



U.S. TRADE IN ENVIRONMENTAL GOODS

FOLLOW-UP REPORT

to

**MAJOR OPPORTUNITIES AND
CHALLENGES TO U.S. EXPORTS OF
ENVIRONMENTAL GOODS**

Senator Ron Wyden

May 20, 2010

Summary

The United States and its trading partners have put a high priority on domestic and international efforts to reduce emissions of greenhouse gases, mitigate climate change, and protect the environment. In the face of these efforts, those countries that develop and foster competitive environmental goods industries will be in the best position to reap the economic rewards of increased international demand for goods that mitigate climate-related and other environmental challenges.

In December 2009, my office produced a special report entitled *Major Opportunities and Challenges to U.S. Exports of Environmental Goods*. The report showed that (1) global trade of environmental goods more than doubled in recent years; (2) although U.S. exports of environmental goods increased, the U.S. trade balance of these goods deteriorated substantially; (3) trade barriers in the fastest growing markets abroad are a key constraint to increasing U.S. exports; and (4) U.S. exporters are losing overseas market share to foreign producers of environmental goods, especially to China.

A key constraint of that report and all others that preceded it was the lack of reliable trade data of goods that serve a specific environmental purpose. The World Bank has identified 43 products as broadly being “climate friendly” (the WB 43); however, accurate trade data for these products are largely unavailable because these goods are commingled with other non-environmental goods classified within the same broader product categories that are recognized at the international level. The WB 43 is generally viewed as a basis for international trade negotiations to reduce or eliminate trade barriers to environmental goods. Until today, there was not a clear understanding of the share of these 43 goods that serve a specific (or “real”) environmental purpose in relation to the broader product groupings in which these goods are classified at the international level.

This report presents a new approach to refine data related to U.S. trade in environmental goods to give policy makers a clearer understanding about the opportunities and challenges to American producers and exporters in this sector of the economy. Building on *Major Opportunities and Challenges to U.S. Exports of Environmental Goods*, this report estimates U.S. trade flows of *real* environmental goods within the broader product groupings in which these goods are classified.

Key highlights of this report show:

- U.S. trade levels in these environmental goods are overstated. U.S. exports of environmental goods are much smaller than previously estimated, accounting for only 7–12 percent (\$1.3–1.9 billion) of previous estimates of U.S. exports between 2007 and 2009.
- The U.S. trade deficit of these environmental goods is 30 percent smaller than previously thought. Products associated with renewable energy, such as wind and solar power, account for 80 percent of the U.S. trade deficit.
- Despite running an overall negative trade balance in environmental goods, the United States runs a positive trade balance in goods associated with wastewater treatment, air pollution control, and heat and energy management.
- Many states produce and export environmental goods and services. Future efforts to reduce or remove foreign trade barriers and promote U.S. exports of environmental goods and services would therefore provide broad-based benefits to U.S. industry across the country.

Background

Environmental goods, along with environmental services (collectively referred to as “EGS”), cover a wide range of products and services that cut across many different industry sectors. Although there is no internationally accepted definition, EGS are generally defined as goods and services associated with environmental protection, including those related to air, water, or soil pollution control and prevention; waste management; environmental monitoring and recycling; and renewable energy, among others.

EGS were singled out in Paragraph 31 (iii) of the World Trade Organization’s (WTO) Doha negotiating mandate.¹ While the mandate calls for a reduction, or as appropriate, elimination of tariffs and non-tariff barriers, progress in the negotiations is hampered by the absence of universally accepted definitions of EGS and the lack of a common understanding of the scope of goods and services to be liberalized under that mandate.

Members of the WTO continue efforts to reach consensus on what constitutes an environmental good (henceforth “EG”). In December 2007, the United States and the EU proposed an Environmental Goods and Services Agreement (EGSA) to liberalize trade in environmentally friendly goods and services.² The proposed plurilateral agreement called for elimination of tariffs and identified non-tariff barriers of 43 products identified by the World Bank as broadly being “climate friendly.” The proposed EGSA would also seek commitments to establish binding tariff elimination commitments on an additional, broader set of products that were not specifically identified in the proposal, as well as enhanced market access for trade in environmental services.

A central issue in these negotiations is whether expanded trade liberalization should include only those goods with a single use (e.g., environmental protection or climate change mitigation), or should also include dual-use goods that have both environmental and non-environmental uses. This issue is complicated by the fact that both single- and dual-use goods are often included in broader WTO-recognized 6-digit code levels of the Harmonized Commodity Description and Coding System (HS), which include products generally considered not to be EG.

These conceptual and practical issues have hindered the development of data and estimates of trade flows of EG. As a result, a clear understanding of the potential effect on trade flows of any liberalization of trade is lacking. Previous work has focused on the trade flows of the broader HS 6-digit subheadings where global trade data are more readily available.

This report estimates U.S. trade flows of the more narrowly defined product list of 43 environmental goods contained within the broader HS 6-digit subheadings. For the purposes of this report, the term “real environmental goods” is used to distinguish the more narrowly defined environmental goods from all goods contained within the broader HS 6-digit subheadings.

Environmental goods are categorized into the following 7 product groups:

- (1) Air Pollution Control (APC)
- (2) Management of Solid and Hazardous Waste (SHW)
- (3) Renewable Energy Products (REP)
- (4) Heat and Energy Management (HEM)
- (5) Waste Water Management and Potable Water Treatment (WWM)
- (6) Cleaner or More Resource Efficient Technologies and Products (CRET)
- (7) Environmental Monitoring, Analysis, and Assessment Equipment (EMAA)

Methodology

This report estimates the U.S. trade balance, U.S. exports, and U.S. imports of the more narrowly defined product list of 43 “real” environmental goods contained within the broader HS 6-digit subheadings. In contrast to the previous report, this report does not estimate the global trade of the more narrowly defined list of environmental goods, nor does it estimate the U.S. market share of the more narrowly defined list of environmental goods in global markets.

Trade data for the latest 3-year period (2007-09) of the 43 HS 6-digit subheadings were obtained from the U.S. International Trade Commission.³

Where the product list of 43 environmental goods corresponded to a specific HS 6-digit or 10-digit level in the U.S. Harmonized Tariff Schedule (HTS) or U.S. Export Schedule B (SB), official trade data were provided for that product. In the majority of cases, trade was estimated in either value terms or as a percentage of the most specific level of trade nomenclature identified. These estimates were then converted to percentage shares and values of U.S. exports and imports for the HS 6-digit subheadings.

Estimates of the value of U.S. trade and the percentage of the HS 6-digit subheadings are presented in a detailed summary table in Annex A. An aggregated summary table is presented in Annex B. Product descriptions, states engaged in the production and export of environmental goods, principal U.S. export markets, and principal foreign producers and exporters are presented in Annex C.

Estimates of U.S. trade of the 43 environmental goods were made by review of publications and industry data, and through consultations with government officials, industrial officials, and members of non-governmental organizations and industry trade associations. Substantial assistance was provided by staff of the U.S. International Trade Commission.

U.S. Merchandise Trade Balance

Between 2007 and 2009, the U.S. trade balance in EG deteriorated, but was tempered by reduced EG imports in 2009 as a result of the U.S. recession and reduced U.S. demand. The negative U.S. trade balance was approximately \$4 billion in 2009, accounting for about 70 percent of previous estimates of the negative U.S. trade balance based on HS 6-digit subheadings of these products (figure 1).

Renewable energy products account for a significant share of the negative U.S. trade balance (figure 2). U.S. trade in wind towers, wind turbines, and solar cells and modules accounted for 80 percent of the U.S. trade deficit of environmental goods in 2009 (figure 3). Excluding renewable energy products, the U.S. trade balance was positive for products associated with water waste management (WWM), air pollution control (APC), and heat and energy management (HEM) (figure 4).

