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 Committee on Regulated Industries

BILL:	SB 1162
INTRODUCER:	Senator DiCeglie
SUBJECT:	Renewable Energy Cost Recovery
DATE:	March 20, 2023
REVISED:	

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Schrader	Imhof	RI	**Pre-meeting**
2.			CA	
3.			RC	

I. Summary:

SB 1162 amends s. 366.91, F.S., relating to Florida's renewable energy policy, in the following ways:

- For a provision in s. 366.91(9), F.S., that allows cost recovery by natural gas companies for the prudent and reasonable purchase of renewable natural gas at a price above the market price for natural gas, the bill removes the restriction that such purchases are limited to natural gas companies.
- The bill revises the test for the approval of the provision in s. 366.91, F.S., from "prudent and reasonable" to meeting the goals as stated in s. 366.91(1), F.S., "by promoting the development or use of renewable energy resources in this state and providing fuel diversification."
- The bill also creates a new s. 366.091(10), F.S., to allow public utilities to recover, through an appropriate cost-recovery mechanism administered by the Florida Public Service Commission, prudently incurred costs for certain renewable natural gas and hydrogen fuel projects.

The bill has an effective date of July 1, 2023.

II. Present Situation:

Florida Public Service Commission

The Florida Public Service Commission (PSC) is an arm of the legislative branch of government.[1] The role of the PSC is to ensure Florida's consumers receive utility services, including electric, natural gas, telephone, water, and wastewater, in a safe, affordable, and

[1] Section 350.001, F.S.

reliable manner.[2] In order to do so, the PSC exercises authority over public utilities in one or more of the following areas: rate base or economic regulation; competitive market oversight; and monitoring of safety, reliability, and service issues.[3]

The PSC monitors the safety and reliability of the electric power grid[4] and may order the addition or repair of infrastructure as necessary.[5] The PSC has broad jurisdiction over the rates and service of investor-owned electric and gas utilities.[6] However, the PSC does not fully regulate municipal electric utilities (utilities owned or operated on behalf of a municipality) or rural electric cooperatives. The PSC does have jurisdiction over these types of utilities with regard to rate structure, territorial boundaries, bulk power supply operations, and planning.[7] Municipally owned utility rates and revenues are regulated by their respective local governments. Rates and revenues for a cooperative utility are regulated by their governing body elected by the cooperative's membership.

There are four investor-owned electric utility companies (electric IOUs) in Florida: Florida Power & Light Company (FPL), Duke Energy Florida (Duke), Tampa Electric Company (TECO), and Florida Public Utilities Corporation (FPUC).[8] In addition, there are eight investor-owned natural gas utility companies (gas IOUs) in Florida: Florida City Gas, Florida Division of Chesapeake Utilities, FPUC, FPUC-Fort Meade Division, FPUC-Indiantown Division, Sebring Gas System, and St. Joe Natural Gas Company. Of these eight gas IOUs, five engage in the merchant function servicing residential, commercial, and industrial customers: Florida City Gas, FPUC, FPUC-Fort Meade Division, Peoples Gas System, and St. Joe Natural Gas Company. Florida Division of Chesapeake Utilities, FPUC-Indiantown Division, and Sebring Gas System are only engaged in firm transportation service.[9]

Electric IOU and Gas IOU rates and revenues are regulated by the PSC and the utilities must file periodic earnings reports, which allow the PSC to monitor earnings levels on an ongoing basis and adjust customer rates quickly if a company appears to be overearning.[10]

Section 366.041(2), F.S., requires public utilities to provide adequate service to customers. As compensation for fulfilling that obligation, s. 366.06, F.S., requires the PSC to allow the IOUs to recover honestly and prudently invested costs of providing service, including investments in infrastructure and operating expenses used to provide electric service.[11]

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[2] *See* Florida Public Service Commission, *Florida Public Service Commission Homepage*, http://www.psc.state.fl.us (last visited Mar 16, 2023).
[3] Florida Public Service Commission, *About the PSC*, https://www.psc.state.fl.us/about (last visited Mar 16, 2023).
[4] Section 366.04(5) and (6), F.S.
[5] Section 366.05(1) and (8), F.S.
[6] Section 366.05, F.S.
[7] Florida Public Service Commission, *About the PSC*, *supra* note 3.
[8] Florida Public Service Commission, *2022 Facts and Figures of the Florida Utility Industry*, pg. 5, Apr. 2022 (available at: https://www.floridapsc.com/pscfiles/website-files/PDF/Publications/Reports/General/FactsAndFigures/April%202022.pdf)
[9] *Id*. Firm transportation service is offered to customers under schedules or contracts which anticipate no interruption under almost all operating conditions. *See* Firm transportation service, 18 CFR s. 284.7.
[10] PSC, *2022 Annual Report*, p. 6, (available at: https://www.floridapsc.com/pscfiles/website-files/PDF/Publications/Reports/General/AnnualReports/2022.pdf) (last visited: Mar. 16, 2023).
[11] *Id*.

