The Florida Senate

BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Environmental Preservation and Conservation Committee

BILL:	CS/SB 682
INTRODUCER:	Environmental Preservation and Conservation Committee and Senator Simpson
SUBJECT:	Fossil Fuel Combustion Products
DATE:	March 25, 2013 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Gudeman	Uchino	EP	**Fav/CS**
2.			CA	
3.			RC	
4.				
5.				
6.				

Please see Section VIII. for Additional Information:

A. COMMITTEE SUBSTITUTE.....	X	Statement of Substantial Changes
B. AMENDMENTS.....		Technical amendments were recommended
		Amendments were recommended
		Significant amendments were recommended

I. Summary:

CS/SB 682 specifies that certain uses of fossil fuel combustion products (FFCPs) would be defined as beneficial uses and exempts the beneficial use of FFCPs from certain provisions in Part IV of ch. 403, F.S. The bill also exempts disposal facilities that accept FFCPs from the prohibition on hazardous waste landfills in Florida.

CS/SB 682 creates s. 403.7047 and amends s. 403.7222 of the Florida Statutes.

II. Present Situation:

Fossil Fuel Combustion

Fossil fuels, particularly coal, are the most common source of fuel for electricity production in the United States. Coal is an abundant natural resource in the United States, which has the largest recoverable coal reserves in the world. Coal is relatively inexpensive; however, the emissions from coal combustion have an adverse affect on human health and the environment.[1] The Clean

[1]U.S. Energy Information Administration, *Energy in Brief*, http://www.eia.gov/energy_in_brief/article/role_coal_us.cfm (last visited Feb. 25, 2013).

Air Act (CAA) of 1970 authorized the National Ambient Air Quality Standards, which placed limitations on coal combustion emissions.[2] The CAA was significantly amended in 1990 and required more stringent emissions standards for coal power plants. Since the passage of the CAA, many coal plants have been retrofitted to reduce harmful emissions and new plants are constructed using advanced technologies that greatly reduce air-born pollutants.[3]

Fossil fuel combustion creates bi-products, referred to as FFCPs. The U.S. Environmental Protection Agency (EPA) estimates that between 130 and 140 million tons of FFCPs are produced each year in the United States.[4] Landfills and surface impoundments are used to manage the majority of FFCPs. The remainder is sold for beneficial use in construction materials, such as concrete and wallboard, and for agricultural purposes.[5] There are four types of FFCPs generated during coal combustion:[6]

- Fly ash is a non-combustible particulate matter that is transported from the combustion chamber by exhaust gases and accounts for approximately 74 percent of the ash generated.
- Bottom ash is heavier than fly ash, and collects in the bottom of boilers and accounts for approximately 20 percent of the ash generated.
- Boiler slag is formed when the ash melts under extreme heat and collects in wet-bottom boilers and accounts for approximately six percent of the ash generated.
- Flue-gas Desulfurization (FGD) material is created from the chemical process used to remove sulfur dioxide from combustion emissions by converting the sulfur dioxide to calcium sulfate (gypsum).

Federal Regulation of Fossil Fuel Combustion Products

In 1976, Congress passed the Federal Resource Conservation and Recovery Act (RCRA) in order to address the increase in industrial and municipal waste. The RCRA established a solid waste program under RCRA Subtitle D and a hazardous waste program under RCRA Subtitle C. The solid waste program allows states to develop plans to manage nonhazardous industrial solid waste and municipal solid waste, sets the criteria for solid waste disposal facilities, and prohibits the open dumping of solid waste. The hazardous waste program establishes a system for controlling hazardous waste from generation to ultimate disposal. In 1984, the RCRA was amended to provide more stringent hazardous waste management standards and required that the land disposal of hazardous waste be phased out. The RCRA was amended again in 1992 and 1996 in order to strengthen the enforcement of the act at federal facilities and to provide regulatory flexibility for land disposal of certain wastes.[7]