Figure 1

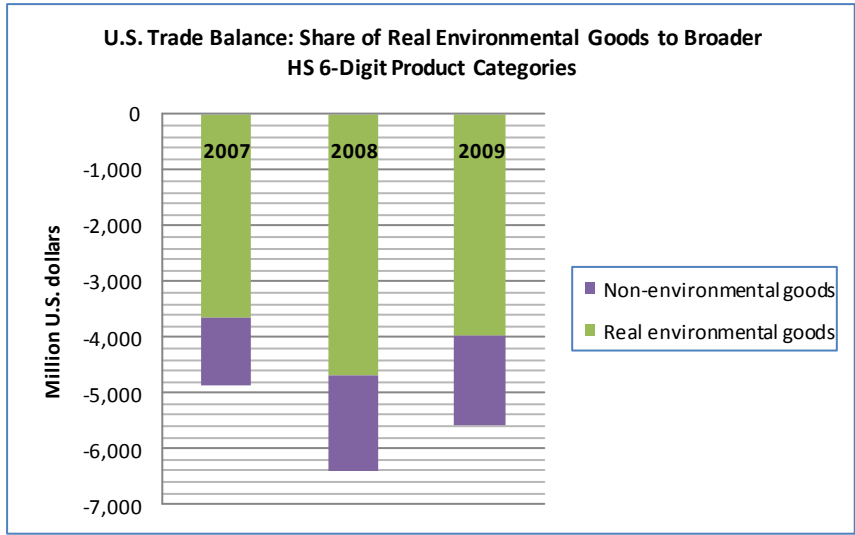
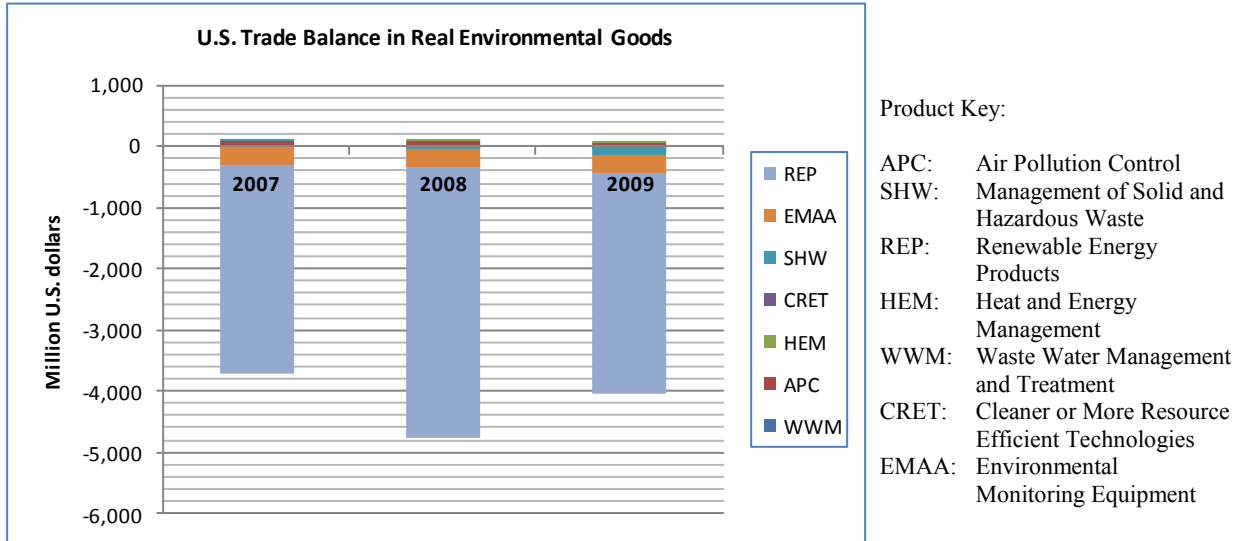


Figure 2



- Product Key:
- APC: Air Pollution Control
 - SHW: Management of Solid and Hazardous Waste
 - REP: Renewable Energy Products
 - HEM: Heat and Energy Management
 - WWM: Waste Water Management and Treatment
 - CRET: Cleaner or More Resource Efficient Technologies
 - EMAA: Environmental Monitoring Equipment

U.S. Merchandise Trade Balance (cont'd)

Figure 3

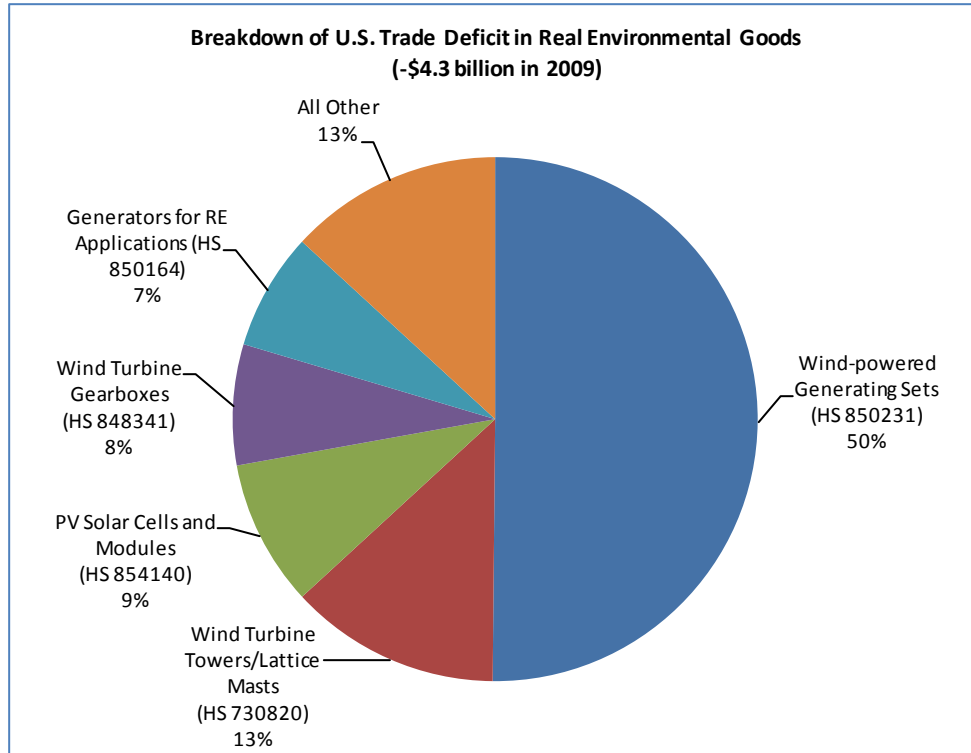
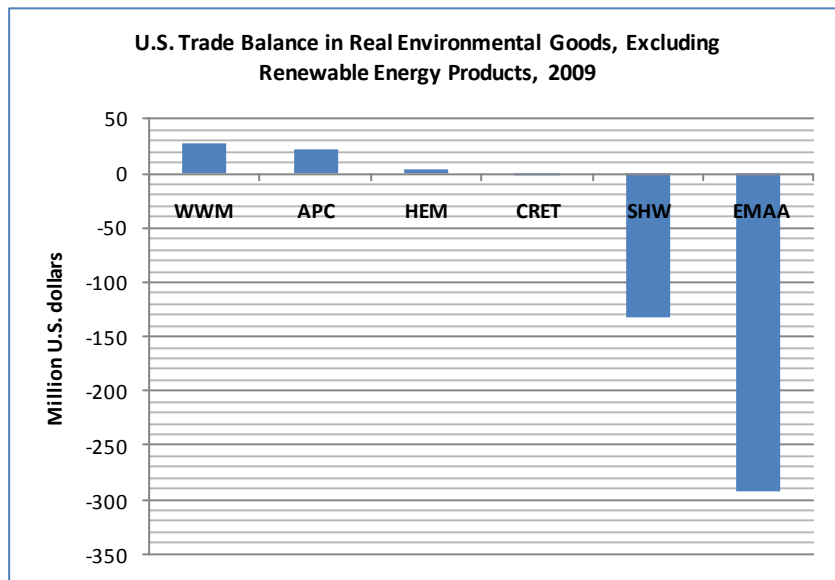


Figure 4



Product Key:

- APC: Air Pollution Control
- SHW: Management of Solid and Hazardous Waste
- REP: Renewable Energy Products
- HEM: Heat and Energy Management
- WWM: Waste Water Management and Treatment
- CRET: Cleaner or More Resource Efficient Technologies
- EMAA: Environmental Monitoring Equipment

U.S. Exports

Between 2007 and 2009, estimated U.S. EG exports accounted for 7–12 percent of U.S. exports of all products in the 43 HS 6-digit subheadings (figure 5). Percentage shares vary by product group (figure 6). In some cases, U.S. exports of a specific environmental good are substantially smaller than previously thought. For example, gas turbines for use in clean energy systems are estimated to account for only 0.1 percent (\$3.4 million in 2009) of U.S. exports of all the products classified within HS 8411.82, which was previously used to estimate exports of this particular environmental good (see appendix A). During the 2007–09 period, estimated U.S. EG exports increased almost 50 percent to \$1.9 billion (figure 7). Renewable energy products such as solar cells and modules, wind turbines, solar water heaters, and generators for renewable energy applications accounted for 70 percent of estimated U.S. EG exports in 2009 (figure 8).