Renewable Energy

Section 366.91, F.S., establishes a number of renewable policies for the state. The purpose of these policies, as established in s. 366.91(1), F.S., states that it is in the public interest to promote the development of renewable energy resources in this state. Further, s. 366.91(1), F.S., is intended to encourage fuel diversification to meet Florida's growing dependency on natural gas for electric production, minimize the volatility of fuel costs, encourages investment within the state, improve environmental conditions, and make Florida a leader in new and innovative technologies.

The section defines "renewable energy" as:

> [E]lectrical energy produced from a method that uses one or more of the following fuels or energy sources: hydrogen produced or resulting from sources other than fossil fuels, biomass, solar energy, geothermal energy, wind energy, ocean energy, and hydroelectric power. The term includes the alternative energy resource, waste heat, from sulfuric acid manufacturing operations and electrical energy produced using pipeline-quality synthetic gas produced from waste petroleum coke with carbon capture and sequestration.[12]

Renewable Natural Gas

Natural gas is a fossil energy source which forms beneath the earth's surface. Natural gas contains many different compounds, the largest of which is methane. [13] Conventional natural gas is primarily extracted from subsurface porous rock reservoirs via gas and oil well drilling and hydraulic fracturing, commonly referred to as "fracking." The term renewable natural gas (RNG) refers to biogas that has been upgraded to use in place of fossil fuel natural gas (i.e. conventional natural gas).[14]

Section 366.91, F.S., identifies sources for producing RNG as a potential source of renewable energy.[15] Section 366.91(2)(f), F.S. specifically defines renewable natural gas as anaerobically generated biogas,[16] landfill gas, or wastewater treatment gas refined to a methane content of 90 percent or greater. Under the definition, such gas may be used as a transportation fuel or for electric generation, or is of a quality capable of being injected into a natural gas pipeline.

Biogas used to produce RNG comes from various sources, including municipal solid waste landfills, digesters at water resource recovery facilities, livestock farms, food production

[12] Section 366.91(2)(e), F.S.
[13] United States Energy Information Administration, *Natural gas explained*, Dec. 27, 2022. https://www.eia.gov/energyexplained/natural-gas/.
[14] Environmental Protection Agency, *Landfill Methane Outreach Program (LMOP): Renewable Natural Gas*, https://www.epa.gov/lmop/renewable-natural-gas (last visited Mar. 17, 2023).
[15] Section 366.91(2)(e), F.S., defines "renewable energy, in part, as energy produced from biomass. Section 366.91(2)(b), F.S., defines "biomass" in part, as "a power source that is comprised of, but not limited to, combustible residues or gases from…waste, byproducts, or products from agricultural and orchard crops, waste or coproducts from livestock and poultry operations, waste or byproducts from food processing, urban wood waste, municipal solid waste, municipal liquid waste treatment operations, and landfill gas." RNG would be such a combustible gas.
[16] Section 366.91(2)(a) defines "biogas" as a mixture of gases produced by the biological decomposition of organic materials which is largely comprised of carbon dioxide, hydrocarbons, and methane gas.

facilities, and organic waste management operations.[17] Raw biogas has a methane content between 45 and 65 percent.[18] Once biogas is captured, it is treated in a process called conditioning or upgrading, which involves the removal of water, carbon dioxide, hydrogen sulfide, and other trace elements. After this process, the nitrogen and oxygen content is reduced and the RNG has a methane content comparable to natural gas and is thus a suitable energy source in applications that require pipeline-quality gas, such as vehicle applications.[19]

RNG meeting certain standards, qualifies as an advanced biofuel under the Federal Renewable Fuel Standard Program.[20] This program was enacted by Congress in order to reduce greenhouse gas emissions by reducing reliance on imported oil and expanding the nation's renewable fuels sector.[21]

