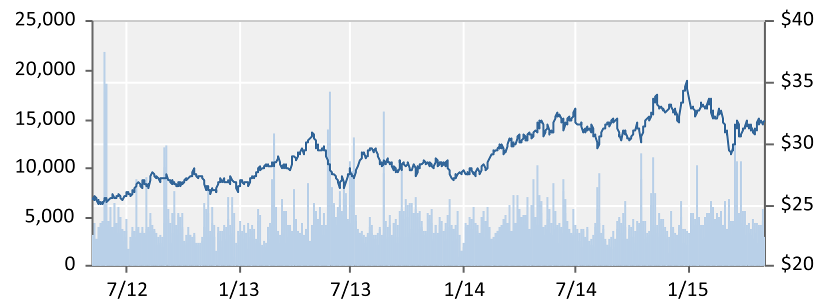
Analyst: Connor Kempson

Recommendation	**BUY**
Target (today's value)	$35
Current Price	$31.10
52 week range	$29.20 - $40.20

Utilities

PPL Corporation



Source: FactSet Prices

Share Data	
Ticker:	PPL
Market Cap. (Billion):	$20.68
Inside Ownership	.362%
Inst. Ownership	76.61%
Beta	0.60
Dividend Yield	5.22%
Payout Ratio	70.8%
Cons. Long-Term Growth Rate	-0.05%

Summary: I recommend a buy rating with a target of $35. Although PPL Corporation has underperformed in the past, the stabilization of the Pound and growth in the U.S. segments increases potential for stable growth. The stock is fairly valued based on a relative valuation but undervalued based on a DCF analysis.

	'15	**'16**	**'17E**	**'18E**	**'19E**
Sales (billions)					
Year	$7.67	$7.52	$7.37	$7.52	$7.66
Gr %		-2.0%	-1.9%	2.0%	1.9%
Cons	-	-	$7.51	$7.86	$8.06
EPS					
Year	$1.02	$2.81	$2.11	$2.47	$2.56
Gr %		175.7%	-25.0%	15.2%	0.4%
Cons	-	-	$2.18	$2.33	$2.43

Ratio	**'15**	**'16**	**'17**	**'18E**	**'19E**
ROE (%)	13.6%	19.1%	19.1%	15.5%	14.5%
Industry	11.4%	9.5%	11.3%	11.4%	11.2%
NPM (%)	20.9%	25.2%	25.2%	21.3%	21.5%
Industry	14.1%	12.1%	15.9%	15.2%	15.8%
A. T/O	0.17	0.19	0.19	0.18	0.18
ROA (%)	3.6%	4.9%	4.9%	3.8%	3.8%
Industry	3.2%	2.4%	3.0%	3.0%	3.1%
A/E	3.17	3.87	3.81	3.86	3.91

Valuation	**'16**	**'17**	**Today**	**'18E**
P/E	12.6	15.4	13.7	12.5
Industry	26.0	36.0	29.3	14.6
P/S	3.11	3.18	2.84	2.57
P/B	2.3	2.2	1.9	1.9
P/CF	8.3	9.7	8.6	7.3
EV/EBITDA	14.7	13.8	1.8	13.2

Performance	**Stock**	**Industry**
1 Month	-2.6%	-4.0%
3 Month	-18.3%	-12.8%
YTD	-2.2%	-5.6%
52-week	-15.3%	-0.1%
3-year	-6.0%	4.1%

Key Drivers:

- Domestic Regulated ROE: PPL has consistently over performed in ROE compared to comps since 2015. However, base rate cases throughout this year and the last have adversely affected sales and will continue to do so.
- U.K. Operations and Foreign Currency: PPL's foreign branch, U.K. Regulated, has had declining sales the past 3 years, but attributed almost 50% to earnings. A non-domestic business line is an uncommon strategy in the sector and lifts PPL's margins.
- Capital Expenditures: PPL intends to increase fixed assets by over 40% in the next 5 years. This expansion will be financed through long and short-term debt.
- Interest Rates: PPL underperforms the S&P 500 during periods of rising interest rates. The new Fed Chair intends to follow his predecessor's position on slowly increasing rates.

Valuation: Using a relative valuation approach, PPL Corporation appears to be fairly valued in comparison to the utility industry. Due to greater precision of inputs, DCF analysis provides the best way to value the stock. A combination of the approaches suggests that PPL Corporation is undervalued, as the stock's value is about $35 and the shares trade at $30.10.