Figure 5

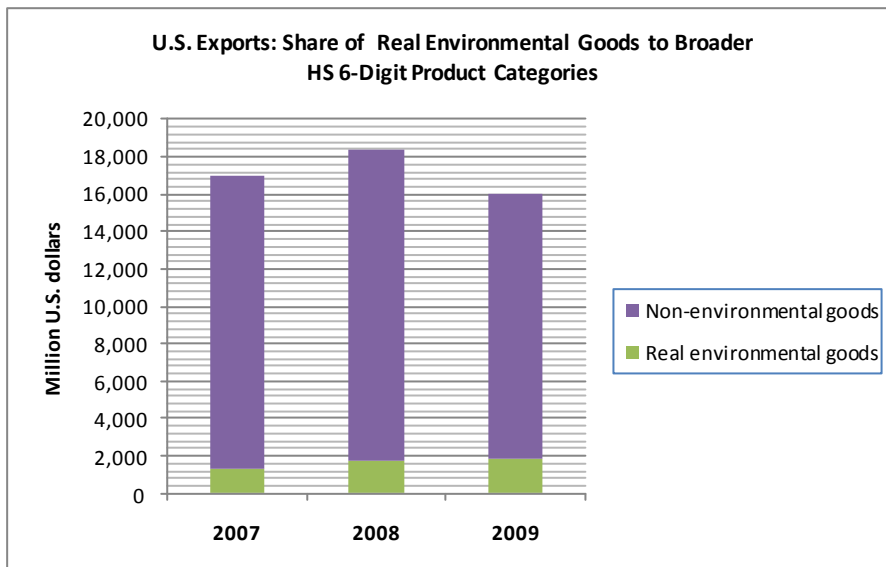
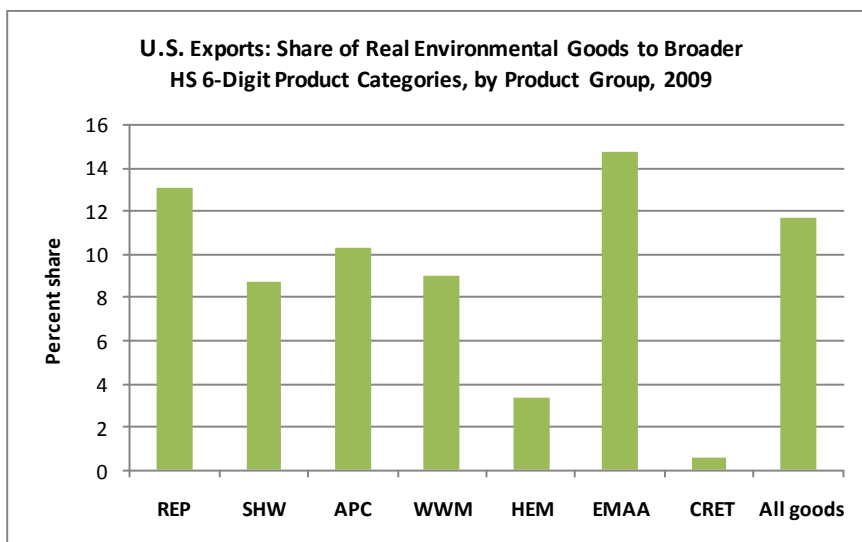


Figure 6



Product Key:

- APC: Air Pollution Control
- SHW: Management of Solid and Hazardous Waste
- REP: Renewable Energy Products
- HEM: Heat and Energy Management
- WWM: Waste Water Management and Treatment
- CRET: Cleaner or More Resource Efficient Technologies
- EMAA: Environmental Monitoring Equipment

U.S. Exports (cont'd)

Figure 7

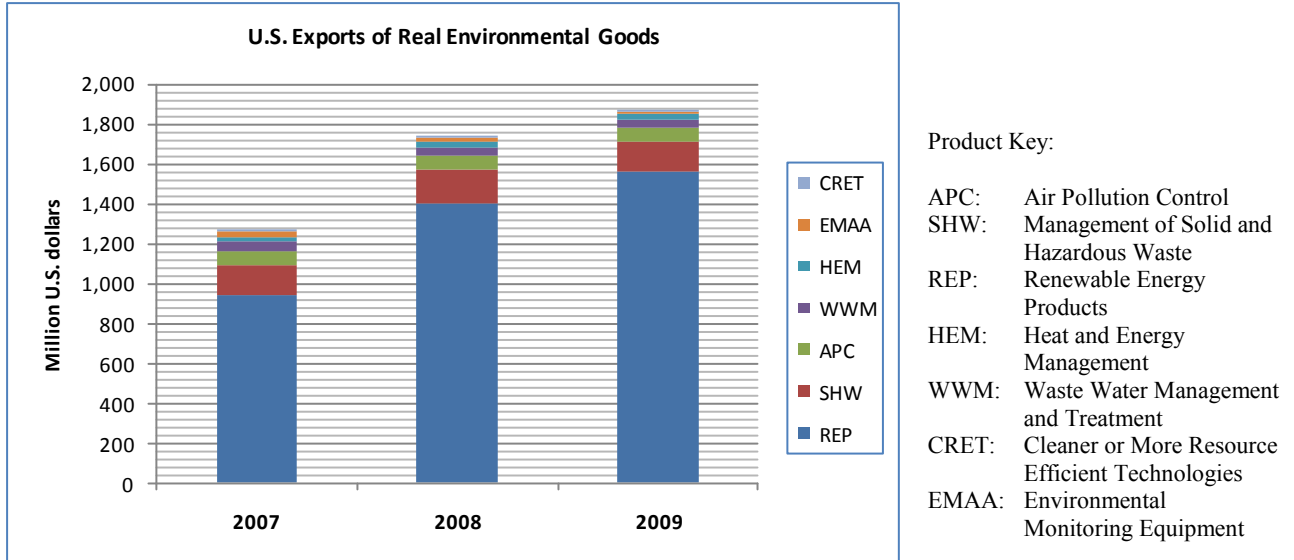
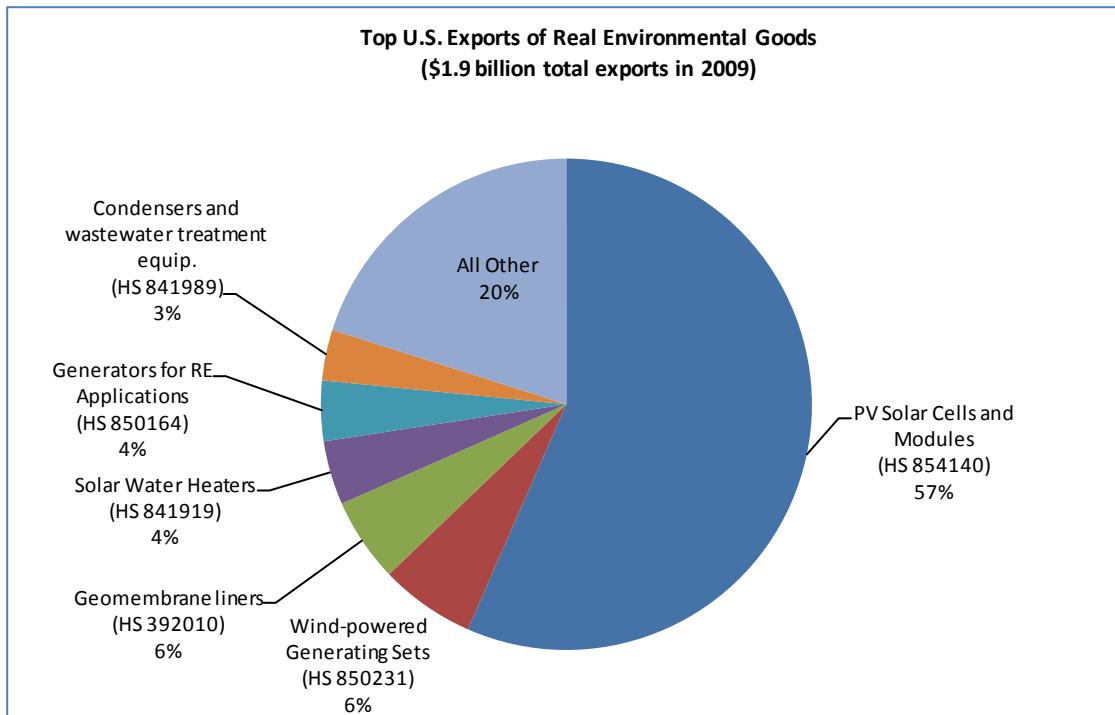


