HOUSE OF REPRESENTATIVES
FINAL BILL ANALYSIS

BILL #:	CS/HB 335	**FINAL HOUSE FLOOR ACTION:**			
SUBJECT/SHORT TITLE	Resource Recovery and Management	119	**Y's**	0	**N's**
SPONSOR(S):	Natural Resources & Public Lands Subcommittee; Clemons, Sr. and others	**GOVERNOR'S ACTION:**		Approved	
COMPANION BILLS:	CS/CS/SB 1104				

SUMMARY ANALYSIS

CS/HB 335 passed the House on March 23, 2017. The bill was amended in the Senate on May 5, 2017, and was returned to the House. The House concurred in the Senate amendment on May 5, 2017.

Gasification is a manufacturing process that converts material containing carbon—such as coal, petroleum coke, biomass, or waste—into synthesis gas (syngas) by creating a chemical reaction with the material at high temperatures, without combustion, with a controlled amount of oxygen and/or steam. Gasification may be used to produce electricity, chemicals, fuels, fertilizers, plastics, and other products. Pyrolysis is the heating of a material, such as plastics, at high temperatures in the absence of oxygen. Without oxygen, the material does not combust, but rather the chemical compounds that make up the material thermally decompose into gases and oil. Pyrolysis oil may be used directly as fuel or further refined into diesel or jet fuel. Due to the increased demand for fuels and limited space in solid waste facilities, solid waste managers have increased efforts to employ gasification and pyrolysis on certain materials in the waste stream to decrease the amount of area needed for disposal in solid waste facilities and create fuels.

The Department of Environmental Protection (DEP) implements and enforces the state's solid waste management program. Current law exempts certain wastes and activities from solid waste regulations. This includes recovered materials and recovered materials processing facilities that meet certain criteria. Recovered materials processing facilities must register with DEP and local governments that require such registration.

The bill expands the exemption from solid waste regulations to pyrolysis facilities that convert post-use polymers by gasification and pyrolysis if they meet the same criteria as recovered materials and if a majority of the post-use polymers at the facility are demonstrated to be sold, used, or reused within one year. The bill defines "used or reused" to include the conversion of post-use polymers into crude oil, fuels, feedstocks, or other raw materials or intermediate or final products by gasification or pyrolysis. The bill also requires a person who handles post-use polymers to certify and report to DEP in the same manner as those who handle recovered materials. Additionally, the bill requires pyrolysis facilities to register with local governments in the same way recovered materials dealers must register.

The bill may have an insignificant fiscal impact on DEP. It does not appear to have a fiscal impact on local governments.

The bill was approved by the Governor on June 26, 2017, ch. 2017-167, L.O.F., and will become effective on July 1, 2017.

I. SUBSTANTIVE INFORMATION

A. EFFECT OF CHANGES:

PRESENT SITUATION

Gasification

Gasification is a manufacturing process that converts material containing carbon—such as coal, petroleum coke, biomass, or waste—into synthesis gas (syngas) by creating a chemical reaction with the material at high temperatures, without combustion, with a controlled amount of oxygen and/or steam. Gasification may be used to produce electricity, chemicals, fuels, fertilizers, plastics, and other products. The United States Department of Energy believes gasification is a method to reduce our nation's dependence on foreign oil and provide a clean, carbon capture–ready source of energy.[1]

Recently, efforts have increased to utilize gasification to convert municipal solid waste (MSW) into energy rather than traditional incineration. Incineration uses MSW as a fuel to create heat and electricity by burning the MSW with high volumes of air to form carbon dioxide and heat. Waste-to-energy plants then use these hot gases to make steam used to generate electricity. During the process, toxins escape in the exhaust steam.[2]

During the gasification process, the MSW is not a fuel, but rather a feedstock[3] for a high temperature chemical conversion process. In the gasifier, MSW reacts with little or no oxygen, breaking down the feedstock into simple molecules and converting them into syngas. Instead of making just heat and electricity as is done with incineration, the syngas produced by gasification can be turned into commercial products such as transportation fuels, chemicals, and fertilizers. Further, the gasification process controls the release of toxins by inhibiting the formation of dioxins or furans by limiting oxygen in the chemical reaction. Lastly, the ash from gasification may be used to make cement, roofing shingles, asphalt filler, and material for sandblasting.[4]

