity Reducing Technology Deployment-

`(1) IN GENERAL- Based on the strategy developed under subsection (c)(1), the technology inventory conducted under subsection (e)(1), the greenhouse gas intensity reducing technology study report submitted under subsection (e)(2), and reports under subsection (f)(3), if any, the Committee shall develop recommendations that would provide for the removal of domestic barriers to the commercialization and deployment of greenhouse gas intensity reducing technologies and practices.

`(2) REQUIREMENTS- In developing the recommendations under paragraph (1), the Committee shall consider in the aggregate--

`(A) the cost-effectiveness of the technology;

`(B) fiscal and regulatory barriers;
`(C) statutory and other barriers; and
`(D) intellectual property issues.
`(3) DEMONSTRATION PROJECTS- In developing recommendations under paragraph (1), the Committee may identify the need for climate change technology demonstration projects.
`(4) REPORT- Not later than 18 months after the date of enactment of this section, the Committee shall submit to the President and Congress a report that--
`(A) identifies, based on the report submitted under subsection (f)(3), any barriers to, and commercial risks associated with, the deployment of greenhouse gas intensity reducing technologies; and
`(B) includes a plan for carrying out demonstration projects.
`(5) UPDATES- The Committee shall--
`(A) at the time of submission of the report to Congress under paragraph (4), also make the report available to the public; and
`(B) update the report every 5 years, or more frequently as the Committee determines to be necessary.
`(h) Procedures for Calculating, Monitoring, and Analyzing Greenhouse Gas Intensity- The Secretary, in collaboration with the Committee and the National Institute of Standards and Technology, and after public notice and opportunity for comment, shall develop standards and best practices for calculating, monitoring, and analyzing greenhouse gas intensity.
`(i) Demonstration Projects-
`(1) IN GENERAL- The Secretary shall, subject to the availability of appropriations, support demonstration projects that--
`(A) increase the reduction of the greenhouse gas intensity to levels below that which would be achieved by technologies being used in the United States as of the date of enactment of this section;
`(B) maximize the potential return on Federal investment;
`(C) demonstrate distinct roles in public-private partnerships;
`(D) produce a large-scale reduction of greenhouse gas intensity if commercialization occurred; and
`(E) support a diversified portfolio to mitigate the uncertainty associated with a single technology.
`(2) COST SHARING- In supporting a demonstration project under this subsection, the Secretary shall require cost-sharing in accordance with section 988 of the Energy Policy Act of 2005.
`(3) AUTHORIZATION OF APPROPRIATIONS- There are authorized to be appropriated such sums as are necessary to carry out this subsection.
`(j) Cooperative Research and Development Agreements- In carrying out greenhouse gas intensity reduction research and technology deployment activities under this subtitle, the Secretary may enter into cooperative research and development agreements under section 12 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a).'.

Subtitle B--Climate Change Technology Deployment in Developing Countries

SEC. 1611. CLIMATE CHANGE TECHNOLOGY DEPLOYMENT IN DEVELOPING COUNTRIES.

The Global Environmental Protection Assistance Act of 1989 (Public Law 101-240; 103 Stat. 2521) is amending by adding at the end the following:

`PART C--TECHNOLOGY DEPLOYMENT IN DEVELOPING COUNTRIES

`SEC. 731. DEFINITIONS.

`In this part:

`(1) CARBON SEQUESTRATION- The term `carbon sequestration' means the capture of carbon dioxide through terrestrial, geological, biological, or other means, which prevents the release of carbon dioxide into the atmosphere.

`(2) GREENHOUSE GAS- The term `greenhouse gas' means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

`(3) GREENHOUSE GAS INTENSITY- The term `greenhouse gas intensity' means the ratio of greenhouse gas emissions to economic output.

`SEC. 732. REDUCTION OF GREENHOUSE GAS INTENSITY.

`(a) Lead Agency-

`(1) IN GENERAL- The Department of State shall act as the lead agency for integrating into United States foreign policy the goal of reducing greenhouse gas intensity in developing countries.