Figure 8



U.S. Imports

Between 2007 and 2009, estimated U.S. EG imports accounted for 23–27 percent of U.S. imports of all products in the 43 HS 6-digit subheadings (figure 8). Percentage shares vary by product group (figure 9). During the 2007–09 period, estimated U.S. EG imports increased almost 20 percent to \$5.9 billion (figure 10). Renewable energy products such as wind turbines, wind towers, and generators for renewable energy applications accounted for almost 90 percent of estimated U.S. EG imports in 2009 (figure 11).

Figure 8

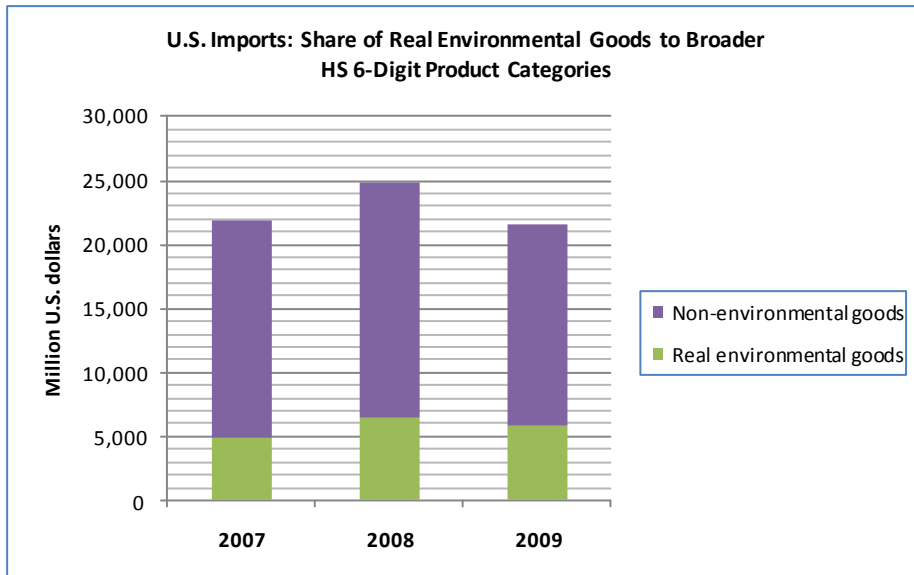
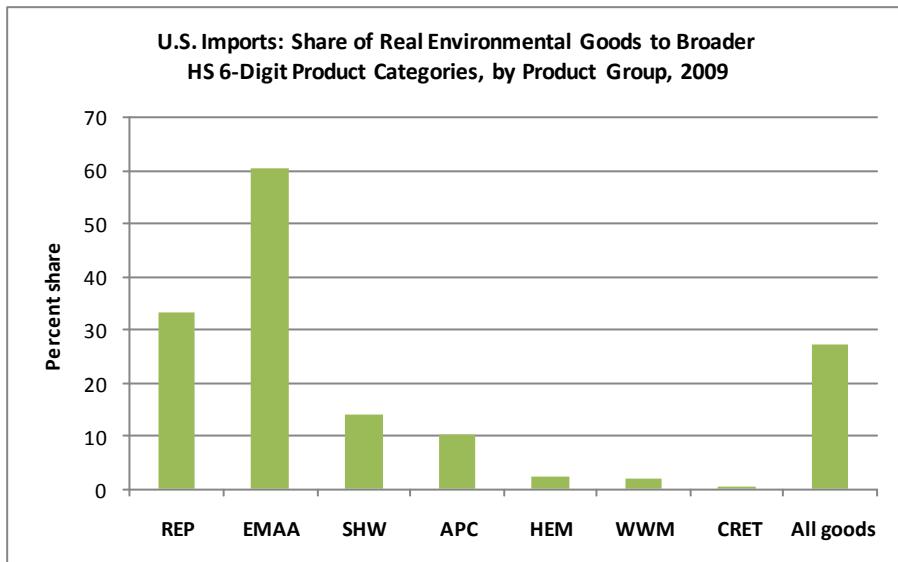


Figure 9



Product Key:

- APC: Air Pollution Control
- SHW: Management of Solid and Hazardous Waste
- REP: Renewable Energy Products
- HEM: Heat and Energy Management
- WWM: Waste Water Management and Treatment
- CRET: Cleaner or More Resource Efficient Technologies
- EMAA: Environmental Monitoring Equipment

U.S. Imports (cont'd)

