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Michael J. Plaisance Senior Counsel Legal Services - Regulatory

March 2, 2015

By Hand Delivery

Ms. Terri Lemoine Bordelon Records and Recording Division Louisiana Public Service Commission 602 North 5th Street Baton Rouge, Louisiana 70802

Re: *Ex Parte*: Re-study of the Feasibility of a Renewable Portfolio Standard for the State of Louisiana – LPSC Docket No. R-28271, Subdocket B

Dear Ms. Bordelon:

Enclosed please find Entergy Gulf States Louisiana, L.L.C.'s and Entergy Louisiana, LLC's (collectively, the "Companies") Joint Annual Report on the Renewable Energy Pilot Program to the Louisiana Public Service Commission ("LPSC" or the "Commission") per the requirements of Section 7 of the Commission's General Order (Corrected) dated December 9, 2010 (Docket No. R-28271-A Subdocket B) (the "Renewable Pilot Implementation General Order"). The enclosed Joint Annual Report covers various renewable energy pilot-related activities in 2014. We ask that you accept our Joint Annual Report for filing in the above referenced docket.

I have also enclosed two copies of the Highly Sensitive Protected Materials ("HSPM") Version of the referenced filing, which is being provided to you under seal pursuant to the provisions of the LPSC General Order dated August 31, 1992, Rules 12.1 and 26 of the Commission's Rules of Practices and Procedures. The confidential materials included in the filing consist of competitively sensitive market information, the disclosure of which may create an artificial target for suppliers in an otherwise competitive wholesale market. For this reason, this material is confidential and commercially sensitive. The disclosure of the information contained herein would subject not only the Companies, but also their customers, to a substantial risk of harm. Accordingly, it is critical that this information remain confidential.

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Please retain the original HSPM Version for your files and return a date-stamped copy to our by-hand courier. Additional copies of the HSPM Version of this filing will be provided to the appropriate representatives of the Louisiana Public Service Commission Staff.

Sincerely,

Michael J. Plaisance

Enclosure

cc: Official Service List (via electronic mail and/or U.S. Mail)

BEFORE THE LOUISIANA PUBLIC SERVICE COMMISSION

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EX PARTE IN RE: RE-STUDY OF THE FEASIBILITY OF A RENEWABLE PORTFOLIO STANDARD FOR THE STATE OF LOUISIANA

LOUISIANA PUBLIC SERVICE COMMISSION

DOCKET R-28271 SUBDOCKET B

JOINT ANNUAL REPORT OF ENTERGY GULF STATES LOUISIANA, L.L.C. <u>AND ENTERGY LOUISIANA, LLC</u>

Entergy Gulf States Louisiana, L.L.C. ("EGSL") and Entergy Louisiana, LLC ("ELL") (collectively, the "Companies") respectfully submit this fifth Joint Annual Report to the Louisiana Public Service Commission ("LPSC" or the "Commission") per the requirements of Section 7 of the Commission's General Order (Corrected) dated December 9, 2010 (Docket No. R-28271-A Subdocket B) (hereinafter referred to as "the Renewable Pilot Implementation General Order"), covering renewable pilot-related activities in 2014 and General Order dated September 20, 2013 (Docket No. R-28271 Subdocket B).

Research Component

In conjunction with the requirements of Section 3 of the Renewable Pilot Implementation General Order, the Companies developed and currently promote a Standard Offer Tariff called Rate for Renewable Energy Purchases ("Schedule REP"). Prior to coming on-line, qualifying renewable projects that agree to produce energy in conformance with Schedule REP are also required to execute an *Agreement for Interconnection and Purchased Power from a Qualifying New Renewable Resource* ("PPA"). After communicating and meeting with numerous interested project developers since the program's inception, the Companies have received three applications for Schedule REP. All three applications were subsequently deemed to be complete by the Companies, which resulted in those proposed renewable energy projects qualifying for the program.

As previously reported, the owner of one of the qualifying renewable energy projects executed a 5-year PPA that was subsequently approved by the Commission at its November 15, 2012 Business & Executive ("B&E") Session.¹ The Lafourche Sugars, LLC project provided renewable energy to ELL under Schedule REP during the fall 2014 as summarized by Table 1, below:

Table 1. Energy Deliveries from Lafourche Sugars, LLC

The project developer that completed the second application received for Schedule REP has not contacted the Companies since early 2012. Given the lack of communication, it is probable that the project is not moving forward.