Risks: Threats to the business include increasing interest rates, weather, the U.K. segment, and any outcomes of future rate cases.

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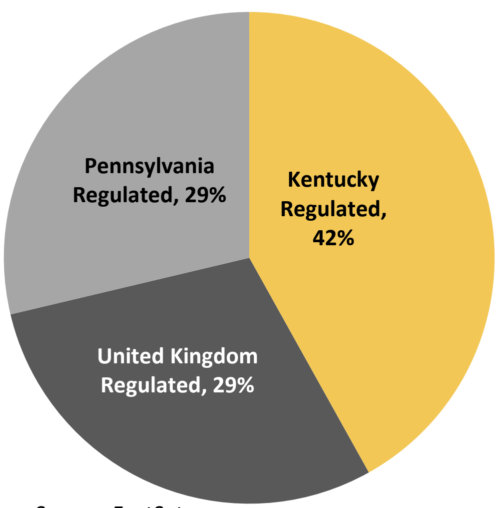
Company Overview

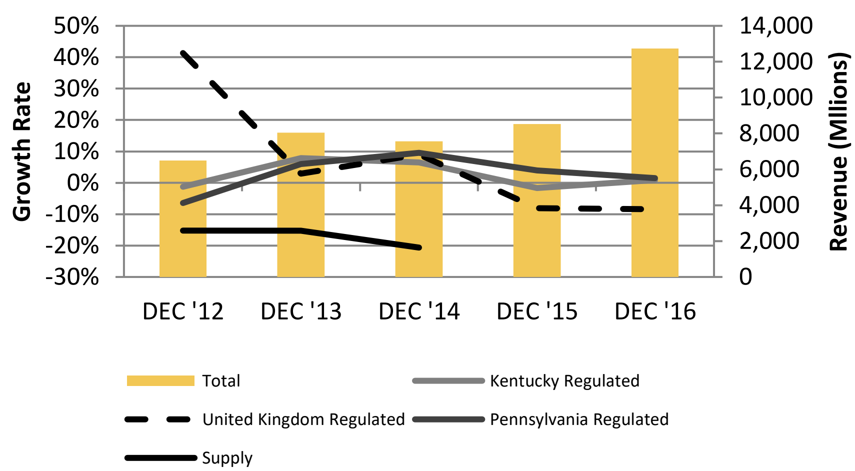
PPL Corporation, headquartered in Allentown, PA, is a regulated energy holding company specializing in the creation, transportation, and distribution of electricity and natural gas. They operate in three different segments called Kentucky Regulated, Pennsylvania Regulated, and U.K. Regulated. Through these three segments, they service over 10 million customers in the U.S. and abroad, covering 41,000 square miles. The U.K. segment covers areas in Wales and southwest and central England. The Pennsylvania and Kentucky segments cover their named states, respectively.

PPL Corporation provides their services with more than 144,379 gigawatt hours with its three segments:

- Kentucky Regulated: There are two parts to Kentucky Regulated, and both derive from the LKE unit. They include KU and LG&E, and are the largest segment of the company. They both provide generation, transmission, distribution, and sale of electricity, but LG&E also distributes and sells natural gas.
    - Year-over-year growth was 0.83% from 2015-2016.
- Pennsylvania Regulated: PPL Electric provides regulated transmission and distribution of electricity in Pennsylvania.
    - Year-over-year growth was 1.5% from 2015-2016.
- U.K Regulated: PPL Global exclusively provides distribution of electricity in the U.K., mainly using Western Power Distribution for operations.
    - Year-over-year growth was -8.4% from 2015-2016. Negative growth is due to inefficient currency hedging.