Nationally, there were 548 landfill gas facilities in operation as of September 2021, and, as of 2017, 250 anaerobic digester systems operating at commercial livestock farms in the United States.[22] Of the more than 16,000 wastewater treatment plants in operation in the United States, approximately 1,300 have anaerobic digesters on site and 860 of those have the equipment to use their biogas on site.[23]

Hydrogen Fuel

The production of hydrogen involves the separation of the element from other elements in which it occurs. While there are many different sources of hydrogen and methods for producing it as a fuel, the most common methods used currently are steam-methane reforming and electrolysis.[24] Through either method, hydrogen is not an energy source, per se, since it is produced using other energy sources. Rather, produced hydrogen is an energy carrier.[25]

Steam-Methane Reforming

The most-widely used method for hydrogen production, which accounts for nearly all commercially produced hydrogen in the United States, is steam-methane reforming. With steam-methane reforming, hydrogen atoms are separated from carbon atoms in methane using high

[17] Environmental Protection Agency, *supra* note 14.
[18] *Id*.
[19] United States Department of Energy, *Renewable Natural Gas Production*, https://afdc.energy.gov/fuels/natural_gas_renewable.html (last visited: Mar. 16, 2023).
[20] United States Department of Energy, *Renewable Fuel Standard*, https://afdc.energy.gov/laws/RFS#:~:text=The%20Renewable%20Fuel%20Standard%20(RFS,Act%20of%202007%20(EISA) (last visited: Mar. 16, 2023).
[21] Environmental Protection Agency, *Renewable Fuel Standard Program*, https://www.epa.gov/renewable-fuel-standard-program (last visited Mar. 16, 2023).
[22] United States Department of Energy, *supra* note 19.
[23] *Id*.
[24] United States Energy Information Administration, *Hydrogen Explained: Production of Hydrogen*, Jan. 21, 2022, https://www.eia.gov/energyexplained/hydrogen/production-of-hydrogen.php#:~:text=The%20two%20most%20common%20methods,electrolysis%20(splitting%20water%20with%20electricity.
[25] International Renewable Energy Agency, *Hydrogen*, https://www.irena.org/Energy-Transition/Technology/Hydrogen (last visited Mar. 16, 2023).

temperature (1,300-1,800 degrees Fahrenheit) under 3-25 bar pressure[26] in the presence of a catalyst. The end-result of this process is the production of hydrogen, carbon-monoxide, and a small amount of carbon dioxide.[27]

For industrial facilities and petroleum refineries, natural gas is the typical base material from which to produce hydrogen by steam-methane reforming. Biogas and landfill gas is also a base material to produce hydrogen used by several fuel cell power plants in the United States.

Electrolysis

Electrolysis, in the sense of hydrogen production, means a process where hydrogen is split from water using an electric current. On a large, commercial scale, the process may be referred to as power-to-gas, where power is electricity and gas is hydrogen.[28] This hydrogen is then captured and used or sold as an end product or as a fuel to generate electricity.[29] The electrolysis process itself is emission-free and has no by-products other than hydrogen and oxygen. However, the energy source used to power the electrolysis (which could be from renewables, nuclear, or fossil fuels) may or may not be emission-free or have other byproducts.

Hydrogen Categories

Recently, to distinguish between the energy sources used to power hydrogen production, hydrogen producers, marketers, government agencies, and others have used a color-coded system. The nine commonly used color categories are detailed below:

- Green: Hydrogen produced by water electrolysis and employing renewable electricity as the fuel source. It is so called because the process itself does not produce emissions.
- Blue: Hydrogen produced from fossil fuels, but the carbon dioxide produced by the process is sequestered underground. Thus, the process is considered carbon neutral.
- Gray: Hydrogen produced by steam-methane reforming and the emissions produced from the burning of fossil fuels in the method are released into the atmosphere.
- Black or Brown: Hydrogen produced from the burning of coal, "black" being from the burning of bituminous coal and "brown" being from the burning of lignite coal. The comparatively large amount of carbon dioxide and carbon monoxide is released into the atmosphere with this type of production.
- Turquoise: This now experimental method of hydrogen production involves the thermal splitting of methane through pyrolysis. Though carbon is formed in this process, it is in a solid state that can be stored and not a carbon dioxide gas.
- Purple: Hydrogen made using nuclear power and heat through combined chemo thermal electrolysis splitting of water.