`(2) REPORTS-

`(A) INITIAL REPORT- Not later than 180 days after the date of enactment of this part, the Secretary of State shall submit to the appropriate authorizing and appropriating committees of Congress an initial report, based on the most recent information available to the Secretary from reliable public sources, that identifies the 25 developing countries that are the largest greenhouse gas emitters, including for each country--

`(i) an estimate of the quantity and types of energy used;

`(ii) an estimate of the greenhouse gas intensity of the energy, manufacturing, agricultural, and transportation sectors;

`(iii) a description the progress of any significant projects undertaken to reduce greenhouse gas intensity;

`(iv) a description of the potential for undertaking projects to reduce greenhouse gas intensity;

`(v) a description of any obstacles to the reduction of greenhouse gas intensity; and

`(vi) a description of the best practices learned by the Agency for International Development from conducting previous pilot and emonstration projects to reduce greenhouse gas intensity.

`(B) UPDATE- Not later than 18 months after the date on which the initial report is submitted under subparagraph (A), the Secretary shall submit to the appropriate authorizing and appropriating committees of Congress, based on the best information available to the Secretary, an update of the information provided in the initial report.

`(C) USE-

`(i) INITIAL REPORT- The Secretary of State shall use the initial report submitted under subparagraph (A) to establish baselines for the developing countries identified in the report with respect to the information provided under clauses (i) and (ii) of that subparagraph.

`(ii) ANNUAL REPORTS- The Secretary of State shall use the annual reports prepared under subparagraph (B) and any other information available to the Secretary to track the progress of the developing countries with respect to reducing greenhouse gas intensity.

`(b) Projects- The Secretary of State, in coordination with Administrator of the United States Agency for International Development, shall (directly or through agreements with the World Bank, the International Monetary Fund, the Overseas Private Investment Corporation, and other development institutions) provide assistance to developing countries specifically for projects to reduce greenhouse gas intensity, including projects to--

`(1) leverage, through bilateral agreements, funds for reduction of greenhouse gas intensity;

`(2) increase private investment in projects and activities to reduce greenhouse gas intensity; and

`(3) expedite the deployment of technology to reduce greenhouse gas intensity.

`(c) Focus- In providing assistance under subsection (b), the Secretary of State shall focus on--

`(1) promoting the rule of law, property rights, contract protection, and economic freedom; and

`(2) increasing capacity, infrastructure, and training.

`(d) Priority- In providing assistance under subsection (b), the Secretary of State shall give priority to projects in the 25 developing countries identified in the report submitted under subsection (a)(2)(A).

`SEC. 733. TECHNOLOGY INVENTORY FOR DEVELOPING COUNTRIES.

`(a) In General- The Secretary of Energy, in coordination with the Secretary of State and the Secretary of Commerce, shall conduct an inventory of greenhouse gas intensity reducing technologies that are developed, or under development in the United States, to identify technologies that are suitable for transfer to, deployment in, and commercialization in the developing countries identified in the report submitted under section 732(a)(2)(A).

`(b) Report- Not later than 180 days after the completion of the inventory under subsection (a), the Secretary of State and the Secretary of Energy shall jointly submit to Congress a report that--

`(1) includes the results of the completed inventory;

`(2) identifies obstacles to the transfer, deployment, and commercialization of the inventoried technologies;

`(3) includes results from previous Federal reports related to the inventoried technologies; and

`(4) includes an analysis of market forces related to the inventoried technologies.

`SEC. 734. TRADE-RELATED BARRIERS TO EXPORT OF GREENHOUSE GAS INTENSITY REDUCING TECHNOLOGIES.

`(a) In General- Not later than 1 year after the date of enactment of this part, the United States Trade Representative shall (as appropriate and consistent with applicable bilateral, regional, and mutual trade agreements)--

`(1) identify trade-relations barriers maintained by foreign countries to the export of greenhouse gas intensity reducing technologies and practices from the United States to the developing countries identified in the report submitted under section 732(a)(2)(A); and

`(2) negotiate with foreign countries for the removal of those barriers.

`(b) Annual Report- Not later than 1 year after the date on which a report is submitted under subsection (a)(1) and annually thereafter, the United States Trade Representative shall submit to Congress a report that describes any progress made with respect to removing the barriers identified by the United States Trade Representative under subsection (a)(1).