Figures 1 and 2: Revenue Sources for PPL, year-end 2016 (left) and Revenue History since 2012





Source: FactSet

Business/Industry Drivers

The success of PPL Corporation is considerably influenced by the following drivers:

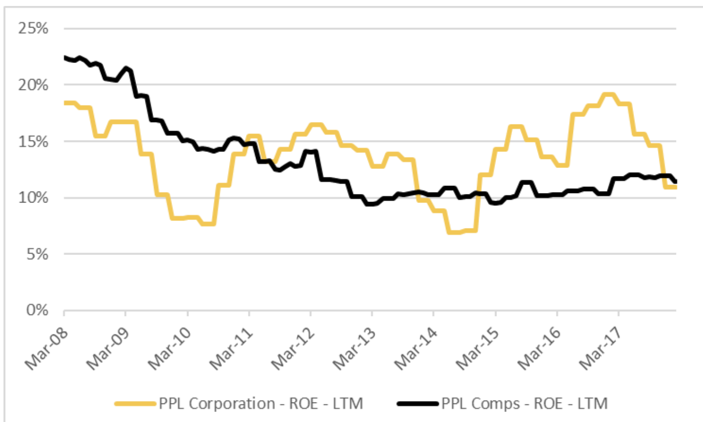
1) Domesticated Regulated ROE
2) U.K. Operations and Foreign Currency
3) Capital Expenditures
4) Government Regulation
5) Macroeconomic Trends

Domestic Regulated ROE

Last November, the LKE subsidiaries filed with KPSC for increases in annual base electricity and gas rates. This will result in a 6.4% base rate increase for KU, and LK&E's electric and gas rates will increase 8.5% and 4.2%, effective July 1st, 2017. After a hearing with the Kentucky Public Service Commission (KPSC) in May, a 9.7% ROE was authorized in accordance with a 6.4% increase in base rates for KU. Since KU attributed 41.8% to sales in 2016, the increase in sales will be up to 2.67%, increasing earnings. The commission also lowered ROE on environmental cost recovery from 10% to 9.7%. Authorized ROE for the Pennsylvania segment moved from 11.68% to 12.93%, and more hearings will continue throughout 2017.

Overall, PPL's ROE significantly outperformed its comps by nearly 5% on average since the beginning of 2015. The decrease after 2015 was a result of the Supply segments discontinued operations, reducing earnings more relative to the write off of equity.

Figure 3: PPL's LTM ROE relative to comps 2008-2017



Source: FactSet

U.K. Operations and Foreign Currency

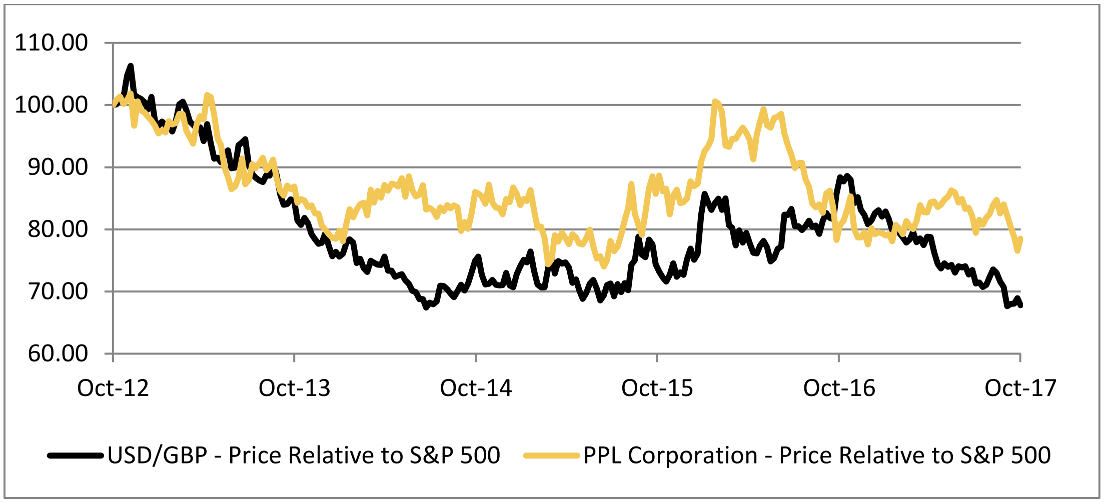
U.K. segment makes up 30% of revenue but contributes over 50% of EPS.

The Office of Gas and Electric Markets (Ofgem) is currently the most influential governing body over U.K. Regulated. The price control contract, RIIO ED1 for Distribution Network Operators (DNO) spans for eight years from 2013-2023. Part of the settlement involves a mid-point review that entails interviewing consumers about satisfaction. Poor reviews could result in increased spending on distribution networks that can't be included in Regulatory Asset Value (RAV), but management is confident in satisfactory results.