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[2] *See* 42 U.S.C. s. 7401-7671.
[3] Institute for Energy Research, *The Facts About Air Quality and Coal-Fired Power Plants*, http://www.instituteforenergyresearch.org/pdf/the-facts-about-air-quality-and-coal-fired-power-plants-final.pdf (last visited Mar. 11, 2013). Examples of technological innovations include chemical scrubbers for combustion emissions and integrated gasification combined cycle power plants.
[4] EPA, *Coal Combustion Residuals* , http://www.epa.gov/osw/nonhaz/industrial/special/fossil/coalashletter.htm (last visited Feb. 21, 2013).
[5] American Coal Ash Assoc., *Frequently Asked Questions*, http://acaa.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=5 (last visited Feb. 21, 2013).
[6] EPA, *Radiation Protection, Coal Ash*, http://www.epa.gov/radiation/tenorm/coalandcoalash.html (last visited Mar. 5, 2013).
[7] EPA, *Waste Laws and Regulations, History of RCRA,* http://www.epa.gov/osw/laws-regs/rcrahistory.htm (last visited Mar. 6, 2013).

In 1978 and 2000, the EPA determined that FFCPs are a "special waste" and exempt from federal hazardous waste regulations under RCRA Subtitle C.[8] Coal combustion wastes that are disposed of in surface impoundments and landfills are regulated under RCRA Subtitle D. The EPA also determined that the beneficial use of FFCPs, other than minefilling, does not pose a significant risk and does not require additional federal regulation.[9]

In 2010, the EPA proposed a rule to regulate the FFCP under more stringent requirements following a spill at the Tennessee Valley Authority's Kingston Fossil Plant. Approximately 5.4 million cubic yards of fly ash sludge was released after a surface impoundment failed.[10]

The proposed EPA rule would apply to all FFCPs generated by electric utilities and independent power producers but would not include FFCPs that are beneficially used. The EPA is considering two options. The first would be to classify FFCPs as special waste subject to regulation under RCRA Subtitle C, which regulates hazardous wastes, when disposed of in landfills or surface impoundments. The second would exempt FFCPs from federal hazardous waste regulations under RCRA subtitle C but would require national minimum criteria under RCRA Subtitle D, which regulates solid wastes. Both alternatives include safety requirements for surface impoundments to prevent future releases.[11] The rulemaking process is ongoing and is expected to conclude in 2014.

Beneficial Use and Management of Fossil Fuel Combustion Products

The beneficial use of FFCPs is a multibillion dollar industry that creates a variety of products and provides numerous benefits to the environment by reducing the need for virgin material, emissions, and the amount of FFCPs disposed of in landfills.[12]

Fly ash can be used in portland cement concrete and provides greater durability than straight portland cement concrete.[13] Bottom ash can be used in place of sand and gravel aggregates and can also be used for concrete blocks, shingles, asphalt, flowable fill and brick. Boiler slag can replace sand blasting grit and is silica free, which reduces the health risks associated with blasting grit. FGD materials are used in 30 percent of the wallboard products manufactured in the United States and reduce the need to mine gypsum.[14]

Florida has 16 coal-powered electric plants that use approximately 25 million tons of coal per year and produce approximately 6.6 million tons of FFCPs per year. Approximately 40 percent

[8] The EPA defined "special waste" in RCRA (1978) to be large volume waste that had a low potential to be hazardous and includes cement kiln dust, coal combustion waste, phosphate mining and processing waste, gas and oil drilling mud, and oil production brines. *See* http://www.epa.gov/wastes/hazard/tsd/permit/tsd-regs/frns/43fr58946.pdf (last visited Mar. 11, 2013).
[9] 42 U.S.C. 6901, et. seq. *See* http://www.epa.gov/osw/nonhaz/industrial/special/fossil/regs.htm (last visited Mar. 12, 2013).
[10] EPA, *Hazardous and Solid Waste Management System: Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities* (June 21, 2010), *available at* http://www.regulations.gov/#!documentDetail;D=EPA-HQ-RCRA-2009-0640-0352 (last visited Mar. 11, 2013).
[11] *Id.*
[12] American Coal Ash Association Educational Foundation, *Coal Ash Facts, About Coal Ash*, http://www.coalashfacts.org/ (last visited Mar. 11, 2013).
[13] U.S. Dept. of Transportation, *Fly Ash Facts for Highway Engineers*, http://www.fhwa.dot.gov/pavement/recycling/fach03.cfm (last visited Mar. 11, 2013).
[14] *See supra* note 12.