Figure 10

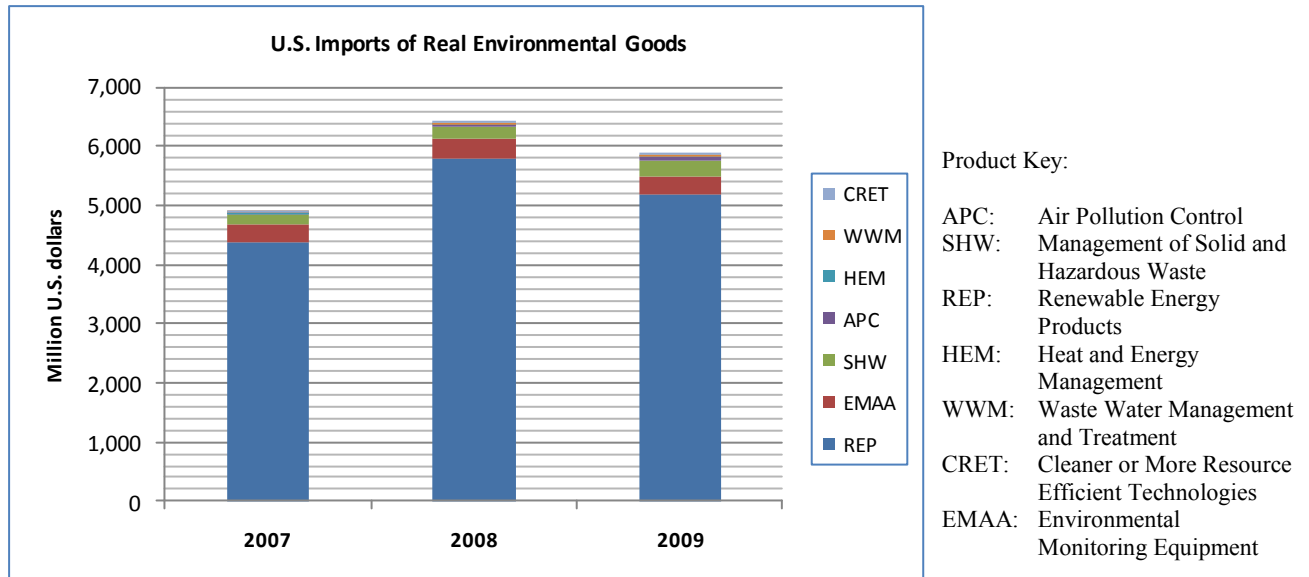
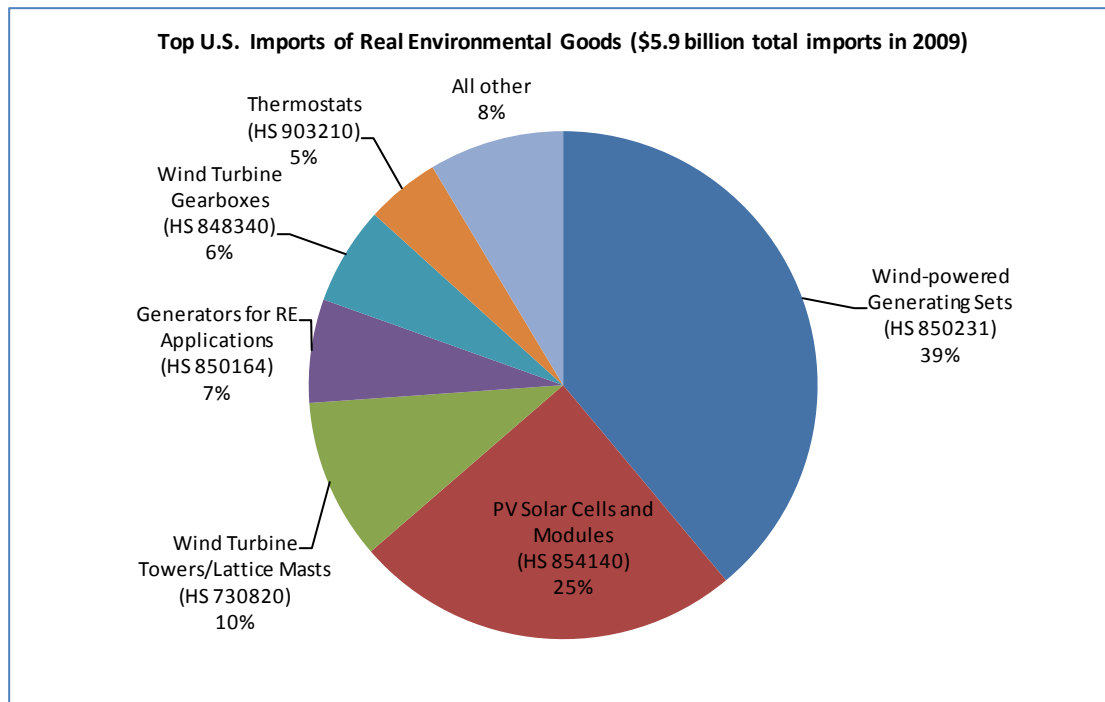


Figure 11



Conclusion

This report shows that U.S. exports of environmental goods are substantially smaller than previously thought. Such a large discrepancy between the new estimates of U.S. trade data presented in this report and previous estimates suggests that an accurate understanding of U.S. trade flows of environmental goods is lacking. As the Congress considers extension of investment tax credits for manufacturing facilities associated with renewable energy, the way it incentivizes the deployment of environmental goods, and the President's request to fund the National Export Initiative, it must also consider how to accurately measure and assess U.S. trade in environmental goods.

Because this report has shown the considerable variation in what may or may not constitute an environmental good in U.S. trade data classified and aggregated at a level that is comparable at an international level, Congress should consider giving the United States Trade Representative (USTR) more explicit guidance about the scope of a proposed EGSA in order to ensure that the Congress's expectations are consistent with the Administration's, since any EGSA will need congressional ratification.

This report is the first effort to offer a new approach to measuring U.S. trade in environmental goods. It separates out those goods with a specific or *real* environmental purpose from non-environmental goods that are classified in the same broader product groupings. The approach used in this report could serve the basis for further efforts to refine trade data of environmental goods in order to address the current U.S. trade imbalance, assess U.S. export competitiveness, and further engage WTO members to agree on a specific definition of environmental goods. A specific definition and a standardized approach to measure and delineate environmental goods from non-environmental goods that are classified within the same product groupings could help clarify negotiating positions in any potential multilateral agreement to liberalize trade in environmental goods.

U.S. agencies responsible for trade matters should improve collaboration in their efforts to analyze U.S. trade in environmental goods. The approach used in this report could serve as a basis for further efforts to refine trade data. To this end, the Office of the USTR should continue its recent work with the U.S. International Trade Commission and the U.S. Department of Commerce to develop a better definition of and better data on U.S. trade of environmental goods. This will assist the government's ability to determine the potential economic effects on the U.S. economy of liberalizing trade in environmental goods through any potential plurilateral agreement, such as the U.S.-proposed EGSA.

Until the United States and its trading partners are better able to determine how to categorize and account for environmental goods within their respective tariff schedules, U.S.-led efforts to liberalize trade in an agreed-upon set of environmental goods will prove difficult, given the nature of the international classification system. In addition, although not explicitly touched upon in this report, efforts to define, classify, and measure trade in environmental services will prove equally challenging. Discussions about this report may bring to light these challenges. Despite them, the United States should continue to play an active leadership role at the international level to foster cooperation in this important area of trade.

End Notes

¹ Paragraph 31 (iii) (Trade and Environment) states: “With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on [...] the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.” WTO, *Ministerial Declaration* (WT/MIN(01)/DEC/1), November 14, 2001.

² WTO, Committee on Trade and Environment Special Session, *Proposal for a Result under Paragraph 31 (iii) of the Doha Ministerial Declaration* (JOB(07)/193), December 3, 2007.

³ Assistance from the U.S. International Trade Commission was led by David Ingersoll.