While PPL's U.K. segment only generates 29% of revenue, it contributed to over 50% of EPS in 2016. Due to effective hedging, earnings rose by $0.17 per share for the U.K. segment. These earnings are dependent on RAV, which is the equivalent of the regulatory asset base domestically. The depreciation of the pound will lower RAV, which is based on historical investment costs. These losses can be offset as RAV grows with capital expenditures. In 2016, under Ofgem's RIIO framework, the return on regulatory equity (RORE) allowed was 35% of RAV. Over the next 8 years, PPL plans to spend $8.8 billion on regulatory assets, which can boost the U.K.'s EPS by $1.17 over the 8 years.

Since over 50% of EPS is derived from the U.K. segment, this leaves a large exposure to foreign currency. When the pound moves, it tends to slightly lead the price of PPL, especially from mid-2014 through 2016. In earlier periods, the U.K segment was most of the business, but since the creation of Kentucky Regulated's gas unit, the firm is less dependent on the pound's performance.

Figure 4: PPL Corporation's price indexed to the USD/GBP relative to S&P



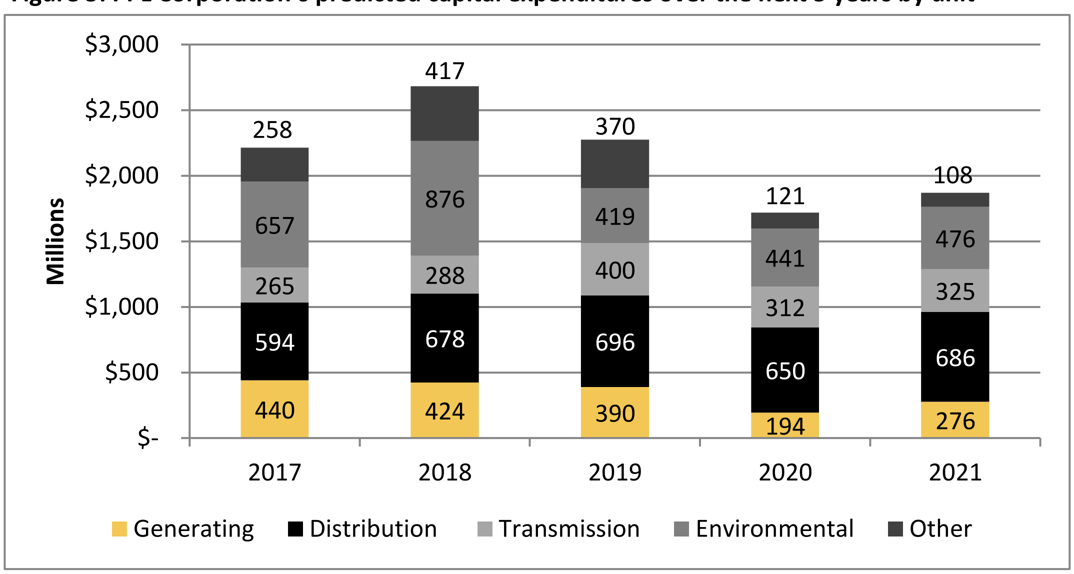
Source: FactSet

$16 billion X 40.2% Equity X 13.9% ROE in '17 = $894,048/ 679,700 current shares = 1.32/ 2.11 EPS = 62% possible EPS growth in 5 years

Capital Expenditures

Low interest rates have created the opportunity for domestic expansion, estimated to be around $16 billion, 41.75% of total assets, for 2017 through 2021. Most of the capital expenditures will be for the electricity distribution units. These distribution units are the main service provided in the U.K., the largest contributor to EPS. Also, a $471 million smart-grid project in the U.S. is currently underway, which improves efficiency and more easily tracks energy usage. These costs can be partially recovered through rates because they provide more efficient practices for the company.

Figure 5: PPL Corporation's predicted capital expenditures over the next 5 years by unit



Source: Company Reports

CapEx is supposed to exceed $16 billion over the next 5 years

To finance the mass expansion in the upcoming years, PPL will utilize long term and short term debt. Long-term debt makes up 64% of liabilities, and 70.4% of contractual cash obligations are due after 2021 as of year-end 2016. As rates rise due to Fed's policy, PPL's interest expense will begin to increase.