Pyrolysis

Pyrolysis is the heating of a material, such as plastics, at high temperatures in the absence of oxygen. Sometimes this process includes the introduction of pressure or water. Without oxygen, the material does not combust, but rather the chemical compounds that make up the material thermally decompose into gases and oil. Pyrolysis oil may be used directly as fuel or further refined into diesel or jet fuel.[5]

Due to the increased demand for plastics and fuels and limited space in solid waste facilities, solid waste managers have increased efforts to employ pyrolysis on non-recycled plastics. Pyrolysis may be used to decrease the need to dispose plastics in landfills and create a renewable source of energy and fuels.[6] The fuel produced from the pyrolysis of plastics does not contain sulphur because the plastic

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[1] Gasification and Syngas Technologies Council, *The Gasification Process*, http://www.gasification-syngas.org/technology/the-gasification-process/ (last visited Feb. 8, 2017); U.S. Department of Energy, *National Energy Technology Laboratory, What is Gasification?* https://www.netl.doe.gov/research/coal/energy-systems/gasification/publications/photo#whatis (last visited Feb. 8, 2017).

[2] Gasification and Syngas Technologies Council, *Gasification v. Incineration*, http://www.gasification-syngas.org/applications/gasification-vs-incineration/ (last visited Feb. 8, 2017).

[3] Feedstock is raw material supplied to a machine or processing plant. Merriam-Webster, *Feedstock*, https://www.merriam-webster.com/dictionary/feedstock (last visited Feb. 8, 2017).

[4] Gasification and Syngas Technologies Council, *Gasification v. Incineration*, http://www.gasification-syngas.org/applications/gasification-vs-incineration/ (last visited Feb. 8, 2017).

[5] Whole System Foundation, *Recycling and Pyrolysis of Plastic*, http://www.whole-systems.org/recycling_and_pyrolysis_of_plastic.html (last visited Feb. 9, 2017).

[6] Feng Gao, *Pyrolysis of Waste Plastics into Fuels*, p. 6, available at: https://ir.canterbury.ac.nz/bitstream/handle/10092/4303/Thesis_fulltext.pdf;jsessionid=75F7FC1942BA6D076AE426687A9FD20F?sequence=1 (last visited Feb. 9, 2017).

feedstock does not contain sulphur.[7] Because pyrolysis does not incinerate the plastic waste, the emission of harmful compounds is reduced.[8]

Solid Waste Regulation

"Solid waste" is sludge unregulated under the federal Clean Water Act or Clean Air Act; sludge from a waste treatment works, water supply treatment plant, or air pollution control facility; or garbage, rubbish, refuse, special waste, or other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations.[9]

The Department of Environmental Protection (DEP) implements and enforces the state's solid waste management program.[10] DEP may adopt rules to implement and enforce the program, which includes a waste tire management program,[11] administration of solid waste grant programs,[12] and the classification, construction, operation, maintenance, and closure of solid waste management facilities.[13,14]

Section 403.7045(1), F.S., exempts certain wastes and activities from solid waste regulations.[15] This includes recovered materials and recovered materials processing facilities from solid waste regulations if they meet certain criteria.[16]

"Recovered materials" are metal, paper, glass, plastic, textile, or rubber materials that have known recycling potential, can be feasibly recycled, and have been diverted and source separated or have been removed from the solid waste stream for sale, use, or reuse as raw materials, whether or not the materials require subsequent processing or separation from each other. The term does not include materials destined for any use that constitutes disposal. Recovered materials are not solid waste.[17] A "recovered materials processing facility" is a facility engaged solely in the storage, processing, resale, or reuse of recovered materials.[18] "Recycling" is any process that collects, separates, or processes and reuses or returns solid waste, or materials that would otherwise become solid waste, to use in the form of raw materials or products.[19]

Recovered materials or recovered materials processing facilities do not have to meet the solid waste regulations if:

- A majority of the recovered materials at the facility are demonstrated to be sold, used, or reused within one year;
- The recovered materials handled by the facility or the products or byproducts of operations that process recovered materials are not discharged, deposited, injected, dumped, spilled, leaked, or placed into or upon any land or water by the owner or operator of such facility so that such recovered materials, products or byproducts, or any constituent thereof may enter other lands or be emitted into the air or discharged into any waters, including groundwater, or otherwise enter

[7] *Id.* at 7.
[8] Debora Almeida and Maria de Fatima Marques, *Thermal and catalytic pyrolysis of plastic waste*, http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-14282016000100007 (last visited Feb. 9, 2017).
[9] Section 403.703(32), F.S.
[10] Section 403.705, F.S.
[11] Section 403.717, F.S.; chapter 62-701, F.A.C.
[12] Section 403.7095, F.S; chapter 62-716, F.A.C.
[13] Section 403.703(35), F.S., defines a "solid waste management facility" as any solid waste disposal area, volume reduction plant, transfer station, materials recovery facility, or other facility, the purpose of which is resource recovery or the disposal, recycling, processing, or storage of solid waste.
[14] Section 403.704(9), F.S.; chapters 62-701 through 62-722, F.A.C.
[15] Chapter 88-130, Laws of Fla.; chapter 403, F.S.; *See* 99-60 Fla. Op. Att'y Gen. 3 (1999).
[16] Section 403.7045(1)(e), F.S.; *see also* rule 62-701.220(2)(c), F.A.C.
[17] Section 403.703(24), F.S.
[18] Section 403.703(25), F.S.
[19] Section 403.703(27), F.S.

the environment such that a threat of contamination in excess of applicable DEP standards and criteria is caused;
- The recovered materials handled by the facility are not hazardous wastes;[20] and
- The facility is registered with DEP.[21]

Further, DEP does not require solid waste combustors to obtain a solid waste permit if the facility operates under a current valid permit for a stationary source of air pollution, open burning, or electrical power plant and transmission line siting.[22] A "solid waste combustor" is an enclosed device that uses controlled combustion whose primary purpose is to thermally break down solid, liquid, or gaseous combustible solid wastes to an ash residue that contains little or no combustible material. A solid waste combustor includes any facility that uses incineration, gasification, or pyrolysis to break down solid waste.[23] "Combustion" is the treatment of solid waste in a device that uses heat as the primary means to change the chemical, physical, or biological character or composition of the waste. Combustion processes include incineration, gasification, and pyrolysis.[24]

A local government may not:
- Require a commercial establishment that generates source-separated recovered materials to sell or otherwise convey its recovered materials to the local government or to a facility designated by the local government;
- Restrict such a generator's right to sell or otherwise convey such recovered materials to any properly certified recovered materials dealer who has registered with the DEP; and
- Enact any ordinance that prevents such a dealer from entering into a contract with a commercial establishment to purchase, collect, transport, process, or receive source-separated recovered materials.[25]

Local governments may require a commercial establishment to source separate the recovered materials generated on the premises.[26]

Florida's Recycling Goal

In recognition of the volume of waste generated by Floridians and visitors every year and the value of some of these discarded commodities, the Legislature set a goal to recycle at least 75 percent of the municipal solid waste that would otherwise be disposed of in waste management facilities, landfills, or incineration facilities by 2020.[27] DEP established several programs and initiatives to reach that goal. In 2015, Florida's recycling rate was 54 percent, meeting the 50 percent target rate specified in statute.[28]

EFFECT OF THE BILL

The bill amends s. 403.7045(1)(e)1., F.S., to expand the exemption from solid waste regulations for post-use polymers and pyrolysis facilities. Post-use polymers and pyrolysis facilities do not have to meet solid waste regulations if a majority of the post-use polymers at the facility are demonstrated to be sold, used, or reused within one year. The bill defines "used or reused" to include the conversion of