The third application was submitted by Rain CII Carbon, LLC ("Rain CII") in connection with a proposed project for the refurbishment and retooling of the waste heat recovery generating unit at its existing Chalmette, LA site. Rain CII filed a Petition with the Commission on November 1, 2013, requesting a reservation of 15 MW of capacity under ELL's Schedule REP for the project. The Commission approved the request at its December 2013 B&E Session subject to Rain CII achieving certain milestones towards completion of the project and placing

¹ Docket No. S-32568 - Lafourche Sugars, LLC and Entergy Louisiana, LLC, ex parte. In re: Request for Approval of an Agreement for Interconnection and Purchased Power from a Qualifying New Renewable Resource.

the project in commercial operation by March 31, 2016.² ELL and Rain CII have completed the negotiation of a Schedule REP PPA for the project and expect to submit the agreement to the Commission for approval prior to the project entering commercial operation.

Highly Sensitive and Protected Materials ("HSPM") Exhibit 1 includes a complete list including a status update on all proposed projects that have expressed an interest in Schedule REP since the program's inception.

Request for Proposal ("RFP") Component

In the Companies' third annual report to the Commission on renewable pilot-related activities for calendar year 2012, the Companies provided an update on the activities related to winning bidders from the Renewable RFP³ performed by Entergy Services, Inc. ("ESI"), acting on behalf of the Companies. A summary of activity under the agreements with those three bidders is provided below.

Rain CII

In September 2012, ESI executed a 20-year contract on behalf of EGSL with Rain CII for 28 MW of capacity and energy from a new waste heat recovery generating unit then under construction in Sulphur, LA ("Rain 20-Year PPA"), which the Commission reviewed in Docket No. U-32557 and approved at its December 2012 B&E Session.⁴

² LPSC Order No. U-33034, dated January 8, 2014. In re: Petition for Reservation of Capacity on an Expedited Basis as to the Standard Offer Tariff Option for New Renewable Resources, Chalmette Waste Heat Recovery Power Generation Project.

³ <u>https://spofossil.entergy.com/ENTRFP/SEND/Renewable/RenIndex.html.</u>

⁴ LPSC Order No. U-32577, dated January 11, 2013. In re: Application for Approval of a 20-Year Contract with Rain CII Carbon LLC for the Purchase of Capacity and Energy from the Sulphur, LA Heat Recovery Project and Request for Timely Treatment.

Table 2. Capacity and Energy Payments to Rain CII

Agrilectric

In March 2013, ESI executed a 20-year contract on behalf of EGSL with Agrilectric Power Partners, LP ("Agrilectric") for 8.5 MW of capacity and energy from its refurbished biomass-fired generating unit in Lake Charles, LA ("Agrilectric 20-Year PPA"), which the Commission reviewed in Docket No. U-32785 and approved at its July 2013 B&E Session.⁵

⁵ Order No. U-32785, dated August 15, 2013. *In re: Application for Approval of a 20-Year Contract with Agrilectric Power Partners, LP for the Purchase of Capacity and Energy and Request for Timely Treatment.*

 Table 3. Capacity and Energy Payments to Agrilectric

Montauk

On March 12, 2014, in Commission Docket No. U- 32981, the LPSC approved ELL's 10-year contract with TX LFG Energy, LP ("Montauk"), a wholly-owned subsidiary of Montauk Energy Holdings, LLC, for the purchase of approximately 3 MW of renewable energy and associated attributes ("Montauk 10-Year PPA").

Renewable Energy Credit ("REC") Marketing

In 2014, SPO commenced marketing the RECs associated with the renewable PPAs. While there is no certification program, tracking system, or market for RECs in Louisiana, the RECs associated with the Montauk and Agrilectric PPAs were marketable in other states because they were certifiable under the Green-e Energy National Standard for renewable electricity products.⁶ Green-e is the leading independent certification and verification program for renewable energy and greenhouse gas emission reductions in the retail market. The marketing results are summarized in Table 4, below:

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http://www.green-e.org/getcert_re_stan.shtml

Table 4. 2014 REC Marketing Results

Notes: ¹Land fill gas resource - 3.5 MW ²Biomass (Rice Hulls) resource - 8.5 MW Agreements are being finalized and are subject to final execution

Unlike the Montauk and Agrilectric PPAs, RECs associated with the Rain CII PPA were not marketable as the Rain facility does not qualify under the Green-e Energy National Standard at this time. When called to verify the status of the Rain RECs, Green-e confirmed that the facility does not qualify under the Standard because the waste heat recovery technology used by Rain CII to produce electricity does not qualify. In essence, efforts to market RECs associated with the Rain CII PPA were unsuccessful in that various brokers that were contacted stated that the RECs would only have value to a counterparty if the RECs were independently certified by a group such as Green-e.