Annex A

Estimates of U.S. trade of the 43 environmental goods, 2007-09

HS 6-digit code	Label	2007			2008			2009		
		Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)	Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)	Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)
Renewable Energy Plant (REP)										
730820	Imports	555.6	578.8	96	925.5	944.4	98	599.8	612.2	98
	Exports	51.0	85.1	60	41.9	91.1	45	39.3	65.5	60
	Balance	-504.6	-493.7	-	-883.4	-853.4	-	-560.5	-546.7	-
761100	Imports	0.0	4.1	0	0.0	2.4	-	0.0	2.3	0
	Exports	0.0	18.8	0	0.0	22.7	-	0.0	13.8	0
	Balance	0.0	14.7	-	0.0	20.3	-	0.0	11.4	-
840681	Imports	3.5	57.6	6	0.4	39.5	1	1.9	31.9	6
	Exports	0.0	3.2	0.1	0.0	13.1	0.1	0.1	78.2	0.1
	Balance	-3.5	-54.4	-	-0.4	-26.4	-	-1.8	46.3	-
841011	Imports	0.5	0.5	100	1.9	1.9	100	5.5	5.5	100
	Exports	3.8	3.8	100	6.7	6.7	100	3.8	3.8	100
	Balance	3.3	3.3	-	4.8	4.8	-	-1.7	-1.7	-
841090	Imports	0.2	36.3	1	1.0	45.2	2	2.7	49.1	6
	Exports	1.9	28.6	7	3.4	35.1	10	1.9	50.5	4
	Balance	1.7	-7.6	-	2.4	-10.2	-	-0.8	1.4	-
841181	Imports	0.1	148.5	0.1	0.2	213.9	0.1	0.3	330.7	0.1
	Exports	0.6	592.5	0.1	0.7	738.5	0.1	0.4	390.4	0.1
	Balance	0.4	444.0	-	0.5	524.6	-	0.1	59.7	-
841182	Imports	0.2	171.1	0.1	0.2	231.5	0.1	0.2	195.6	0.1
	Exports	3.4	3,381.0	0.1	3.1	3,140.6	0.1	2.9	2,834.0	0.1
	Balance	3.2	3,209.9	-	2.9	2,909.2	-	2.7	2,638.4	-
841581	Imports	1.0	24.4	4	1.0	32.4	3	1.0	52.9	2
	Exports	5.0	109.3	5	8.0	143.0	6	10.0	140.8	7
	Balance	4.0	84.9	-	7.0	110.5	-	9.0	87.8	-
841861	Imports	10.0	15.9	63	10.0	51.1	20	10.0	56.6	18
	Exports	35.0	77.9	45	47.0	76.5	61	60.0	80.3	75
	Balance	25.0	62.0	-	37.0	25.4	-	50.0	23.7	-
841869	Imports	0.0	812.2	0	0.0	918.4	10	0.0	831.2	0
	Exports	0.0	849.5	0	0.0	928.0	9.1	0.0	705.1	0
	Balance	0.0	37.3	-	0.0	9.7	-	0.0	-126.2	-
841919	Imports	14.0	360.2	3.9	30.7	383.4	8	11.2	328.1	3.4
	Exports	23.1	92.3	25	71.1	114.7	62	78.7	119.3	66
	Balance	9.0	-267.9	-	40.4	-268.7	-	67.6	-208.8	-
841990	Imports	5.8	720.0	0.8	7.5	829.2	0.9	7.8	652.3	1.2
	Exports	3.5	588.3	0.6	3.3	655.8	0.5	4.5	564.2	0.8
	Balance	-2.2	-131.9	-	-4.2	-173.3	-	-3.3	-88.1	-
848340	Imports	278.0	1,859.7	15	431.3	2,219.3	19	365.5	1,619.4	23
	Exports	25.1	743.0	3	28.3	885.9	3	44.1	732.8	6
	Balance	-252.9	-1,116.7	-	-402.9	-1,333.4	-	-321.5	-886.6	-
848360	Imports	16.1	295.4	5	28.8	305.5	9	22.4	198.9	11
	Exports	2.2	215.7	1	2.4	235.4	1	2.1	203.9	1
	Balance	-13.9	-79.6	-	-26.5	-70.1	-	-20.4	5.0	-
850161	Imports	13.9	138.9	10	17.0	169.7	10	11.5	114.7	10
	Exports	14.0	70.0	20	18.9	94.4	20	15.8	79.1	20
	Balance	0.1	-68.9	-	1.9	-75.3	-	4.3	-35.6	-
850162	Imports	5.2	52.2	10	7.1	70.6	10	5.2	51.9	10
	Exports	22.1	110.5	20	23.7	118.3	20	24.3	121.3	20
	Balance	16.9	58.3	-	16.6	47.6	-	19.1	69.4	-
850163	Imports	7.0	69.6	10	8.1	81.4	20	3.7	36.7	20
	Exports	2.2	10.8	20	2.1	10.4	20	2.0	10.0	20
	Balance	-4.8	-58.9	-	-6.1	-71.0	-	-1.7	-26.7	-
850164	Imports	392.8	561.2	70	577.7	825.4	70	385.9	551.3	70
	Exports	60.4	302.1	20	83.9	419.1	20	74.1	370.5	20
	Balance	-332.1	-259.1	-	-493.9	-406.3	-	-311.8	-180.9	-
850231	Imports	2,379.9	2,379.9	100	2,503.3	2,503.3	100	2,280.0	2,280.0	100
	Exports	14.2	14.2	100	22.1	22.1	100	117.0	117.0	100
	Balance	-2,365.8	-2,365.8	-	-2,481.3	-2,481.3	-	-2,163.0	-2,163.0	-
850720	Imports	10.0	550.3	1	10.0	642.2	2	10.0	481.8	1
	Exports	20.0	388.3	5	20.0	520.9	4	20.0	374.8	5
	Balance	10.0	-162.0	-	10.0	-121.3	-	10.0	-107.0	-
853710	Imports	4.8	4,829.2	0.1	5.1	5,082.9	0.1	4.0	4,030.9	0.1
	Exports	2.3	2,303.3	0.1	2.3	2,341.2	0.1	1.9	1,911.1	0.1
	Balance	-2.5	-2,526.0	-	-2.7	-2,741.7	-	-2.1	-2,119.8	-
854140	Imports	676.9	2,111.9	32	1,240.8	2,727.4	45	1,445.7	2,584.6	56
	Exports	646.9	1,582.2	41	1,011.3	1,976.1	51	1,056.7	2,017.6	52
	Balance	-30.0	-529.7	-	-229.5	-751.3	-	-389.0	-567.0	-
900190	Imports	0.3	332.1	0.1	0.4	365.6	0.1	0.3	275.6	0.1
	Exports	1.3	1,344.3	0.1	0.9	874.8	0.1	0.9	848.0	0.1
	Balance	1.0	1,012.2	-	0.5	509.2	-	0.6	572.4	-
900290	Imports	0.1	114.1	0.1	0.1	137.4	0.1	1.3	129.2	0.1
	Exports	0.1	99.1	0.1	0.1	86.9	0.1	0.6	62.8	0.1
	Balance	0.0	-15.0	-	0.0	-50.5	-	-0.7	-66.4	-
Subtotal	Imports	4,375.9	16,224.1	27	5,808.1	18,824.0	31	5,175.9	15,503.4	33
	Exports	938.1	13,013.8	7	1,401.2	13,551.3	10	1,561.1	11,894.8	13
	Balance	-3,437.8	-3,210.3	-	-4,406.9	-5,272.7	-	-3,614.8	-3,608.6	-

Annex A (cont'd)