of FFCPs produced in Florida are beneficially used. They are regulated on a case-by-case basis by the Department of Environmental Protection (DEP). The beneficial use of FFCPs is authorized under s. 403.7045(1)(f), F.S., which allows the beneficial use of industrial byproducts as long as they are not hazardous waste, are used for a beneficial purpose, and do not pose a public health threat. FFCPs that are not beneficially used are disposed of at designated solid waste disposal areas. Section 403.7222, F.S. prohibits hazardous waste landfills in Florida; because FFCPs are exempt from the hazardous waste designation, the DEP and utilities are able to manage the beneficial use and disposal of these materials in-state.[15]

III. Effect of Proposed Changes:

Section 1 creates s. 403.7047, F.S., providing for the regulation of FFCPs. It defines "fossil fuel combustion products" as fly ash; bottom ash; boiler slag; flue-gas emission control materials; gasifier slag; fluidized-bed combustion system products; and similar products produced from the operation of a fossil fuel-fired electric or steam generation facility, from a clean coal or other innovative technology process at a fossil fuel-fired electric or steam generation facility or from any combination thereof. The CS defines "fossil fuel-fired electric or steam generation facility" as any electric or steam generation facility that is fueled with coal, alone or in combination with petroleum, coke, oil, coal gas, natural gas, or other fossil fuels, or alternative fuels.

CS/SB 682 defines "beneficial use" as the use of FFCPs as building products, substitutes for raw materials, necessary ingredients, or additives in products, used according to accepted industry practices.

CS/SB 682 authorizes the beneficial use of FFCPs in asphalt, concrete or cement products, flowable fill roller compacted concrete structural fill and pavement aggregate. The CS defines "pavement aggregate" to be FFCPs that are substitutes for conventional aggregate, raw material or soil that is the sub-base material under a paved road, walkway, sidewalk, or parking lot. The CS defines "structural fill" to be the use of FFCPs as substitutes for conventional aggregate, raw material, or soil that is under an industrial or commercial building. The CS clarifies that "structural fill" does not include uses for general filling or grading operations, or valley fills.

CS/SB 682 specifies that FFCPs in structural fill and pavement aggregate are not authorized to come into contact with groundwater, surface water, or wetlands. FFCPs used for this purpose are also prohibited from being placed within 100 feet of a potable well that might be used for human and livestock consumption. The CS prohibits the placement of the FFCPs from extending beyond the outside edge of the structure or pavement, and the placement of the structure or pavement must be completed as soon as possible after the placement of the FFCPs.

CS/SB 682 authorizes the use of FGD material that meets the definition of gypsum and is used in accordance with the Florida Department of Agriculture and Consumer Services rules.[16]

[15]DEP, *Senate Bill 682 Agency Analysis* (Feb. 12, 2013) (on file with the Senate Committee on Environmental Preservation and Conservation).
[16] The United States Geological Survey defines gypsum as "[t]he mineral form of hydrated calcium sulfate." *See* http://pubs.usgs.gov/ha/ha747/pdf/definition.pdf (last visited Mar. 25, 2013)

CS/SB 682 requires that the storage FFCPs for beneficial use must be done in compliance with DEP rules and must not pose a significant risk to public health or violate air and water quality standards.

CS/SB 682 specifies that the beneficial uses of FFCPs are not subject to regulation as a solid or hazardous waste under Part IV of ch. 403, F.S. However, the DEP may take appropriate action if the beneficial use is in violation of air or water quality standards or in violation of department rules. The department may also take action if the beneficial use poses a significant risk to public health. The CS does not limit the requirements that are applicable to the beneficial use established in ch. 403, F.S., ch. 376, F.S., or local or federal laws. The beneficial use of FFCPs is also subject to air pollution control limits, national pollution discharge elimination systems permits, and water quality certification pursuant to s. 401 of the Clean Water Act.

CS/SB 682 does not limit the DEP's authority to approve the beneficial use of materials other than the FFCPs defined in the CS. The CS does not limit or modify the beneficial use of FFCPs that have been previously approved by the DEP or the recovery of products for beneficial use from landfills, impoundments, or storage areas.