Additionally, EGSL is to receive three Emission Reduction Credits ("ERCs") in connection with the Montauk PPA during the first quarter of 2015. Efforts to market these ERCs will be reported in the next annual report.

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Section 1603 Grant Recipients

In prior years, the Companies have reported on Section 1603 grant recipients in an effort to shed light on the types of renewable resources developed around the U.S. and regionally. Table 5 updates the total number of grants, total dollar amount of grants, and average grant by type of technology through December 2014.⁷

	# of		% of Grant	Average Grant
Technology	Grants	Grant Awards	Awards	Award
Wind	433	\$12,896,523,261	55.62%	\$29,784,118
Solar Electricity	7,841	\$7,197,668,737	31.04%	\$917,953
Biomass (open loop, cellulosic)	60	\$909,075,225	3.92%	\$15,151,254
Geothermal Electricity	22	\$722,953,869	3.12%	\$32,861,540
Hydropower (incremental)	44	\$492,884,904	2.13%	\$11,201,930
Landfill Gas	63	\$214,496,557	0.93%	\$3,404,707
Fuel Cell	59	\$216,544,213	0.93%	\$3,670,241
Solar Thermal	472	\$154,080,788	0.66%	\$3,263,442
Biomass (open loop, livestock)	98	\$119,133,949	0.51%	\$1,215,653
Trash Facility	34	\$93,450,656	0.40%	\$2,748,549
Small Wind	459	\$80,609,427	0.35%	\$175,620
Geothermal	6	\$24,674,037	0.11%	\$4,112,340
Hydropower (dam)	13	\$22,450,439	0.10%	\$1,726,957
Combined Heat & Power	48	\$17,171,221	0.07%	\$357,734
Geothermal Heat Pump	88	\$10,522,588	0.05%	\$119,575
Marine	10	\$10,123,772	0.04%	\$1,012,377
Biomass (closed loop)	3	\$2,009,514	0.01%	\$669,838
Microturbine	6	\$1,402,863	0.01%	\$233,811
Solar Lighting	2	\$86,016	0.00%	\$43,008
Totals	9,761	\$23,185,862,036	100.00%	\$2,375,357

 Table 5. Ranking of §1603 Grants by Technology.

Consistent with the results included in prior annual reports, the vast majority of Section 1603 grant dollars have gone to just a few technologies: 1) land-based wind, 2) solar electricity (photovoltaic (PV)), 3) biomass (open loop, cellulosic), and 4) geothermal electricity. The data summarized above re-affirms that renewable energy developers focused on projects that were faster to deploy (*e.g.*, solar PV) in comparison to other technologies, or are already among the

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Source: <u>http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx;</u> data as of February 1, 2014.

lower cost renewable alternatives available (*e.g.*, land-based wind). In contrast, technologies which appear to be more difficult and costly to deploy, involve more extensive permitting requirements (*e.g.*, environmental permits due to fuel combustion), and/or have longer development lead times received minimal Section 1603 grant awards. Table 6 below provides a breakdown of grant awards in the southeastern region thus far.

State	Technology	# of Grants	Grant Awards	% Grant Awards
	Wind	33	\$1,841,558,018	59.44%
	Solar Electricity	997	\$525,097,454	16.95%
	Biomass (open loop, cellulosic)	21	\$431,380,904	13.92%
	Solar Thermal	105	\$130,497,432	4.21%
	Hydropower (incremental)	6	\$94,097,289	3.04%
	Landfill Gas	22	\$43,612,999	1.41%
Region ⁸ H	Trash Facility	3	\$10,759,698	0.35%
	Biomass (open loop, livestock)	9	\$9,645,720	0.31%
	Fuel Cell	11	\$3,990,001	0.13%
	Hydropower (dam)	3	\$3,816,650	0.12%
	Combined Heat & Power	4	\$1,343,519	0.04%
	Microturbine	3	\$1,318,213	0.04%
	Small Wind	16	\$631,006	0.02%
	Geothermal Heat Pump	11	\$498,075	0.01%
	Biomass (closed loop)	1	\$129,180	0.00%
	Totals	1,242	\$3,098,306,708	100.00%

 Table 6. §1603 Grants in the Region by Technology.

From the data summarized in Table 6, the top four technologies (solar electricity, utilityscale land-based wind, open-loop biomass, and solar thermal) have received approximately 95% of Section 1603 grant awards in the region. As was noted in last year's report, two states in the region continue to have a mandatory Renewable Portfolio Standard ("RPS"): North Carolina and Texas. Below is a breakdown of the types of projects installed thus far in North Carolina and Texas that qualified for a 1603 grant award.