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[26] One bar equals 14.5 pounds per square inch of pressure. For comparison, at sea level, the average air pressure on Earth is 1.0132 bars. National Oceanic and Atmospheric Administration, *Air Pressure*, https://www.noaa.gov/jetstream/atmosphere/air-pressure#:~:text=The%20standard%20pressure%20at%20sea,the%20atmosphere%20decreases%20with%20height (last visited: Mar. 16, 2023).

[27] United States Energy Information Administration, *supra* note 24.

[28] *Id*.

[29] Florida Public Service Commission, *Bill Analysis for SB 1162* (Mar. 14, 2023) (on file with the Senate Regulated Industries Committee).

- Pink: This is the production of hydrogen through electrolysis where the energy source is electricity from a nuclear power plant.
- Red: Hydrogen produced through high-temperature catalytic splitting of water using nuclear power thermal energy as an energy source.
- White: Naturally-occurring hydrogen.[30]

Transmission and Use of Hydrogen Fuel

Due to hydrogen's low volumetric energy density, transportation, storage, and final delivery to the point of use can have a significant impact on the cost of using hydrogen as a fuel carrier. These factors can lead to inefficiencies that increase the farther hydrogen must be transported before reaching its end use.[31] Thus, currently, most hydrogen is produced in close proximity to its end use.[32] However, technology is in development that may bring these costs down and allow for easier transport and transmission of hydrogen.[33]

The two typical methods for transporting hydrogen fuel currently are via pipeline or by truck through the use of cryogenic liquid tanker trucks or gaseous tube trailers. Pipelines are most popular in areas where demand is high and expected to remain stable or grow. Trucking of hydrogen is used in areas with less demand.[34]

Potential uses for hydrogen are in:[35]

- Industrial uses such as powering oil refineries and powering ammonia, methanol, and steel production. Currently, this is the largest use, by far, for hydrogen.
- Transportation, powering hydrogen-fueled vehicles.
- Buildings where hydrogen can be blended into existing natural gas networks. It is possible currently to blend small amounts of hydrogen in existing natural gas transmission systems with little to no changes to infrastructure, equipment, and appliances.
- Power generation where emerging technology is available to use hydrogen as a medium to store renewable energy, such as solar and wind. Hydrogen and ammonia can be used in gas turbines to increase power system flexibility, and ammonia can be used to reduce emissions from coal-fired power plants.

Recently, as part of a 2021 settlement agreement, FPL was authorized by the PSC to develop a green hydrogen pilot project named the Cavendish NextGen Hydrogen Hub. The hub, located in Okeechobee, Florida, uses solar energy to power electrolysis and then, in turn, compresses and stores this hydrogen. The hydrogen then will be blended with natural gas to fuel its nearby

[30] Bulletin H2, *Hydrogen Colours Codes*, https://www.h2bulletin.com/knowledge/hydrogen-colours-codes/ (last visited: Mar. 16, 2023).
[31] United States Office of Energy Efficiency and Renewable Energy, *Hydrogen Delivery*, https://www.energy.gov/eere/fuelcells/hydrogen-delivery (last visited: Mar. 16, 2023).
[32] Florida Public Service Commission, *Bill Analysis for SB 1162*, *supra* note 29.
[33] *See* Florida Public Service Commission, *Bill Analysis for SB 1162*, *supra* note 29, which describes potential new technologies that can overcome the transportation and transmission cost hurdle for hydrogen.
[34] United States Office of Energy Efficiency and Renewable Energy, *supra* note 31.
[35] International Renewable Energy Agency, *supra* note 25.

natural-gas fired electric generation plant.[36] In this way, energy produced by solar power can be essentially stored for later use.

FPL Woodford Decision

In Citizens of State v. Graham, 191 So. 3d 897 (Fla. 2016), the Florida Supreme Court found that the PSC lacked statutory authority to approve cost recovery for FPL's investment in a natural gas production facility in the Woodford Shale Gas Region in Oklahoma (Woodford Project). The Woodford Project involved exploration and production of natural gas and not the purchase of actual fuel—something that would generally be within the types of activities an electric utility would engage in. The Supreme Court cited to s. 366.02(2), F.S. (2014), which defines an "electric utility" as, "any municipal electric utility, investor-owned electric utility, or rural electric cooperative which owns, maintains, or operates an electric generation, transmission, or distribution system within the state," and found that the Woodford Project activities did not fall within this definition.[37]

However, in making its decision, the Supreme Court noted the following:

> This may be a good idea, but whether advance cost recovery of speculative capital investments in gas exploration and production by an electric utility is in the public interest is a policy determination that must be made by the Legislature. For example, in contrast to natural gas exploration and production, the Legislature has authorized the PSC to approve cost recovery for capital investments in nuclear power plants and energy efficient and renewable energy power sources. See ss. 366.8255; 366.92; 366.93, Fla. Stat. (2014). Without statutory authorization from the Legislature, the recovery of FPL's costs and capital investment in the Woodford Project through the fuel clause is overreach.[38]

Thus, while the Supreme Court determined that the PSC could not approve cost recovery for capital electric utility investments in natural gas production, it did provide that the Legislature would have the authority to allow for such if it chose to do so.