Section 2 amends s. 403.7222, F.S., allowing for disposal of fly ash, bottom ash, boiler slag, or flue-gas emissions materials generated from the operation of fossil fuel-fired electric or steam generation facility, from a clean coal or other innovative technology process at a fossil fuel-fired electric or steam generation facility or any combination thereof.

Section 3 provides an effective date of July 1, 2013.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

An EPA decision to classify FFCPs as a hazardous waste would prohibit the beneficial use of FFCPs, as well as their in-state disposal; therefore, all of the FFCPs produced in Florida would have to be transported to an out-of-state hazardous waste disposal facility.[17] The DEP estimates the cost to transport FFCPs as a hazardous waste to an out-of-state facility would be approximately $2.5 billion per year. The increase in disposal costs would increase the retail cost approximately $0.46 per kilowatt hour, or 44 percent.[18]

The DEP estimates that the beneficial use of FFCPs in the production of concrete provides a cost savings of approximately $36 million a year.[19]

The construction industry would realize an indeterminate cost increase in construction materials if the beneficial use of FFCPs was prohibited as a result of the hazardous waste designation.[20]

C. Government Sector Impact:

The state and local governments would realize an indeterminate cost increase in construction materials if the beneficial use of FFCPs was prohibited as a result of the hazardous waste designation.[21] Publically-owned utilities using coal to generate power would see similar increases in disposal costs of FFCPs if they are designated as hazardous waste.

VI. Technical Deficiencies:

The definition of "beneficial use" in CS/SB 768 is defined as the use of FFCPs "as building products…" The "as" should be changed to "in." Although this is a technical error, it is substantive in nature.

CS/SB 682 removes the specific reference to use FFCPs as roofing materials, blasting grit, aggregate in products, wallboard products, plastic paints, insulation products, and extraction or recovery of materials and compounds retained within FFCPs but includes the term "building products" to incorporate these uses; however, the term "building products" is not defined in statute or rule.

[17] *Supra* note 15.
[18] Costs estimates were provided by the DEP and based on the assumption that the FFCPs would be transported to the hazardous waste facility in Emelle, AL. It is unclear how the EPA would regulate FFCPs as a hazardous waste, which may result in a higher cost than what was estimated by the DEP. The estimated relative increase in retail power cost for coal-fired electricity was calculated based on the December 2012 average regardless of the fuel mix utilized in Florida. The DEP cost analysis is on file with the Senate Committee on Environmental Preservation and Conservation.
[19] The costs savings for the production of concrete when using fly ash was calculated using the amount of concrete produced in Florida in 2010 and the amount of fly ash that FDOT specifies for use in cement mix.
[20] The DEP was unable to calculate the total cost savings of using FFCPs due to a lack of information but reports, based on the concrete calculations alone, the savings of using FFCPs is economically significant.
[21] *Id.*

VII. Related Issues:

None.

VIII. Additional Information:

A. Committee Substitute – Statement of Substantial Changes:
(Summarizing differences between the Committee Substitute and the prior version of the bill.)

CS by Environmental Preservation and Conservation on March 21, 2013:
The CS removes the use of FFCPs for pipe-bedding aggregate, in metallurgical applications, as filtercloth precoat for sludge dewatering, and for the extraction or recovery of materials and compounds contained within fossil fuel combustion products.

The CS increases the distance FFCPs used in structural fill or pavement aggregate must be from a potable well to 100 feet.

The CS limits the placement of FFCPs used in structural fill or pavement aggregate to immediately under the structure or pavement to avoid any uncovered FFCPs.

The CS removes the specific reference to use FFCPs as roofing materials, blasting grit, aggregate in products, wallboard products, plastic paints, insulation products, and extraction or recovery of materials and compounds retained within FFCPs. The CS includes the term "building products" to incorporate these uses.

The CS clarifies that the beneficial use of FFCPs in agriculture is limited to FGD material in accordance with FDACS.

The CS removes the use of FFCPs for land application, land reclamations, or pilot demonstration projects or any use that meets the criteria of s. 403.7045(1)(f).

The CS removes the reference to "blowdown" for FFCPs.

B. Amendments:

None.