⁸ "Region" consists of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

		# of		% Grant
State	Technology	Grants	Grant Awards	Awards
	Solar Electricity	146	\$214,268,583	65.88%
	Hydropower (incremental)	5	\$86,411,674	26.57%
	Landfill Gas	4	\$10,601,014	3.26%
	Biomass (open loop, cellulosic)	3	\$3,588,774	1.10%
	Solar Thermal	10	\$3,494,279	1.07%
North Carolina	Biomass (open loop, livestock)	4	\$3,937,034	1.21%
North Carolina	Fuel Cell	2	\$1,618,740	0.50%
	Hydropower (dam)	2	\$1,230,353	0.38%
	Geothermal Heat Pump	1	\$41,242	0.01%
	Combined Heat & Power	1	\$27,107	0.01%
	Wind	1	\$17,557	0.01%
	Small Wind	1	\$2,682	0.00%
	Totals	180	\$325,239,039	100.00%
	Wind	31	\$1,841,535,467	92.35%
	Solar Electricity	123	\$104,218,728	5.23%
	Biomass (open loop, cellulosic)	3	\$40,491,400	2.03%
	Landfill Gas	3	\$5,505,137	0.28%
Texas	Microturbine	2	\$1,178,767	0.06%
	Fuel Cell	1	\$634,514	0.03%
	Solar Thermal	2	\$243,570	0.01%
	Small Wind	5	\$135,087	0.01%
	Geothermal Heat Pump	1	\$76,047	0.00%
	Totals	172	\$1,994,018,717	100.00%

 Table 7. §1603 Grants in North Carolina and Texas by Technology.

While a mix of technologies are represented in both states, more than 90% of 1603 grant dollars in North Carolina went to solar electricity and incremental hydropower projects; whereas in Texas, almost 98% of 1603 grant dollars went to utility-scale wind farms and solar electricity projects.

Update on Promising Renewable Technologies

For the 2010 – 2013 annual reports, the Companies reported on several technologies that may ultimately hold promise for Louisiana: 1) biomass, 2) in-stream hydrokinetic, 3) solar PV, 4) land-based wind (both on-system and off-system), 5) offshore wind, 6) geothermal, 7) waste heat recovery, and 8) high voltage direct current ("HVDC") transmission lines. This report provides an update on those technologies. As with the previous annual reports, technologies that are not considered commercially developed and widely available are not included. Also, small-scale renewable resources (typically applications less than 5 MW) are not addressed in this report.

Biomass

Projects using cellulosic biomass fuel have received the third highest amount of Section 1603 grant awards in the region – approximately \$204 million (see Table 5). Table 8 below, although not exhaustive, summarizes available information and the status of publicly announced cellulosic biomass-fueled projects in the region. There have been developments on many projects, as noted below under status.

Company	State	Size (MW)	Cost (\$M)	Cost (\$/kW)	Status (if known)
American Renewables, LLC	FL	100	\$500	\$5,000	Operating ; commercially operational in Dec 2013; output committed to Gainesville Regional Utilities under 30-year PPA; <u>http://gainesvillebiomass.com/</u>
American Renewables, LLC	FL	100	N/A	N/A	Status Unknown ; company website links to the Gainesville, FL project discussed above
Florida Biomass Energy, LLC	FL	60	N/A	N/A	Cancelled; announced in 2008; FPSC approved PPA with Progress Energy in 2009; abandoned April 2012; http://www.bradenton.com/2012/04/04/3979983/us-agriculture- secretary-no-silver.html
Multitrade Telogia LLC	FL	14	N/A	N/A	Operating ; refurbishment of existing plant originally constructed in 1986
Rentech Inc.	FL	55	\$228	\$4,145	Cancelled ; began construction, but abandoned December 2011 due to not receiving a DoE loan guarantee
Vision / FL, LLC	FL	40	N/A	N/A	Status Unknown ; announced in 2008; FPSC approved PPA with Progress Energy in 2009; no further updates available
Constellation & Proctor&Gamble	GA	50	\$200	\$4,000	Under Construction; biomass fueled cogen plant at P&G's Albany paper facility; construction onsite has begun; commercial operation expected in June 2017; <u>http://news.pg.com/press-</u> <u>release/pg-corporate-announcements/procter-gamble-and-</u> <u>constellation-announce-one-nations-large</u>
Earth Resources, Inc.	GA	20	N/A	N/A	Cancelled ; announced in 2006; proposed to burn chicken litter and woody biomass
Fitzgerald Renewable Energy LLC	GA	50	\$139	\$2,780	Operating ; online in 2012
Georgia Power	GA	N/A	96	N/A	Cancelled ; proposed in 2008; modify existing coal plant; environmental law change concerns (Boiler MACT); filed in January 2014 to decertify the 155 MW coal unit; if approved, retired by April 16, 2015

 Table 8. Status of Cellulosic-Fueled Biomass Projects in the Region.

