



Action Report

Environment (Climate Change)

PPL

April 22, 2017

Ticker	Exchange	Meeting Date	Record Date	Annual Meeting Location
PPL	NYSE	5-17-17	2-28-17	Louisville, Kentucky

Agenda	
Item	Proposal
1	MGT: Elect directors
2	MGT: Advisory vote on executive compensation
3	MGT: Advisory vote on the frequency of say on pay
4	MGT: Amend 2012 stock incentive plan
5	MGT: Ratify selection of auditor
6	SH: Report on climate change strategy

Si2 Briefing [Environment \(Climate Change\)](#)

Report Author [Sol Kwon](#)

Links [2017 Proxy Statement, 2016 Form 10-K](#)

Resolved Clause RESOLVED: Shareholders request that PPL, with board oversight, publish an assessment (at reasonable cost and omitting proprietary information) of the long term impacts on the company’s portfolio, of public policies and technological advances that are consistent with limiting global warming to no more than two degrees Celsius over pre-industrial levels.

Lead Proponent New York State Common Retirement Fund (NYSCRF)

Vote History This resolution is new this year but the proponent has engaged PPL since 2015 on climate change issues. Last year a resolution asking for a report on distributed energy received 42.5 percent shareholder support.

Summary The New York State Common Retirement Fund wants PPL to review and report on its strategy in response to “public policies and technology advances that are consistent with limiting global warming to no more than two degree Celsius over pre-industrial levels,” including its capital expenditure plans and “plans to integrate technological, regulatory and business model innovations.” Management opposes the resolution, asserting that an analysis based on the 2015 Paris climate agreement (which is what this resolution is looking for) would be premature and unnecessary and that it has already taken many steps to reduce its environmental footprint. Currently more than 80 percent of power generated by one of PPL’s business segments is sourced from coal; the company does not provide comprehensive data on what percentage of the power it distributes is sourced from renewables. PPL provides anecdotal information on many initiatives—including selling off a major coal burning plant and investing in hydroelectricity and solar—on its efforts to reduce reliance on coal, but it does not provide comprehensive data for investors to compare its performance to those of its peers.

I. PPL and Climate Change

PPL is a utility holding company that delivers electricity and natural gas in the United States and the United Kingdom. Through its utility subsidiaries, PPL delivers electricity to customers in the U.K., Pennsylvania, Kentucky, Virginia and Tennessee; delivers natural gas to customers in Kentucky; and generates electricity from power plants in Kentucky. In June 2015, PPL completed the spinoff of PPL Energy Supply, which combined its competitive power generation businesses with those of Riverstone to form a new, stand-alone, publicly traded company named **Talen Energy**.

Financials			
(\$ millions)	2015	2016	% Change
Operating Revenues	\$7,669	\$7,517	(19.8%)
Net Income	\$682	\$1,902	178.9%

PPL is organized into three reportable segments: U.K. Regulated, Kentucky Regulated, and Pennsylvania Regulated. Their operations are summarized below, based on the company's 2016 Form 10-K.

- U.K. Regulated**— Operates Western Power Distribution (WPD), PPL's U.K. subsidiary, which through indirect wholly owned subsidiaries operates four of the 15 regulated distribution networks providing electricity service in the U.K. It serves 7.8 million across 21,600 square miles in south Wales and southwest and central England. This segment accounted for 65.5 percent of PPL's 2016 revenues.
- Kentucky Regulated**— Consists of LKE, which is the parent company to Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU). LG&E and KU are engaged in the regulated generation, transmission, distribution and sale of electricity in Kentucky, Virginia and Tennessee. LG&E also engages in the distribution and sale of natural gas in Kentucky. LG&E provides electric service to approximately 407,000 customers in Louisville and adjacent areas in Kentucky, covering 700 square miles in nine counties and provides natural gas service to 324,000 customers in its electric service area and eight additional counties in Kentucky. KU provides electric service to 521,000 customers in 77 counties in central, southeastern and western Kentucky, about 28,000 customers in five counties in southwestern Virginia, and four customers in Tennessee, covering 4,800 non-contiguous square miles. KU also sells wholesale electricity to 11 municipalities in Kentucky under load following contracts. At December 31, 2016, LKE had generating capacity of 8,011 MW, including 2,916 MW related to LG&E and 5,095 MW related to KU, in Kentucky, Indiana, and Ohio. (See table below for more information on power generation fuel source.) This segment accounted for about 20.9 percent of PPL's 2016 revenues.
- Pennsylvania Regulated**— Consists of PPL Electric, which delivers electricity to approximately 1.4 million customers in a 10,000-square mile territory in 29 counties of eastern and central Pennsylvania. PPL Electric also provides electricity supply to retail customers in this area as a provider of last resort. This segment accounted for about 17.8 percent of the company's 2016 revenues.

