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:	SB 682
INTRODUCER:	Senator Simpson
SUBJECT:	Fossil Fuel Combustion Products
DATE:	March 12, 2013 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Gudeman	Uchino	EP	**Pre-meeting**
2.			CA	
3.			RC	
4.				
5.				
6.				

I. Summary:

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.

The bill 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 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

[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).
[2] *See* 42 U.S.C. s. 7401-7671.

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]

In 1978 and 2000, the EPA determined that FFCPs are a "special waste" and exempt from

[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).

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 of FFCPs produced in Florida are beneficially used. They are regulated on a case-by-case basis

[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.

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; flue-gas emission control materials, including blowdown;[16] 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. The bill 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.

The bill defines "beneficial use" of FFCPs as the substitution of these materials for raw materials or products, or as additives or ingredients in other products. It exempts certain beneficial uses from solid or hazardous waste regulations under Part IV of ch. 403, F.S.

The bill specifies that beneficial use includes encapsulation[17] including asphalt, concrete or cement products, flowable fill and roller compacted concrete; roofing material, blasting grit and aggregate products; wallboard products, plastics, paints and insulation products; metallurgical applications; filter cloth precoat for sludge dewatering; and extraction or recovery of materials contained within FFCPs.

The bill authorizes the beneficial use of FFCPs in structural fill, pavement aggregate, and pipe-bedding aggregate. The bill defines "structural fill" to be the use of FFCPs as substitutes for conventional aggregate, raw material, or soil that is under or adjacent to an industrial building commercial building, or structure. The bill clarifies that "structural fill" does not include uses for general filling or grading operations or valley fills. The bill defines "pavement aggregate" to be FFCPs that are substitutes for conventional aggregate, raw material or soil that is the sub-base material under or adjacent to a paved road, walkway, sidewalk, or parking lot. The bill defines "pipe-bedding aggregate" to be the use of FFCPs as substitutes for conventional aggregate, raw material, or soil that is around or adjacent to a pipeline.

[15]DEP, *Senate Bill 682 Agency Analysis* (Feb. 12, 2013) (on file with the Senate Committee on Environmental Preservation and Conservation).
[16] "Blowdown" is defined as industrial wastewater from the FGD process and may contain elevated levels of solids, chlorides, sulfates, and heavy metals. *See* http://www.degremont-technologies.com/IMG/pdf/tech_infilco_FGD-Mercury.pdf (last visited Feb. 21, 2013).
[17]Encapsulation refers to FFCPs that are in a bound or solid form. Unencapsulated material is used as loose fill. *See* http://www.epa.gov/oig/reports/2011/20101013-11-P-0002.pdf (last visited Feb. 21, 2013).

The bill specifies that FFCPs in structural fill, pavement aggregate, and pipe-bedding aggregate are not authorized to come into contact with groundwater, surface water, and wetlands. FFCPs used for this purpose are also prohibited from being placed within 25 feet of a potable well and cannot extend four feet beyond the structure, pavement, or pipeline. The bill requires that the placement of the structure, pavement, or pipeline must be completed as soon as possible after the placement of the FFCP.

The bill authorizes the use of FFCPs, including FGD material, in fertilizer as long as the use is in compliance with the Department of Agriculture and Consumer Services. It also authorizes the use of FFCPs for waste stabilization and initial or intermediate cover material used for Class I, Class II, or Class III landfills. The material must meet the DEP's requirements for landfill cover or the conditions of the landfill permit.

The bill authorizes the use of FFCPs in land application for agronomic value, land reclamation, and pilot demonstration projects. Land application of FFCPs may be done if the beneficial use meets the criteria specified in s. 403.7045(1)(f), F.S., and does not result in a threat to public health or the environment. The bill also authorizes land application if the beneficial use has an equivalent or reduced potential for environmental impacts as compared to the alternative raw materials that are used for the same purpose.

The bill 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.

The bill specifies that the beneficial uses of FFCPs are exempt from solid or hazardous waste regulations under Part IV of ch. 403, F.S. However, the department 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 bill 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.

The bill does not limit the DEP's authority to approve the beneficial use of materials other than the FFCPs defined in the bill. The bill 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 disposal of fly ash, bottom ash, boiler slag, or flue-gas emissions materials, including blowdown, at facilities that would otherwise be prohibited from accepting hazardous waste.

Other Potential Implications:
The unencapsulated use of FFCPs in agriculture is currently under review by the United States Department of Agriculture (USDA) to determine if there are adverse environmental impacts.[18]

The bill does not specify the type of blowdown that may be excluded from the prohibition of hazardous waste in landfills. Currently, these types of blowdown are not exempt from regulation as a hazardous waste; therefore, the DEP has expressed some uncertainty as to how this phrase may be interpreted.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. Other Constitutional Issues:

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.[19] 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.[20]

[18]See USDA, Rufus Chaney, *Risk Assessment Activities for FGDG Watkinsville* (June 28, 2011)*;* see also USDA, Rufus Chaney, Midwest Soil Improvement Symposium, *Risk Assessment for Beneficial Use of High Quality FGD-Gypsum* (Aug. 21, 2012)(PowerPoint presentations on file with the Senate Committee on Environmental Preservation and Conservation).
[19]*Supra* note 15.
[20]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

The DEP estimates that the beneficial use of FFCPs in the production of concrete provides a cost savings of approximately $36 million a year.[21]

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.[22]

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.[23] 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:

None.

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.)

None.

B. Amendments:

None.

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.

[21]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.

[22]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.

[23]*Id.*