

MEMORANDUM

November 19, 2013

To: Senate Energy & Natural Resources Committee
Attention: Tristan Abbey

From: LJ Cunningham
Information Research Specialist, KSG/CRS

Subject: United States Exports of Nuclear Reactor Technology and Uranium, Top Foreign Country Consumers: 2009 Through 2012

In response to your request, the tables found below update **Table 1** and **Table 2** from the following Government Accountability Office (GAO) report sent to you on November 4, 2013 by Mark Holt (7-1704), CRS Specialist in Energy Policy:

- Governmentwide Strategy Could Help Increase Commercial Benefits from U.S. Nuclear Cooperation Agreements with Other Countries (GAO-11-36), published November 4, 2010

Tables 1 and **2** from the GAO report list the following data for 1994 through 2008:

1. the top foreign country consumers of uranium (natural and enriched) and nuclear reactor technology;
2. the value of these commodities exported to the top countries;
3. world export totals; and
4. the percentage of total U.S. exports of these commodities to the world attributed to each country listed.

GAO created its tables using data from the United Nations' (U.N.'s) Comtrade database. In updating these tables (and to maintain consistency), CRS downloaded export data from Comtrade for the same commodities and countries as well as total U.S. export data of these materials for the years 2009 through 2012.

In order to update these tables, CRS identified the specific commodity codes for nuclear reactors and their components (8401), natural uranium (284410), and enriched uranium/plutonium (284420) by searching the United States International Trading Commission's (USITC's) Harmonized Tariff Schedule (HTS). After identifying and downloading the data from Comtrade, CRS used Excel to: 1) calculate four year totals for the value of materials exported to each country; 2) rank the countries in each table by value of goods (highest to lowest); and 3) determine the percentage of U.S. total exports of these commodities for each country in the table.

Please note that CRS did not identify any 2011 data for these commodities for the Czech Republic. While Comtrade contains over 284,000 Czech Republic trade records and over 642,000 records from the U.S. for 2011, none are for nuclear reactor technology/components or uranium/plutonium.

Additionally, we have included (attached) U.S. export data of nuclear reactor technology and uranium from the Global Trade Atlas (GTA) database for the period covering 2008 through 2013. We include data from GTA to illustrate the range of uncertainty with this type of trade data (GTA and Comtrade), which may result from collection challenges, differing category definitions, and other inconsistencies. Despite using the same data sources (U.S. Census Bureau, Dept. of Commerce) and HTS commodity codes, these discrepancies include:

1. differing annual export values for these commodities for the same year; and
2. GTA's data set includes trade data between the United States and Taiwan while Comtrade does not collect trade data for Taiwan.

This last inconsistency is significant since the GTA data lists Taiwan as the number one importer of U.S. nuclear reactor technology and components for four of the last six years (between 2008 and 2013) and the number four importer of enriched uranium/plutonium from the U.S. One likely explanation for this exclusion is that Taiwan is not a member nation of the U.N.

We hope this information is helpful.

Table I. Top Foreign Customers for U.S. Exported Natural Uranium, Enriched Uranium, and Plutonium: 2011-2012 (Total Export Values in Millions of U.S. Dollars)

<u>Country</u>	<u>Total</u>	<u>Percentage</u>
Japan	\$2,463.0	32.0%
South Korea	\$679.4	8.8%
Netherlands	\$251.5	3.3%
Germany	\$211.0	2.7%
France	\$121.1	1.6%
Subtotal	\$3,726.0	48.4%
Other Countries	\$3,968.3	51.6%
Total U.S. Exports	\$7,694.3	100%

Sources: Table created by CRS using U.N. Comtrade database; Harmonized Tariff Schedule (HTS) of the United States International Trade Commission; 11/14/2013

Table II. Top Foreign Customers for U.S. Exported Nuclear Reactors, Major Components and Equipment: 2009-2012 (Total Export Values in Millions of U.S. Dollars)

<u>Country</u>	<u>Total</u>	<u>Percentage</u>
South Korea	\$123.7	8.7%
Spain	\$120.7	8.5%
Sweden	\$98.3	6.9%
Japan	\$83.4	5.9%
Mexico	\$69.2	4.9%
Czech Republic	\$39.4	2.8%
Subtotal	\$534.7	37.7%
Other Countries	\$883.2	62.3%
Total U.S. Exports	\$1,417.9	100%

Sources: Table created by CRS using U.N. Comtrade database; Harmonized Tariff Schedule (HTS) of the United States International Trade Commission; 11/14/2013