PPL also operates a "Corporate and Other" segment.

Fuel sources: According to its 2016 Form 10-K, PPL's Kentucky Regulated segment generates its own power. Its fuel sources in 2016 are shown in the table at right. The company does not report its fuel source breakdown for its purchased electricity, which would account for the company's fuel source for other segments. In 2016 its use of natural gas increased slightly from

PPL's 2016 Generation by Fuel Source		
Fuel Source	MWh	% of Total
Coal	56,058	81%
Oil / Gas	12,714	18%
Hydro	816	1%
Total	69,588	100.0%

the year before, but the company expects coal to be the predominant fuel it uses for generation “for the foreseeable future.” PPL also has a solar power plant that went into operation in June 2016 with 10MW of capacity; PPL says the construction cost \$25 million.

Utilities and Climate Change

In April 2016, Si2 published [an analysis](#) of the U.S. electric utility industry and its response to climate change; the report, with backing from the IRRIC Institute, takes a look at 12 key metrics for the industry covering board oversight and director climate change expertise, climate change risk exposure and political involvement. PPL was among the top 25 U.S. investor-owned utilities we analyzed. The following findings are relevant to the shareholder resolution at hand.

Emissions—U.S. utilities are legally required to report their greenhouse gas emissions to the U.S. Environmental Protection Agency’s Facilities-Level Information on Greenhouse Gases Tool (FLIGHT). The data do not represent a company’s total emissions, as companies are only required to report emissions from facilities emitting 25,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) per year. Still,

2013 Emissions Reported through EPA’s FLIGHT				
Company	Emissions Intensity %*	Absolute Emissions (metric tons CO_{2e})	Generation in million MWh	% U.S. GHG Emissions
NiSource	114.41	16,192,919	14.15	0.24%
NRG Energy	100.86	100,224,829	99.37	1.50%
CMS Energy	98.29	20,619,534	20.98	0.31%
Xcel Energy	82.09	56,506,228	68.83	0.85%
DTE Energy	80.91	35,491,147	43.86	0.53%
AEP	79.10	121,098,420	153.10	1.81%
AES	74.78	30,758,320	41.13	0.46%
Ameren	69.81	30,564,382	43.79	0.46%
Southern	60.30	108,671,229	180.22	1.63%
PPL Corporation	58.87	52,174,283	88.63	0.78%
FirstEnergy	58.09	56,050,031	96.48	0.84%
Duke Energy	50.33	122,474,576	243.35	1.84%
Dominion Resources	37.48	35,205,416	93.92	0.53%
Sempra Energy	33.39	4,427,357	13.26	0.14%
Entergy	25.82	33,413,928	129.40	0.50%
NextEra Energy	22.78	40,023,063	175.68	0.60%
PSEG	18.76	10,206,360	54.41	0.15%
Edison International	14.73	2,529,018	17.16	0.08%
PG&E	9.55	3,023,726	31.68	0.09%
Exelon	3.54	6,905,705	195.05	0.22%
Consolidated Edison	N/A	3,146,418	0	0.10%
ONEOK	N/A	1,822,300	0	0.06%
Eversource Energy	N/A	1,660,130	0	0.05%
CenterPoint Energy	N/A	498,125	0	0.02%
Pepco Holdings	N/A	173,743	0	0.01%
* Emissions intensity percentage is calculated by dividing generation in MWh into absolute emissions in metric tons CO _{2e}				
Source for emissions data: University of Massachusetts Political Economy Research Institute				

the reporting ultimately covers 85 to 90 percent of total U.S. emissions. The table above (*bottom of previous page*) shows the emissions intensity for the top 25 U.S. investor-owned utilities for 2013, the most recent year for which FLIGHT data were available at the time of research.