HS 6-digit code	Label	2007			2008			2009		
		Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)	Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)	Product trade (\$millions)	HS 6-digit trade (\$millions)	Share (%)
Environmental Monitoring, Analysis, and Assessment Equipment (EMAA)										
903210	Imports	277.6	500.2	55	291.7	526.9	55	275.7	475.7	58
	Exports	5.5	109.3	5	5.6	112.0	5	4.5	90.3	5
	Balance	-272.1	-390.9	-	-286.1	-414.9	-	-271.2	-385.3	-
903220	Imports	39.7	39.7	100	45.6	45.6	100	31.5	31.5	100
	Exports	19.9	19.9	100	14.4	14.4	100	10.3	10.3	100
	Balance	-19.8	-19.8	-	-31.1	-31.1	-	-21.2	-21.2	-
Subtotal	Imports	317.3	539.9	59	337.3	572.5	59	307.2	507.2	61
	Exports	25.4	129.2	20	20.0	126.4	16	14.8	100.6	15
	Balance	-291.9	-410.7	-	-317.3	-446.1	-	-292.4	-406.6	-
Management of Solid and Hazardous Waste (SHW)										
392010	Imports	59.3	921.3	6.4	57.9	992.0	5.8	42.9	872.8	4.9
	Exports	123.8	955.3	13	127.1	1,189.5	10.7	103.4	990.0	10.4
	Balance	64.5	34.0	-	69.2	197.5	-	60.5	117.2	-
761290	Imports	0.0	194.4	0	0.0	203.4	0	0.0	175.7	0
	Exports	1.5	347.5	0.4	1.5	333.8	0.4	1.5	371.3	0.4
	Balance	1.5	153.1	-	1.3	130.5	-	1.5	195.5	-
840219	Imports	1.0	10.3	10	1.8	18.3	10	7.5	74.6	10
	Exports	3.0	29.7	10	3.6	36.3	10	2.7	27.2	10
	Balance	1.9	19.4	-	1.8	18.0	-	4.7	47.4	-
840290	Imports	27.4	274.1	10	29.8	298.3	10	37.4	374.4	10
	Exports	17.0	170.4	10	22.1	220.8	10	23.7	237.1	10
	Balance	-10.4	-103.7	-	-7.7	-77.5	-	-13.7	-137.3	-
840410	Imports	4.8	48.1	10	11.0	110.4	10	10.9	109.0	10
	Exports	2.8	27.6	10	2.9	29.4	10	2.8	28.2	10
	Balance	-2.0	-20.4	-	-8.1	-81.0	-	-8.1	-80.8	-
841940	Imports	64.3	142.8	45	105.1	233.5	45	186.4	414.3	45
	Exports	11.0	52.3	21	16.1	89.7	18	18.5	92.4	20
	Balance	-53.3	-90.5	-	-88.9	-143.7	-	-168.0	-321.9	-
Subtotal	Imports	156.8	1,591.0	10	205.6	1,855.9	11	285.1	2,020.8	14
	Exports	159.1	1,582.8	10	173.3	1,899.5	9	152.6	1,746.2	9
	Balance	2.3	-8.2	-	-32.3	43.6	-	-132.5	-274.6	-
Air Pollution Control (APC)										
840490	Imports	11.7	116.7	10	12.9	128.6	10	15.3	152.9	10
	Exports	5.5	54.6	10	4.6	46.5	10	5.9	59.1	10
	Balance	-6.2	-62.1	-	-8.2	-82.1	-	-9.4	-93.8	-
840510	Imports	0.0	24.4	0	0.0	15.9	0	31.2	37.0	84
	Exports	0.0	58.3	0	0.0	65.4	0	0.0	78.8	0
	Balance	0.0	33.8	-	0.0	49.5	-	-31.2	-41.8	-
841989	Imports	0.5	346.1	0	0.5	373.5	0	0.5	269.6	0
	Exports	62.5	518.2	11	62.5	836.4	8	62.5	525.9	11
	Balance	62.0	172.1	-	62.0	462.9	-	62.0	256.3	-
Subtotal	Imports	12.2	487.2	3	13.4	518.0	3	47.0	459.5	10
	Exports	68.0	631.1	11	67.1	948.3	7	68.4	663.8	10
	Balance	55.8	143.9	-	53.7	430.3	-	21.4	204.3	-
Heat and Energy Management (HEM)										
701931	Imports	9.0	73.6	12	7.0	56.9	12	4.0	43.9	9
	Exports	12.0	84.2	14	14.0	117.5	12	12.0	100.0	12
	Balance	3.0	10.6	-	7.0	60.6	-	8.0	56.1	-
841950	Imports	9.5	477.4	2	14.5	722.7	2	16.2	809.0	2
	Exports	13.4	668.2	2	15.3	764.9	2	13.0	651.5	2
	Balance	3.8	190.8	-	0.8	42.2	-	-3.2	-157.5	-
Subtotal	Imports	18.5	551.0	3	21.5	779.6	3	20.2	852.9	2
	Exports	25.4	752.4	3	29.3	882.4	3	25.0	751.5	3
	Balance	6.9	201.4	-	7.8	102.8	-	4.8	-101.4	-
Waste Water Management and Potable Water Treatment (WWM)										
560314	Imports	1.0	58.0	1.7	1.0	57.3	1.7	1.0	82.5	1.2
	Exports	1.0	165.2	0.6	1.0	206.5	0.5	1.0	156.7	0.6
	Balance	0.0	107.2	-	0.0	149.2	-	0.0	74.2	-
730900	Imports	12.5	227.1	6	11.3	308.9	4	12.5	587.3	2
	Exports	42.5	253.9	17	38.3	379.3	10	42.5	268.4	16
	Balance	30.0	26.8	-	27.0	70.4	-	30.0	-318.9	-
732490	Imports	3.6	177.8	2	3.9	194.5	2	2.9	149.2	2
	Exports	0.7	66.7	1	0.7	73.6	1	0.6	65.0	1
	Balance	-2.9	-111.1	-	-3.2	-120.9	-	-2.3	-84.2	-
Subtotal	Imports	17.1	462.9	4	16.2	560.7	3	16.4	819.0	2
	Exports	44.2	485.8	9	40.0	659.4	6	44.1	490.1	9
	Balance	27.1	22.9	-	23.8	98.7	-	27.7	-328.9	-
Cleaner or More Resource Efficient Technologies and Products (CRET)										
732111	Imports	0.0	1,587.3	0	0.0	1,331.0	0	0.0	1,100.5	0
	Exports	0.0	207.1	0	0.0	208.9	0	0.0	205.5	0
	Balance	0.0	-1,380.2	-	0.0	-1,122.1	-	0.0	-895.0	-
732190	Imports	3.1	308.7	1	3.0	296.9	1	2.2	218.1	1
	Exports	0.6	64.1	1	0.7	65.1	1	0.5	48.9	1
	Balance	-2.4	-244.6	-	-2.3	-231.8	-	-1.7	-169.3	-
850680	Imports	0.9	91.5	1	0.9	86.3	1	0.7	66.4	1
	Exports	2.3	112.9	2	1.7	86.6	2	1.4	68.5	2
	Balance	1.4	21.4	-	0.8	0.3	-	0.7	2.1	-
Subtotal	Imports	4.0	1,987.5	0.2	3.9	1,714.2	0.2	2.9	1,385.0	0.2
	Exports	2.9	384.1	0.8	2.4	360.6	0.7	1.9	322.9	0.6
	Balance	-1.1	-1,603.4	-	-1.5	-1,353.6	-	-1.0	-1,062.1	-
Total U.S. Environmental Goods										
Total	Imports	4,901.8	21,843.6	22	6,406.0	24,824.9	26	5,854.7	21,547.8	27
	Exports	1,263.1	16,979.2	7	1,733.3	18,427.9	9	1,867.9	15,969.9	12
	Balance	-3,638.7	-4,864.4	-	-4,672.7	-6,397.0	-	-3,986.8	-5,577.9	-

Note.--The HS 6-digit trade values are official U.S. trade data; the values of imports and exports and the shares of the HS 6-digit trade are upper bound estimates of the trade of the specific products. Numbers may not add due to rounding.

Annex B

Estimates of U.S. trade of 43 environmental goods, aggregated by product group, 2007-09

Product Key		2007			2008			2009		
		EG product trade	HS 6-digit trade	Share	EG product trade	HS 6-digit trade	Share	EG product trade	HS 6-digit trade	Share
		(\$ millions)	(\$ millions)	(%)	(\$ millions)	(\$ millions)	(%)	(\$ millions)	(\$ millions)	(%)
REP	Imports	4,375.9	16,224.1	27	5,808.1	18,824.0	31	5,175.9	15,503.4	33
	Exports	938.1	13,013.8	7	1,401.2	13,551.3	10	1,561.1	11,894.8	13
	Balance	-3,437.8	-3,210.3		-4,406.9	-5,272.7		-3,614.8	-3,608.6	
EMAA	Imports	317.3	539.9	59	337.3	572.5	59	307.2	507.2	61
	Exports	25.4	129.2	20	20.0	126.4	16	14.8	100.6	15
	Balance	-291.9	-410.7		-317.3	-446.1		-292.4	-406.6	
SHW	Imports	156.8	1,591.0	10	205.6	1,855.9	11	285.1	2,020.8	14
	Exports	159.1	1,582.8	10	173.3	1,899.5	9	152.6	1,746.2	9
	Balance	2.3	-8.2		-32.3	43.6		-132.5	-274.6	
APC	Imports	12.2	487.2	3	13.4	518.0	3	47.0	459.5	10
	Exports	68.0	631.1	11	67.1	948.3	7	68.4	663.8	10
	Balance	55.8	143.9		53.7	430.3		21.4	204.3	
HEM	Imports	18.5	551.0	3	21.5	779.6	3	20.2	852.9	2
	Exports	25.4	752.4	3	29.3	882.4	3	25.0	751.5	3
	Balance	6.9	201.4		7.8	102.8		4.8	-101.4	
WWM	Imports	17.1	462.9	4	16.2	560.7	3	16.4	819.0	2
	Exports	44.2	485.8	9	40.0	659.4	6	44.1	490.1	9
	Balance	27.1	22.9		23.8	98.7		27.7	-328.9	
CRET	Imports	4.0	1,987.5	0.2	3.9	1,714.2	0.2	2.9	1,385.0	0.2
	Exports	2.9	384.1	0.8	2.4	360.6	0.7	1.9	322.9	0.6
	Balance	-1.1	-1,603.4		-1.5	-1,353.6		-1.0	-1,062.1	
Totals	Imports	4,901.8	21,843.6	22	6,406.0	24,824.9	26	5,854.7	21,547.8	27
	Exports	1,263.1	16,979.2	7	1,733.3	18,427.9	9	1,867.9	15,969.9	12
	Balance	-3,638.7	-4,864.4		-4,672.7	-6,397.0		-3,986.8	-5,577.9	

Note.--The HS 6-digit trade values are official U.S. trade data; the values of imports and exports and the shares of the HS 6-digit trade are upper bound estimates of the trade of the specific products. Numbers may not add due to rounding.