Company	State	Size (MW)	Cost (\$M)	Cost (\$/kW)	Status (if known)
Multitrade Rabun Gap LLC	GA	17	\$21.5	\$1,265	Operating ; re-powered existing equipment at a shuttered textile mill; output sold to group of co-ops
Oglethorpe Power Corp.	GA	100	\$477	\$4,770	Indefinitely Suspended ; originally proposed three 100 MW projects; "legislative and regulatory uncertainties"
Pratt Paper (GA), LLC	GA	9	\$60	\$6,667	Operating ; biomass gasifier uses waste stream rejects from paper-making and construction wood waste
ecoPower Generation	KY	58.5	N/A	N/A	Development ; announced February 2010; Kentucky PSC approved a 20-year PPA with Kentucky Power Co. in October 2013; project expected to come on-line in 2017; customer rates expected to increase about 6%; in PJM queue in October 2014 w/ COD projected for early 2016: <u>http://www.power-</u> <u>eng.com/articles/2014/10/ecopower-works-its-kentucky-biomass-</u> <u>project-through-pjm.html</u> .
Agrilectric Power Partners, LP	LA	12	N/A	N/A	Operating ; modifications to existing facility presumably completed in early 2012 per Section 1603 Grant award timing
National Clean Fuels	MS	10	\$15	\$1,500	Status Unknown ; announced early 2011; project partner is now out of business
Orangeburg County Biomass LLC	SC	35	\$98	\$2,800	Development ; announced April 2010; most recent article found discusses need for a utility PPA to move the project forward
Aspen Power LLC	TX	50	\$128	\$2,560	Operating ; greenfield project operational third quarter 2011
East Texas Electric Cooperative	TX	50	\$200	\$4,000	Construction ; began 3Q2012; was targeting fourth quarter 2014 completion but project not yet complete as of this reporting cycle; <u>http://www.etec.coop/projects-licensing.html</u>
Rio Grande Valley Sugar Growers, Inc.	TX	N/A	\$34	N/A	Operating ; existing sugar cane processing operation; boiler expansion and related modifications
Southern Power	TX	100	\$500	\$5,000	Operating ; output committed to Austin Energy under 20-year PPA worth \$2.3 billion; in first year of operations only ran 50 days due to operating cost
Dominion (Virginia Power)	VA	153	\$157.4	\$1,029	Operating / Construction ; three identical re-powering projects; received approval to proceed from State Corporation Commission (SCC) in March 2012; Altavista was placed into commercial operation in July 2013, and the others were expected to be converted by the end of 2013; after conversion, each will produce up to 51 MW of electricity (total of 153 MW); <u>https://www.dom.com/about/stations/renewable/biomass- conversion.jsp</u>
South Boston Energy LLC	VA	49.9	\$180	\$3,600	Operating ; Virginia SCC approved project April 2011; PPA in place with Northern VA Electric Coop.; facility began operating in late 2013; <u>https://www.novec.com/About_NOVEC/SBE.cfm</u>
Southeast Renewable Energy	Four States	35.6	N/A	N/A	Operating ; two 17.8 MW plants in South Carolina came online in November 2013; output from both plants is sold to Santee Cooper under 30 year PPA signed in Fall 2010; <u>http://www.dorchesterforbusiness.com/uploads/news_296_39345</u> <u>51091.pdf</u>

In a recent biomass-related development, there has been significant interest in the region in constructing wood pellet facilities that would export fuel primarily to Europe for use in boilers to produce electricity. In the Companies' footprint, several projects are under construction that would utilize significant quantities of wood and wood waste to produce wood pellets that would be exported from ports located along the Mississippi River or from ports on the Gulf Coast.⁹ Similar wood pellet facilities are under development (or construction) in the region including in Texas, Mississippi, Alabama, Georgia, South Carolina, North Carolina, and Florida.

Hydro In-Stream (Hydrokinetic)

In previous reports to the Commission, the Companies have reported on efforts by Free Flow Power ("FFP") to pursue various studies and analyses needed to obtain approvals from various local and federal regulatory bodies and agencies to install hydrokinetic turbines at a number of sites along the Mississippi River. In June 2013, FFP submitted a request to the Federal Energy Regulatory Commission ("FERC") to surrender preliminary permits for a number of projects along the Mississippi River. In an interview after the decision was made, a member of FFP's Board of Directors commented: "Looking at the economics, we decided to give up the hydrokinetic business."¹⁰ In making the decision to relinquish the permits, he added that FFP and potential equipment manufacturers from Germany considered data from the historic 2011 flood of the Mississippi River and the near-record, low-water conditions set the following year in 2012, which apparently exposed millions of cubic feet of sediment deposited by the flood.