Stranded carbon asset risk—In a January 2016 report, “[Stranded Assets and Thermal Coal: An analysis of environment-related risk exposure](#),” the University of Oxford’s Smith School of Enterprise and the Environment found that “the environment-related risks facing the thermal coal value chain are substantial and span physical environmental impacts, the transition risks of policy and technology responding to environmental pressures, and new legal liabilities that may arise from either of the former.” The report specifically evaluated the top 100 global utilities by coal-fired generation capacity for their risks related to asset stranding. The report ranked utilities’ risk along a variety of scenarios associated with asset stranding:

- *Carbon Dioxide Intensity*: The more carbon-intensive a coal-fired power station, the more likely it is to be negatively affected by climate policy, whether through carbon pricing, emissions performance standards or similar measures.
- *Plant Age*: Older power stations create risk for utilities in two ways: they are more vulnerable to regulations that might force their closure, and they increase the likely cost of site remediation requirements.
- *Local Air Pollution*: Coal-fired power stations in locations with high population density and serious local air pollution are more at risk from regulation and emission abatement technology requirements, or even operation cessation.
- *Water Stress*: Power stations located in areas with higher physical baseline water stress, or in areas characterized by water conflict or regulatory uncertainty, are at higher risk of forced operational reduction or cessation, or of profit impairment by water pricing.
- *Coal Quality*: Coal-fired power stations that use lignite—which emits the most carbon dioxide of any coal type—are more at risk than those that use other forms of coal.
- *CCS Retrofitability*: Coal-fired power stations that are not suitable for carbon capture and storage (CCS) technology retrofit might be at greater risk of premature closure.

Stranded Carbon Asset Risk Ranking								
Company	CO ₂ Intensity Risk Rank	Plant Age Risk Rank	Local Air Pollution Risk Rank	Water Stress Risk Rank	Coal Quality Risk Rank	CCS Retrofitability Risk Rank	Future Heat Stress Risk Rank	Average Risk Rank
AEP	65	87	20	1	62	100	83	59.7
NRG Energy	70	92	22	1	69	100	58	58.9
Ameren	74	96	26	1	1	100	100	56.9
DTE Energy	71	97	27	1	1	100	100	56.7
AES	64	71	31	62	1	100	32	51.6
Entergy	52	72	11	1	1	100	100	48.1
Xcel Energy	40	59	5	73	1	100	54	47.4
Dominion Resources	57	94	24	1	1	100	33	44.3
Duke Energy	49	83	29	1	59	33	50	43.4
FirstEnergy	66	86	19	1	1	32	80	40.7
Southern	51	79	13	1	60	31	47	40.3
PPL	32	56	4	1	1	20	65	25.6

- *Future Heat Stress:* Climate change will exacerbate heat stress on power stations, as higher ambient local temperatures decrease power station efficiency and exacerbate water stress.

The table above (*bottom of previous page*) shows the 12 U.S. utilities from the Si2 research universe that were also covered in the Oxford study, along with their risk ranking for each scenario from 1 to 100.¹ PPL ranks lowest on the risk scale, with its greatest risk associated with future heat stress and aging plants.

For more information on climate change see Si2's 2017 [Briefing Paper, Environment \(Climate Change\)](#).

PPL and Climate Change

PPL was one of the original plaintiffs in the various legal cases against the Obama administration's Clean Power Plan, which have now all been consolidated into a single case before the Supreme Court, currently awaiting judgment. The company has since removed the above language from its website, and now generally says far less about the EPA and coal's prospects on its website and in its Stakeholder Report. In its [2016 Form 10-K](#), PPL addresses its climate change risk, noting potential regulatory, consumer and infrastructure impacts:

Climate change may produce changes in weather or other environmental conditions, including temperature or precipitation levels, and thus may impact consumer demand for electricity. In addition, the potential physical effects of climate change, such as increased frequency and severity of storms, floods, and other climatic events, could disrupt our operations and cause us to incur significant costs to prepare for or respond to these effects. These or other meteorological changes could lead to increased operating costs, capital expenses or power purchase costs. Greenhouse gas regulation could increase the cost of electricity, particularly power generated by fossil fuels, and such increases could have a depressive effect on regional economies. Reduced economic and consumer activity in our service areas -- both generally and specific to certain industries and consumers accustomed to previously lower cost power -- could reduce demand for the power we generate, market and deliver. Also, demand for our energy-related services could be similarly lowered by consumers' preferences or market factors favoring energy efficiency, low-carbon power sources or reduced electricity usage.