Product Key:

APC: Air Pollution Control
 SHW: Management of Solid and Hazardous Waste
 REP: Renewable Energy Products
 HEM: Heat and Energy Management
 WWM: Waste Water Management and Treatment
 CRET: Cleaner or More Resource Efficient Technologies
 EMMA: Environmental Monitoring Equipment

Annex C

Environmental goods production description, state production, U.S. export markets, and foreign producers and exporters

HS 6-digit code	Product description	States where there is production and/or assembly	Principal U.S. export markets	Principal foreign producers and exporters
Renewable Energy Plant (REP)				
730820	Towers and lattice masts for wind turbines	Illinois, Iowa, North Dakota, Oklahoma, Texas	Jordan, Spain, South Korea	Canada, Mexico, Asia
761100	Aluminum tanks or vats for anaerobic digesters for biomass gasification	Not available	Not available	Not available
840681	Steam turbines (greater than 40 MW) for combined heat and powers and renewable energy applications	New York, North Carolina	Negligible exports	Japan, Germany, China, Belgium
841011	Small hydraulic turbines and water wheels, and parts	California, Ohio, Oregon, Washington	United Kingdom, Chile	EU, China
841090	Small hydraulic turbines and water wheels, and parts	California, Ohio, Oregon, Washington	United Kingdom, Chile	EU, China
841181	Gas turbines, not for use in aircraft, of a power less than 5,000 kW (designed to be used with nonfossil fuels)	California, New Jersey	Negligible exports	Canada, Japan, Italy
841182	Gas turbines, not for use in aircraft, of a power greater than 5,000 kW (designed to be used with nonfossil fuels)	South Carolina, Texas	Negligible exports	Canada, Italy, United Kingdom
841581	Geothermal heat pumps	Arkansas, Florida, Indiana, New York, Oklahoma, Texas	Canada	Japan, Germany, Denmark, Germany, China, Mexico
841861	Geothermal heat pumps	Arkansas, Florida, Indiana, New York, Oklahoma, Texas	Canada	Japan, Germany, Denmark, Germany, China, Mexico
841869	Geothermal heat pumps	Arkansas, Florida, Indiana, New York, Oklahoma, Texas	Canada	Japan, Germany, Denmark, Germany, China, Mexico
841919	Solar water heaters and parts	Arkansas, California, Connecticut	Mexico, Antigua Barbuda	China, Germany, Israel, Canada
841990	Solar water heaters and pars	Arkansas, California, Connecticut	Mexico, Antigua Barbuda	China, Germany, Israel, Canada
848340	Wind turbine gearboxes	Illinois, Pennsylvania	Negligible exports	Belgium, China, Germany, India
848360	Flexible couplings for wind turbines	Florida, Minnesota	Negligible exports	Germany
850161	AC generators for renewable energy applications (with an output not exceeding 75 kVA)	Arkansas, New York, Minnesota, North Carolina, Tennessee, Wisconsin	Not available	EU, China
850162	AC generators for renewable energy applications (with an output exceeding 75 kVA but not exceeding 375 kVA)	Arkansas, New York, Minnesota, North Carolina, Tennessee, Wisconsin	Not available	EU, China
850163	AC generators for renewable energy applications (with an output exceeding 375 kVA but not exceeding 750 kVA)	Arkansas, New York, Minnesota, North Carolina, Tennessee, Wisconsin	Not available	EU, China
850164	AC generators for renewable energy applications (with an output exceeding 750 kVA)	Arkansas, New York, Minnesota, North Carolina, Tennessee, Wisconsin	Not available	EU, China
850231	Wind-powered generating sets	Arkansas, California, Colorado, Idaho, Iowa, Florida, Pennsylvania, South Carolina, South Dakota, North Dakota,	Canada, Chile, Mexico	Denmark, Germany, Spain, Japan, India
850720	Deep discharge solar batteries	California, Georgia, Pennsylvania	South America, Africa, India	China, Canada
853710	Photovoltaic system controllers	California, Colorado, Massachusetts, Oregon	Negligible exports	Germany
854140	Photovoltaic (solar) system cells and modules	California, Michigan, New Mexico, Ohio, Oregon	EU, China, India, Hong Kong	China, EU, Japan, Taiwan, Malaysia
900190	Fresnel mirrors	California, New Mexico	Not available	China, EU, Japan, South Korea
900290	Fresnel reflector modules	California, New Mexico	Negligible exports	China, EU, Japan, South Korea

Annex C (cont'd)

HS 6-digit code	Product description	States where there is production and/or assembly	Principal U.S. export markets	Principal foreign producers and exporters
Environmental Monitoring, Analysis, and Assessment Equipment (EMAA)				
903210	Thermostats	Minnesota	Not available	Germany, Mexico, China
903220	Manostats	Not available	Mexico, Canada	EU, Japan, Mexico
Management of Solid and Hazardous Waste (SHW)				
392010	Polyethylene geomembrane liners and related products	Texas, South Carolina	Not available	Canada, China, Israel
761290	Aluminum tanks for liquid or solid waste	Virginia, Wisconsin	China, Australia, Canada, Caribbean	China, Taiwan, Japan, EU
840219	Biomass boilers	Georgia, Nebraska, Texas, Virginia	Not available	Germany, Mexico, China, Canada, Italy
840290	Parts for biomass boilers	Georgia, Nebraska, Texas, Virginia	Not available	Germany, Mexico, China, Canada, Italy
840410	Auxiliary plants for biomass boilers	Georgia, Nebraska, Texas, Virginia	Not available	Germany, Mexico, China, Canada, Italy
841940	Distilling or rectifying plants	Illinois, Massachusetts, Tennessee, Texas, Nevada, New York	Iraq, Spain	Germany
Air Pollution Control (APC)				
840490	Parts of auxiliary plants for biomass boilers	Georgia, Nebraska, Texas, Virginia	Not available	Germany, Mexico, China, Canada, Italy
840510	Producer gas or water gas generators, with or without their purifiers	California, Colorado, Idaho, New York, Oklahoma	Not available	Germany, Netherlands, China, Japan, Denmark, Canada, Switzerland, Sweden
841989	Evaporators and dryers for wastewater treatment; condensers and cooling towers; biogas reactors; digestion tanks and biogas	Kansas, Maryland, New Hampshire, New Jersey, Pennsylvania, Washington, Wisconsin	Canada, Mexico, Brazil, China	EU
Heat and Energy Management (HEM)				
701931	Fiberglass mats (insulating)	Alabama, Arizona, California, Colorado, Georgia, Indiana, Kansas, New York, Ohio, Pennsylvania, South Carolina,	Not available	Canada, China, Finland
841950	Heat exchange units	Colorado, Connecticut, New York, North Carolina, Pennsylvania, Texas	Canada, China, Mexico	India, Germany, China, Denmark
Waste Water Management and Potable Water Treatment (WWM)				
560314	Nonwoven materials for wastewater filtration	Delaware, California, Pennsylvania, South Carolina, Texas	Not available	Israel, China, Mexico, Canada, United Kingdom, Japan
730900	Steel tanks for liquid or solid waste	California, Kansas, Oklahoma	Not available	China, European Union, Japan, Taiwan
732490	Water saving showerheads	Indiana	Not available	China, Taiwan, Mexico, Germany, Italy
Cleaner or More Resource Efficient Technologies and Products (CRET)				
732111	Solar cookers and ovens	California, Illinois, Maryland, Minnesota	Not available	India, Germany, Mexico, China
732190	Parts of solar cookers and ovens	California, Illinois, Maryland, Minnesota	Not available	India, Germany, Mexico, China
850680	Fuel cells	Connecticut, Oregon, New York	Not available	Canada, EU, Japan
Note.--Product descriptions refer to those environmental goods contained within the broader 6-digit classification description.				