`SEC. 735. GREENHOUSE GAS INTENSITY REDUCING TECHNOLOGY EXPORT INITIATIVE.

`(a) In General- There is established an interagency working group to carry out a Greenhouse Gas Intensity Reducing Technology Export Initiative to--

`(1) promote the export of greenhouse gas intensity reducing technologies and practices from the United States;

`(2) identify developing countries that should be designated as priority countries for the purpose of exporting greenhouse gas intensity reducing technologies and practices, based on the report submitted under section 732(a)(2)(A);

`(3) identify potential barriers to adoption of exported greenhouse gas intensity reducing technologies and practices based on the reports submitted under section 734; and

`(4) identify previous efforts to export energy technologies to learn best practices.

`(b) Composition- The working group shall be composed of--

`(1) the Secretary of State, who shall act as the head of the working group;

`(2) the Administrator of the United States Agency for International Development;

`(3) the United States Trade Representative;

`(4) a designee of the Secretary of Energy;
`(5) a designee of the Secretary of Commerce; and
`(6) a designee of the Administrator of the Environmental Protection Agency.
`(c) Performance Reviews and Reports- Not later than 180 days after the date of enactment of this part and each year thereafter, the interagency working group shall--
`(1) conduct a performance review of actions taken and results achieved by the Federal Government (including each of the agencies represented on the interagency working group) to promote the export of greenhouse gas intensity reducing technologies and practices from the United States; and
`(2) submit to the appropriate authorizing and appropriating committees of Congress a report that describes the results of the performance reviews and evaluates progress in promoting the export of greenhouse gas intensity reducing technologies and practices from the United States, including any recommendations for increasing the export of the technologies and practices.

`SEC. 736. TECHNOLOGY DEMONSTRATION PROJECTS.

`(a) In General- The Secretary of State, in coordination with the Secretary of Energy and the Administrator of the United States Agency for International Development, shall promote the adoption of technologies and practices that reduce greenhouse gas intensity in developing countries in accordance with this section.
`(b) Demonstration Projects-
`(1) IN GENERAL- The Secretaries and the Administrator shall plan, coordinate, and carry out, or provide assistance for the planning, coordination, or carrying out of, demonstration projects under this section in at least 10 eligible countries, as determined by the Secretaries and the Administrator.
`(2) ELIGIBILITY- A country shall be eligible for assistance under this subsection if the Secretaries and the Administrator determine that the country has demonstrated a commitment to--
`(A) just governance, including--
`(i) promoting the rule of law;
`(ii) respecting human and civil rights;
`(iii) protecting private property rights; and
`(iv) combating corruption; and
`(B) economic freedom, including economic policies that--
`(i) encourage citizens and firms to participate in global trade and international capital markets;
`(ii) promote private sector growth and the sustainable management of natural resources; and
`(iii) strengthen market forces in the economy.
`(3) SELECTION- In determining which eligible countries to provide assistance to under paragraph (1), the Secretaries and the Administrator shall consider--
`(A) the opportunity to reduce greenhouse gas intensity in the eligible country; and
`(B) the opportunity to generate economic growth in the eligible country.

`(4) TYPES OF PROJECTS- Demonstration projects under this section may include--

`(A) coal gasification, coal liquefaction, and clean coal projects;

`(B) carbon sequestration projects;

`(C) cogeneration technology initiatives;

`(D) renewable projects; and

`(E) lower emission transportation.

`SEC. 737. FELLOWSHIP AND EXCHANGE PROGRAMS.

`The Secretary of State, in coordination with the Secretary of Energy, the Secretary of Commerce, and the Administrator of the Environmental Protection Agency, shall carry out fellowship and exchange programs under which officials from developing countries visit the United States to acquire expertise and knowledge of best practices to reduce greenhouse gas intensity in their countries.

`SEC. 738. AUTHORIZATION OF APPROPRIATIONS.

`There are authorized to be appropriated such sums as are necessary to carry out this part.

`SEC. 739. EFFECTIVE DATE.

`Except as otherwise provided in this part, this part takes effect on October 1, 2005.'