PPL provides some information related to its emissions reduction efforts in its [2015 Corporate Sustainability Report](#). It says it has invested more than \$3.5 billion toward "building tomorrow's energy infrastructure," and this included taking steps to support "a more balanced energy mix." The section on "Expanding Renewable Energy" says the company supports reducing its environmental impact through this "balanced energy mix," which it defines as "combining clean and renewable energy sources with traditional ones." PPL's initiatives in 2015 are summarized below.

- In the United Kingdom, the company delivered 6,500 MW of renewable energy to customers. WPD participates in the U.K. Low Carbon Networks Fund, recently renamed the Network Innovation Allowance and Competitions, which has launched projects that test innovative methods to enable the widespread adoption by customers of low-carbon technologies such as solar panels, heat pumps and electric vehicles.
- Its Kentucky Regulated businesses are exploring offering individual solar generation facilities to commercial and industrial customers. It is building a new solar power plant (as previously mentioned and since completed); LG&E is rehabilitating all eight generating units at the Ohio Falls hydroelectric facility, which will allow the plant to generate hydropower and increase total output by 27 percent.

¹ The ranking is transposed from its original scale—where 1 constituted the highest risk—to the reverse, where 1 constitutes the lowest risk.

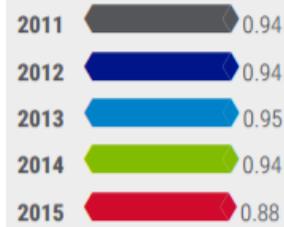
- In Pennsylvania, PPL Electric participates in a statewide alternative energy portfolio standard. From June 2015 to May 2016, alternative power sources will comprise 13.7 percent of the power PPL Electric buys for customers, including 5.5 percent from solar, wind and hydropower energy sources.

The sustainability report also offers a section called “Helping Our Customers Go Green,” in which it outlines its initiatives in supporting electric vehicle technology.

Emissions— PPL publishes a five-year emissions intensity trend in its sustainability report for carbon dioxide, nitrous oxide and sulfur dioxide. See graph on the right for its carbon emissions, which shows some progress in 2015.

CDP: PPL does not respond to CDP’s annual climate change questionnaire, nor does it report on its absolute greenhouse gas emissions.

CARBON DIOXIDE EMISSIONS
in metric tonnes per megawatt-hour



Historic data has been normalized to exclude operations no longer part of PPL as of 12/31/2015.

II. Proponent Position

The New York State Common Retirement Fund wants PPL to review and report on its strategy in response to “public policies and technology advances that are consistent with limiting global warming to no more than two degree Celsius over pre-industrial levels,” including its capital expenditure plans and “plans to integrate technological, regulatory and business model innovations.”

The proponent points to the Paris Climate Agreement, which calls for the 2-degree limit the proponent supports, and notes that global average carbon intensity from electricity needs to drop by 90 percent to meet this goal. The proponent wants to understand how PPL is “planning for the risks and opportunities” by global efforts to meet these goals. The ratings agency Moody’s recently announced that it would start analyzing carbon transition risk based on the Paris Agreement and noted the high exposure of the power sector, it notes. “Rapid expansion of low carbon technologies ... provide not only challenges for utility business models but also opportunities for growth,” the proponent asserts, noting that “many large corporations are actively seeking to increase their usage of renewable energy.” It says that electrification of transport will “play a critical role” in reducing GHG emissions to “necessary” levels by 2050.

The proponent points out that PPL is the 7th largest CO₂ emitter in the United States, relying on coal for 60 percent of its power generation, but does not have a GHG reduction goal or provide information on long-term strategy to “decarbonize.” The proponent is concerned that PPL is not “properly” managing its high carbon risks. The requested scenario analysis based on the 2-degree model “will generate a more complete picture of current and future risks and opportunities,” the proponent asserts, adding that the analysis will help PPL “better plan for future regulatory, technological and market changes.”

III. Management Position

PPL’s management opposes the resolution, asserting that a scenario-based analysis on the Paris Agreement would be premature and unnecessary and that it has already taken many steps to reduce its environmental footprint.

Management says that undertaking a scenario assessment based on the 2-degree model “in the absence of any clear governmental policy directive or regulatory framework” would be “premature and impractical,” as it would have to make certain assumptions that “may not be valid in a broader context.” There is

“uncertainty” whether the United States will honor the Paris Agreement, it says, although it will continue to monitor policy actions by the new administration.