III. Effect of Proposed Changes:

Section 1 of the bill amends s. 366.91, F.S., regarding renewable energy policy in Florida. The bill revises s. 366.91(9), F.S., which under current law, allows the Florida Public Service Commission (PSC) to approve cost recovery by a gas public utility for renewable natural gas (RNG) contracts where the pricing of the natural gas exceeds the market price of conventional natural gas. The PSC may approve such pricing if it deems the contract otherwise reasonable and prudent.

The bill revises this subsection to remove the restriction limiting its application to gas public utilities. The bill also revises the standards for the PSC's approval of such cost recovery. It

[36] Florida Public Service Commission, *Bill Analysis for SB 1162, supra* note 29, and Florida Power & Light, *Welcome to the sunshine energy state*, https://www.fpl.com/landing/sunshine.html?icid=hpherosb (last visited: Mar. 16, 2023).
[37] Citizens of State v. Graham, 191 So. 3d 897, 901-2 (Fla. 2016).
[38] *Id.* at 902.

removes the requirement that the PSC must find the contract "reasonable and prudent" and, instead, requires that the contract meets the overall goals established in s. 366.091(1), F.S.,[39] for the section by promoting the development or use of renewable energy resources in Florida and providing fuel diversification. It also expands the provisions of s. 366.91, F.S., to the purchase of hydrogen as well.

The bill also creates a new s. 366.091(10), F.S., which allows public utilities to recover, through an appropriate cost-recovery mechanism administered by the PSC, prudently incurred costs for RNG and hydrogen fuel projects. Under the bill, RNG may include mixtures of natural gas and RNG. Eligible projects would include, but not be limited to:

- Capital investment in projects necessary to prepare or produce RNG and hydrogen fuel for pipeline distribution and usage;
- Capital investment in facilities, including pipelines, necessary to inject and deliver RNG and hydrogen fuel throughout this state;
- RNG and hydrogen fuel storage facilities;
- Operation and maintenance expenses associated with any such RNG and hydrogen fuel infrastructure projects; and
- An appropriate return on investment consistent with that allowed for other utility plants used to provide service to customers.

Once approved by the PSC, the project costs are not subject to disallowance or any additional prudence review except where the utility has engaged in fraud, perjury, or intentional withholding of key information.

Section 2 of the bill provides an effective date of July 1, 2023.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. State Tax or Fee Increases:

None.

[39] Section 366.091(1), F.S., provides the intent for the section and states that "the Legislature finds that it is in the public interest to promote the development of renewable energy resources in this state. Renewable energy resources have the potential to help diversify fuel types to meet Florida's growing dependency on natural gas for electric production, minimize the volatility of fuel costs, encourage investment within the state, improve environmental conditions, and make Florida a leader in new and innovative technologies."

E. Other Constitutional Issues:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

Under the new provisions of the bill, public utilities will likely expand their use and sale of hydrogen and RNG.

C. Government Sector Impact:

None.

VI. Technical Deficiencies:

None.

VII. Related Issues:

Lines 21 and 22 of the bill delete a provision in current law limiting the provisions of s. 366.91, F.S., to gas utilities. It appears that the intention of this revision is to expand the application of s. 366.91, F.S., to all public utilities. However, as currently written, the section no longer explicitly identifies which utility industries it applies to.

For the purposes of cost recovery for natural gas projects under s. 366.91(10), F.S., created by the bill, natural gas may include a mixture of natural gas and renewable natural gas. In its analysis, the PSC stated that this provision appears to allow any injection of natural gas, no matter how small, would make a project eligible under the bill.[40]

VIII. Statutes Affected:

This bill substantially amends section 366.91 of the Florida Statutes.

IX. Additional Information:

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

None.

[40] Florida Public Service Commission, *Bill Analysis for SB 1162, supra* note 29.

B. Amendments:

None.