Based on publicly available resources, there appears to be little new information beyond what is reported above for FFP. The Companies are not aware of any new public information from other companies that are pursuing either FERC licensing of potential sites and/or testing hydrokinetic equipment designs.

⁹ One of these, the Morehouse Bioenergy plant in Bastrop, LA, is under construction and is expected to be online by Q1 2015: http://www.myarklamiss.com/story/d/story/bastrop-leaders-excited-for-relationship-with-newl/13173/mZnZRlyDLEekw4uIMjG1oA.

¹⁰ *"Crear: Turbine company spurns river for lake dams,"* SNL, October 18, 2013.

Solar PV

As was discussed in the last annual report covering 2013, the Companies are not aware of any public information regarding larger-scale (greater than 1 MW) solar PV projects under development in either Louisiana or the immediate region served by any of the Entergy Operating Companies. That being said, the Companies have received a number of inquiries (including some during 2014) from developers interested in pursuing solar projects in Louisiana that may qualify for Schedule REP. HSPM Exhibit 1 provides a status update on Schedule REP including the most recent inquiries.

It should also be noted that while developments regarding rooftop solar PV are beyond the scope of this report, which is focused on utility-scale developments, 2014 saw a marked increase in the number of installations throughout the Companies' service areas from about 3,200 at the end of 2013 to about 6,300 at the end of 2014. Residential rooftop solar PV programs are addressed more comprehensively in LPSC Docket Nos. R-31417 and X-33192, where also may be found a detailed report recently issued by an external consultant retained by the LPSC to evaluate the economics of net energy metering programs in Louisiana.

For the broader region, based on public project announcements, efforts are under way to add larger-scale solar resources in several states, particularly Florida, Georgia, and North Carolina. In July 2013, the Georgia Public Service Commission ("PSC") voted to require Georgia Power to increase its solar capacity by 525 MW by the end of 2015; of the overall goal, 100 MW is to come from smaller projects installed by individual residential and property owners and the remaining 425 MW is to come from large, utility-scale projects.¹¹ Georgia Power issued

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http://www.bizjournals.com/atlanta/news/2013/07/11/georgia-psc-orders-more-solar-power.html?page=all.

an RFP in December 2013 to help meet the Georgia PSC's requirements.¹² In an October 2014 filing to the PSC, Georgia Power stated it had selected 516 MW of solar PPAs through the RFP from resources that would come online in 2015 and 2016.¹³

Georgia Power also announced in May 2014 that it would be developing 30 MW solar installations at Fort Stewart, Fort Benning, and Fort Gordon in Georgia pursuant to the order approving its 2007 Integrated Resource Plan. The projects are expected to be completed by the end of 2016.¹⁴ Southern Company subsidiary Gulf Power made a similar announcement in January 2015, saying it plans to develop 120 MW of solar PV at three military bases in Florida. Construction is expected to begin in early 2016.¹⁵

As evidenced by the 1603 grant award data presented in Table 6, North Carolina has seen substantial investment in solar electricity projects. The Solar Energy Industries Association reports that approximately 722 MW of solar resources are installed in the state.¹⁶ Duke Energy also initiated an RFP in February 2014 for up to 300 MW of new solar resources targeting facilities greater than 5 MW.¹⁷ The RFP limited to projects that are in the company's current transmission and distribution queue. In September 2014, Duke announced it had selected eight projects totaling 278 MW through the RFP—three facilities that it will construct and own (128 MW total) and five PPAs (150 MW total).¹⁸

¹² <u>http://www.bizjournals.com/atlanta/news/2013/12/24/georgia-power-issues-draft-rfp.html.</u>

¹³ <u>http://www.psc.state.ga.us/factsv2/Document.aspx?documentNumber=155389</u>.

¹⁴ <u>http://www.georgiapower.com/docs/about-us/news/solar-army-generation_051414.pdf</u>

¹⁵ <u>http://gulfpowernews.com/gulf-power-and-military-bringing-large-scale-solar-power-to-northwest-florida/</u>

¹⁶ <u>http://www.seia.org/state-solar-policy/north-carolina</u>.

¹⁷ <u>http://www.duke-energy.com/news/releases/2014021401.asp.</u>

¹⁸ <u>http://www.bizjournals.com/charlotte/blog/power_city/2014/09/duke-energy-commits-500-million-to-n-c-solar-power.html?page=all</u>.