PPL also says that two out of its three business segments “do not own power plants or generate any electricity,” and that 60 percent of its 2016 revenues were from its “non-generating” businesses. Electricity generation accounts for “just a portion” of its other revenues, it says. It also asserts that PPL is “a much different company today than ... two years ago,” with its overall carbon emissions in 2016 down 55 percent from 2011 levels and 47 percent from 2014 levels. Its risk from power generation is “significantly less” after a spinoff in 2015, it adds, noting that its current generation activities are in a jurisdiction that allows “near real time cost recovery and reasonable returns on environmental compliance projects.”

PPL also says it is “firmly committed to” adapting “to advance a smarter, cleaner energy future.” It points to projects in the United Kingdom, where the Paris Agreement is translated into public policy directives, and adds that it accounts for one-third of the country’s solar power. It has solar power projects in the United States as well, management notes, pointing to its corporate website and sustainability report for more detailed information. PPL says it will “continue to assess a wide range of opportunities and risks associated with environmental and other matters” and disclose them in its SEC filings. It will also “continue to invest in new technology, to promote energy efficiency, to reduce our environmental impact, and to explore ways to integrate more distributed energy resources,” PPL says.

IV. Analysis

Key Point at Issue

- Is PPL sufficiently reporting on how it is positioning the company in response to climate change constraints?

For additional analysis, please refer to Si2’s [2017 Briefing Paper, Environment \(Climate Change\)](#). The following analysis is specific to PPL.

PPL is a large utility, dependent on coal, and one of the heaviest emitters in the United States. For its power generating segment (Kentucky Regulated), which accounted for almost 21 percent of its 2016 revenues, PPL sees coal as its primary fuel source for the foreseeable future. PPL does not disclose comprehensively what percentage of its total distributed power was from renewable sources. PPL also says that it supports “a balanced energy mix”—“combining clean and renewable energy sources with traditional ones”—as the primary way of reducing its environmental footprint. In response to the Paris Climate Agreement and the 2-degree scenario, PPL says in its opposing statement that, without any concrete policy actions by the United States government, it would be premature and unnecessary to develop a scenario-based analysis.

The proponent, the New York State Common Retirement Fund (NYSCRF), sees threats to current utility business models in the form of global climate change and distributed low-carbon generation. As in previous years, the proponent asserts that investors need to know how the company is planning to adapt to these challenges, especially in light of the Paris Agreement which the Obama administration adopted.

Currently available information through the company’s SEC filings and website does not provide its view on any potential threats to its business model, but it does point out that the company has some early-stage projects in renewables and distributed generation. It also shows that the company keeps its shareholders and stakeholders informed of the company’s approach through its public reporting. The company does not, however, provide scenario-based analysis in which the Paris Agreement would take full effect in the United States. It also does not provide information that would allow for meaningful comparison of its emissions to those of its peers, including a comprehensive picture of its total energy mix, or the

materiality of its investments in renewable and distributed generation projects. The company makes clear that it continues to view “traditional” energy sources as a part of the “balanced energy mix” and it will rely on coal as a fuel source at least in the foreseeable future.

Voting Considerations

Votes in favor: Investors who share the proponent’s view that the company should provide additional information on how it plans to adapt to changes in its industry, especially in light of the Paris Agreement, will vote in favor of the resolution. These investors are likely to agree that the utility industry is facing fundamental challenges to the way it does business and that electric utilities need to proactively address inevitable changes brought about by climate change and distributed generation. These investors may also be concerned that PPL is less prepared than its peers for the likely evolution in its sector.

Votes against: Investors who are satisfied with the company’s existing reporting on its investments, including in renewable energy and potential threats to business model, will vote against the resolution. They are likely to believe that the traditional utility business model will endure for some time to come, and that the company’s early-stage projects show adequate progress.

Resources

- PPL’s 2017 Proxy Statement
<https://www.sec.gov/Archives/edgar/data/922224/000119312517111007/d334463ddef14a.htm>
- PPL’s 2016 Form 10-K
<https://www.sec.gov/Archives/edgar/data/55387/000092222417000010/ppl-1231201610k.htm#s836579E395C55927BB48D6AD02F362CA>
- PPL’s 2015 Corporate Sustainability Report
http://pplsustainability.com/wp-content/uploads/2016/05/PPL_2015-Sustainability-Report.pdf
- *The Top 25 U.S. Electric Utilities: Climate Change, Corporate Governance and Politics*
<https://pplstakeholderreport.com/wp-content/uploads/2015/05/PPL-CSR-2014.pdf>