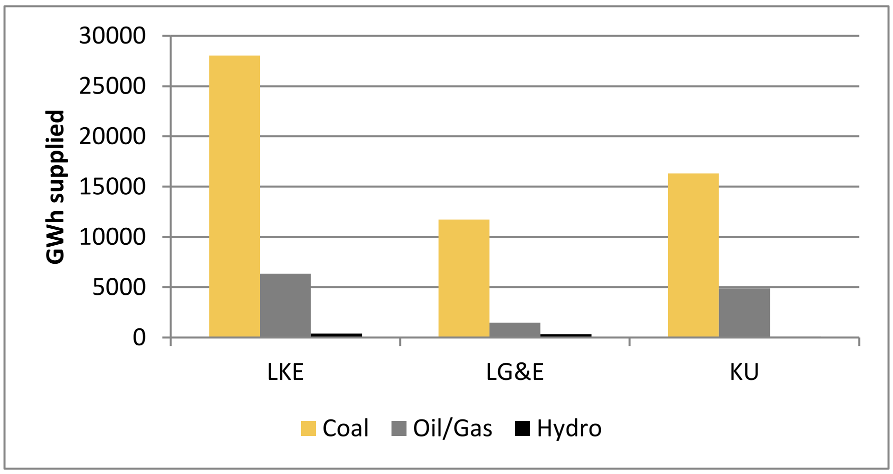
Despite the Trumps administration's push for coal, green energies threaten PPL's reliance on coal. PPL added to Kentucky's natural gas unit to begin a transition from coal.

Government Regulation

LG&E and KU operate under the jurisdiction of the Federal Energy Regulatory Commission (FERC) and the Kentucky Public Service Commision (KPSC), but KU also operates under the Virginia State Corporate Comission (VSCC). The U.K. segment is primarily affected by the Office of Gas and Electricity Markets (Ofgem).

In the United States legislation such as the Clean Air Act, the Mercury and Air Toxic Standards, and National Ambient Air Quality Standards influence PPL. Under the Trump administration, more environmental regulation is unlikely, but ambiguity surrounding the Paris agreement makes predictions difficult. Fuel and energy purchases make up about 33% of operating expenses so unexpected changes in coal regulation is a large threat to PPL as the resource is 81% of their domestic generation capabilities.

Figure 6: PPL Corporation's use of natural resources (not pictured is solar)

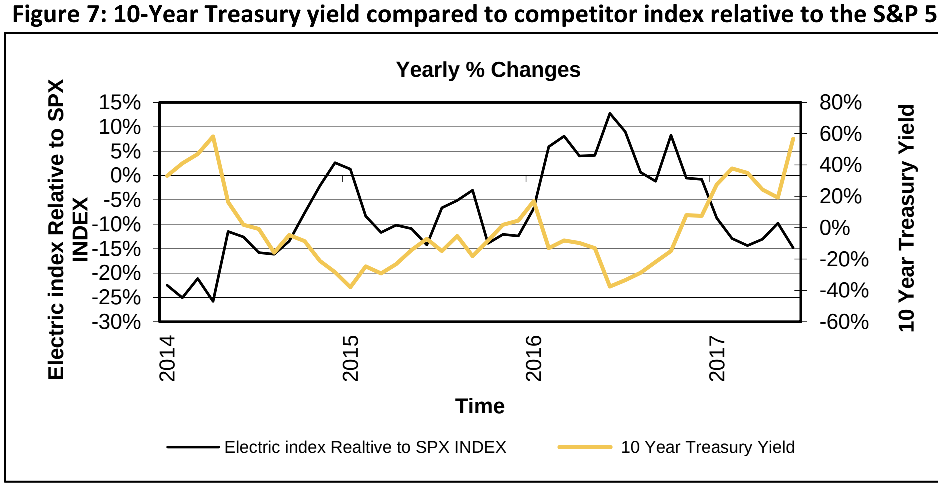


Source: Company Reports

Macroeconomic Trends

Utilities are negatively correlated to Treasury yields given the high dividend yield. PPL and its competitors tend to outperform the S&P in periods of decreasing rates, but the discontinuation of PPL's Supply segment led to a sharp decline in earnings during 2015. PPL's dividend growth over 5 years was 9.15% vs a median of 18.48%. PPL's current dividend yield is around 5.22% and its dividend payout ratio is 70.8 compared to medians of 4.15% and 89.5 for the industry.