In January 2015, Florida Power & Light ("FP&L") announced plans to build three new solar PV projects totaling approximately 225 MW in three counties throughout the state. Construction is expected to begin this year and be complete by the end of 2016.¹⁹ And in February 2015, FP&L affiliate, NextEra, entered into a 20 year PPA to sell 80 MW of solar to the Tennessee Valley Authority ("TVA").²⁰

Wind (Land-Based)

As reported previously and as evidenced by the data presented in Table 5 on 1603 grant awards, large-scale, land-based wind farms continue to dominate installations of renewable energy projects in the U.S. However, newly installed wind capacity in 2013 (1,084 MW) and 2014 (3,600 MW) represented a significant fall-off from 2012 because of uncertainty around the expiration of the production tax credit ("PTC").²¹ Congress extended the PTC in 2013 to projects that meet the definition of "began construction" before December 31, 2013, and then extended the PTC again in December 2014 to projects that began construction before December 31, 2014.²² The following map prepared by the U.S. Geological Society shows the approximate location of each large-scale wind farm in the U.S.²³

¹⁹ <u>http://www.prnewswire.com/news-releases/fpl-announces-plans-to-install-more-than-1-million-solar-panels-at-three-additional-solar-power-plants-as-part-of-continued-strategy-of-advancing-affordable-clean-energy-in-florida-300025619.html</u>

²⁰ <u>http://www.utilitydive.com/news/tva-to-sign-major-solar-deal-with-nextera-for-80-mw/364537/</u>

²¹ <u>http://www.awea.org/Resources/Content.aspx?ItemNumber=5059.</u>

²² <u>http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=7057.</u>

²³ <u>http://eerscmap.usgs.gov/windfarm/.</u>



Chart 1. Location of U.S. Wind Farms as of February 2015.

In terms of Louisiana and the other areas served by the Entergy Operating Companies, the Companies are not aware of any public information that would indicate that land-based wind farms are actively under development. The following provides an update using publiclyavailable information regarding proposed projects in Alabama, North Carolina, and Florida.

In 2012, Pioneer Green Energy LLC announced that they were developing two wind farm projects in Cherokee and Etowah counties in Alabama. Based on media reports summarized in the Companies' 2012 annual report, it was expected that the projects could begin construction sometime in 2013. However, an August 2014 article indicates that the developer has decided not to move forward with either of the projects.²⁴ In North Carolina, three wind farm projects have been approved, but still have not started construction based on publicly available information. The Companies previously reported on those projects and it appears concerns noted in the prior

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http://www.al.com/news/anniston-gadsden/index.ssf/2014/08/pioneer green energy pulling o.html

report persist regarding avian wildlife and interference with nearby military installations.²⁵ As for Florida, Wind Capital Group announced in late 2013 that the company was canceling its proposed 200 MW project near the Everglades for lack of economic viability.²⁶

Wind (Offshore)

As discussed in the Companies' 2011-2013 annual reports, development activities in the U.S. are focused along the Atlantic coast, particularly in the northeast, but no offshore wind farm in the U.S. has yet begun construction. Table 9 below summarizes the status of projects in the northeast using publicly-available information.

Company	State	Size (MW)	Cost (\$M)	Energy Cost (\$/MWh)	Status (if known)
NRG Bluewater Wind	DE	200	N/A	\$142	Cancelled as previously reported
Cape Wind	МА	420	2,600	\$187	Status unknown ; in December 2013, Cape Wind announced a deal with Siemens to supply turbines that would presumably qualify the project for the federal PTC once complete; in January 2015, PPAs terminated by two utilities after project fails to achieve contractual milestones: http://www.bostonglobe.com/metro/2015/01/06/major-setback-for-cape-wind-project/kggnYeAXRj03PyfIUn2iIM/story.html.
Hywind Maine (Statoil)	ME	12	\$120	\$270	Cancelled ; in October 2013, Statoil North America citing the following: "framework conditions in the state, uncertainty around the commercial framework, and the schedule implications of project delays made the project outlook too uncertain to proceed."
Fishermen's Energy	NJ	25	N/A	\$187	Status unknown ; the project has received permits, but the New Jersey Board of Public Utilities ("BPU") has yet to approve the project; in November 2014, the NJ BPU again rejected the project's application: http://www.njbiz.com/article/20141121/NJBIZ01/141129926/BPU-again-rejects-Fishermen's-Energy-project.
Deepwater Wind	RI	30	\$300	\$244	Development ; in February 2014, Deepwater Wind and Alstom signed agreements to supply the Block Island Wind Farm with five of Alstom's 6 MW Haliade 150 turbines; construction could begin in 2015 with commercial operation targeted for Q4 2016: http://enr.construction.com/infrastructure/power_industrial/201 5/0129-deepwater-wind-farm-taking-shape-off-block-island- ri.asp.