[20] "Hazardous waste" is defined section 403.703(13), F.S.
[21] Section 403.7045(1)(e), F.S.; rule 62-701.220(2)(c), F.A.C.; Any person in Florida who handles, purchases, receives, recovers, sells or is an end user of 600 tons or more of recovered materials must annually report to DEP, and to all counties from which it received materials, certain information for the preceding calendar year, unless such person is exempt. section 403.7046, F.S., and rule 62-722.400(2), F.A.C.
[22] Rules 62-701.320(14)(a)&(b) and 62-701.710(1)(a), F.A.C.
[23] Rule 62-701.200(108), F.A.C.
[24] Rule 62-701.200(21), F.A.C.
[25] Section 403.7046(3), F.S.
[26] Section 403.7046(3)(a), F.S.
[27] Section 403.7032, F.S.; DEP, *75% Recycling Goal Report to the Legislature, January 4, 2010,* http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/75percent/75_recycling_report.pdf (last visited March 9, 2017).
[28] DEP, *Recycling*, http://www.dep.state.fl.us/waste/categories/recycling/default.htm (last visited March 9, 2017).

post-use polymers into crude oil, fuels, feedstocks, or other raw materials or intermediate or final products by gasification or pyrolysis. The post-use polymers and pyrolysis facilities must meet the same criteria as recovered materials to receive the exemption.

The bill amends s. 403.703, F.S., to create definitions for the following terms used in the expanded exemption:

- “Gasification” is a process through which post-use polymers are heated and converted to synthesis gas in an oxygen-deficient atmosphere, and then converted to crude oil, fuels, or chemical feedstocks;
- A "post-use polymer" is a plastic polymer[29] derived from any domestic, commercial, or municipal activity and which might otherwise become waste if not converted to manufacture crude oil, fuels, or other raw materials or intermediate or final products using gasification or pyrolysis. A post-use polymer may contain incidental contaminants or impurities such as paper labels or metal rings. The definition excludes post-use polymers that individuals intend to convert by gasification or pyrolysis from the definition of solid waste;
- "Pyrolysis" is a process through which post-use polymers are heated in the absence of oxygen until melted and thermally decomposed, and then cooled, condensed, and converted to crude oil, diesel, gasoline, home heating oil, or another fuel; feedstocks; diesel and gasoline blendstocks; chemicals, waxes, or lubricants; or other raw materials or intermediate or final products; and
- A "pyrolysis facility" is a facility that receives, separates, stores, and converts post-use polymers using gasification or pyrolysis. The definition excludes a pyrolysis facility from the definition of a waste management facility.

Further, the bill amends s. 403.703. F.S., to change the following definitions for terms used in the expanded exemption:

- “Recycling” now includes materials that are returned to use in the form of intermediate or final products, including, but not limited to, crude oil, fuel, and fuel substitutes;
- “Solid waste” does not include post-use polymers; and
- “Solid waste management facilities” do not include pyrolysis facilities.

Thus, facilities that use gasification or pyrolysis on post-use polymers that were not previously exempt from solid waste regulations by rule or statute, will now be exempt. DEP will likely need to revise its solid waste rules as a result of the statutory changes in the bill.

Facilities using gasification or pyrolysis on post-use polymers that would be exempt from solid waste regulations under the proposed change, may still be required to meet other permitting criteria, such as obtaining a stationary source of air pollution permit or obtaining an electrical power plant and transmission line siting permit.

The bill requires any person who handles, purchases, receives, recovers, sells, or is an end user of post-use polymers to annually certify to DEP in the same manner as those who handle, purchase, receive, recover, sell, or is an end user of recovered materials. The bill also requires pyrolysis facilities to register with local governments in the same way “recovered materials dealers” must register.

Lastly, the bill makes conforming changes.

[29] A polymer is a chemical compound or mixture of compounds formed by polymerization and consisting essentially of repeating structural units. Merriam-Webster, *Polymer*, https://www.merriam-webster.com/dictionary/polymer, (last visited Feb. 9, 2017).

II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

None.

2. Expenditures:

The bill appears to have an insignificant negative fiscal impact on DEP because the department will likely need to revise its solid waste rules as a result of the statutory changes in the bill.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

None.

2. Expenditures:

None.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

The bill may have a positive fiscal impact on individuals or companies who operate facilities that use gasification and pyrolysis on post-use polymers by exempting them from solid waste regulations.

D. FISCAL COMMENTS:

None.