Table 9. Status of Offshore Wind Projects in the U.S.

²⁵ <u>http://hamptonroads.com/2014/01/military-seeks-restrictions-nc-wind-farm-growth.</u>

²⁶ http://therealdeal.com/miami/blog/2013/11/27/129537/.

In the southern region, longer-term planning activity appears to be continuing in several states. As noted in the Companies' 2012 annual report, Dominion Resources is focusing on testing offshore technology via Dominion's Virginia Power subsidiary near Virginia Beach and leasing acreage for a possible future offshore wind farm. Most recently, Dominion signed a lease in October 2013 for 112,800 acres of federal land off the coast of Virginia.²⁷ The lease was executed with the federal Bureau of Ocean Energy Management for the potential development of offshore wind turbines. Further south along the Atlantic coast, the Companies are unaware of any specific activities in Georgia and North Carolina involving leasing acreage and/or testing turbines.

As previously reported, the Companies are aware of two developers that are (or possibly were) pursuing projects off the coast of Texas: Baryonyx Corporation and Wind Energy Systems Technology ("W.E.S.T."). Baryonyx proposed the GoWind Offshore Wind Demonstration Project, a 3-turbine, 18 MW demonstration project to be constructed near South Padre Island, Texas.²⁸ In May 2014, however, Baronyx withdrew the permits related to the GoWind project, effectively ending further development.²⁹ As for the second developer, the Companies were not able to find any updated information regarding the W.E.S.T. projects being developed near Galveston, which could indicate that the proposed projects are now inactive.

²⁷ <u>https://www.dom.com/about/stations/renewable/offshore-wind-power.jsp.</u>

²⁸ <u>http://renews.biz/52413/baryonix-eyes-2016-gowind-launch/.</u>

²⁹ <u>http://www.nawindpower.com/e107_plugins/content/content.php?content.13050</u>.

Geothermal

Since the report to the Commission covering 2011, relying on public information, the Companies have not found any significant new developments regarding potential geothermal power projects in the region.

Waste Heat Recovery

The beginning sections of this report provide updates on two separate waste heat recovery projects in Louisiana owned and operated by Rain CII. The Companies are unaware of any other public information about waste heat recovery projects either under development or construction in the region including updates regarding the 10 MW KGRA Energy, LP project described in the 2012 annual report.

High Voltage Direct Current Transmission

In the 2012 annual report, the Companies reported on efforts by Clean Line Energy Partners and Pattern Energy Group LP to separately develop and construct HVDC transmission lines to move primarily wind power from Texas and parts of the Midwest to eastern markets, including the southeast.

Clean Line Energy Partners is developing several HVDC projects with the 700-mile Plains and Eastern Clean Line set to originate in the Oklahoma panhandle region with bulk power to move to load-serving entities in the Mid-South and Southeastern United States via an interconnection to the TVA system.³⁰ A recent article about the project indicates that the Tennessee Regulatory Authority has approved a Certificate of Public Convenience and Necessity

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http://www.plainsandeasterncleanline.com/site/page/project-description.

which will allow the company to operate as a transmission-only public utility in the state.³¹ Another recent article reported that the DOE released a draft environmental impact statement in December 2014 identifying several possible routes for the line and that public comments will be accepted until March 19, 2015.³² The developer hopes to begin construction in 2016 and place the project in commercial operation by late 2018.

Pattern Energy Group LP's proposed 400-mile Southern Cross Transmission HVDC project would originate at the border of the Electric Reliability Council of Texas ("ERCOT") in eastern Texas and would terminate at several substations in Northeast Mississippi.³³ FERC issued an order on May 15, 2014, granting final regulatory approval to the project.³⁴ The developer hopes to complete the project by 2019.

Respectfully submitted,

BY.

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³³ <u>http://www.southerncrosstransmission.com/overview.html.</u>

³¹ <u>http://www.bizjournals.com/memphis/news/2015/01/13/2b-wind-power-project-gets-state-approval.html?page=all</u>.

³² <u>http://newsok.com/federal-officials-release-draft-report-on-plains-and-eastern-clean-line-transmission-project/article/5375599</u>.

³⁴ <u>http://www.prnewswire.com/news-releases/pattern-development-receives-final-ferc-approval-for-southern-cross-transmission-project-260248951.html</u>.

CERTIFICATE OF SERVICE LPSC Docket No. R-28271 Subdocket B

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