Figure 7: 10-Year Treasury yield compared to competitor index relative to the S&P 500



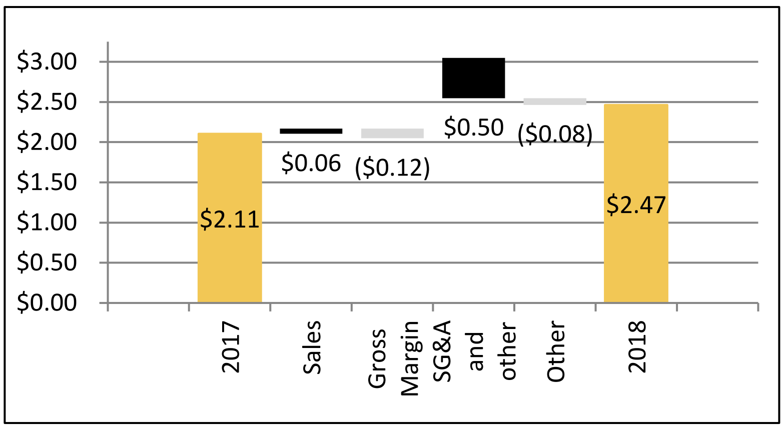
Source: Bloomberg, IMCP

Throughout 2017, the Fed has hiked rates three times and is expected to continue increasing under the new chair, Jerome Powell.

Financial Analysis

I anticipate EPS to grow to $2.47 in FY 2018. Increasing revenues in the US would attribute $0.12 to earnings in 2018, but declining revenues in the U.K. segment reduce the gain to a $0.06 increase. A decline in gross margins will lead to a $0.12 decrease in EPS from a new wave of capital expenditures beginning this year resulting in an increase in depreciation. Lower SG&A and other has a significant impact on 2018 earnings. This change is due to a large reported $235 million loss through nine months ended September 30, 2017. Since Brexit, PPL incurred extreme losses from derivative instruments because of a declining pound. As of October 2017, PPL is fully hedged to a rate of £1.22 per dollar, and because this occurred in the beginning of the 4th quarter, I estimate a $25 million loss in the final months vs. the $78.3 million per quarter average in 2017. I predict this expense will not incur during 2018, placing PPL on track for steady growth and the $0.50 adjustment. The other $0.08 reduction is due to increased interest expense as the Fed raises rates, because any new debt issued to finance capital expenditures will require a higher rate.

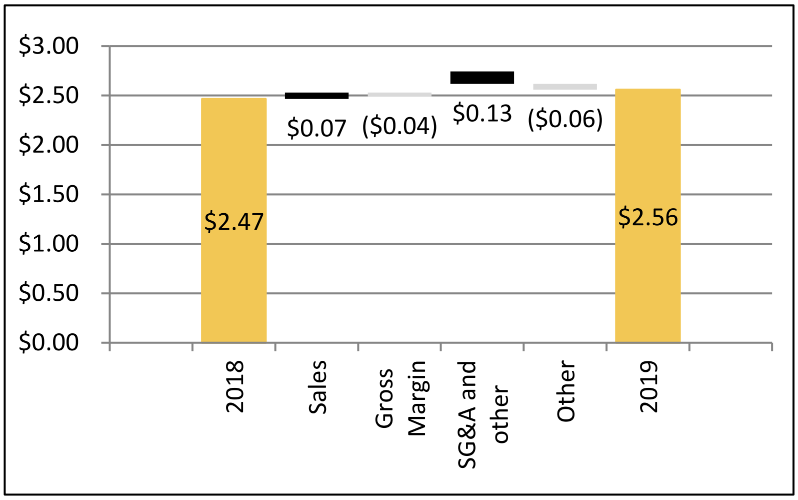
Figure 8: Quantification of 2018 EPS drivers



Source: IMCP Valuation Model

I anticipate 2019 EPS to increase $0.09 to $2.56. Higher operating revenues should add $0.07 this year, both from a 1% increase in the U.K. segment and 2.2% in the United States. A gross margin (including depreciation and amortization) decline will result in a $0.04 loss to earnings. This again is due to the increase in capital expenditures as part of PPL's 5-year capital expenditure plan. Lower SG&A's is due to currency issues. The correction in 2018 is much greater because of an unprepared decline in the pound, but historically, in times of a steady exchange rate, PPL recognizes a gain due to currency. I anticipate interest rates to continue rising through 2019, which brings final EPS down another $0.06 to $2.56.

Figure 9: Quantification of 2019 EPS drivers



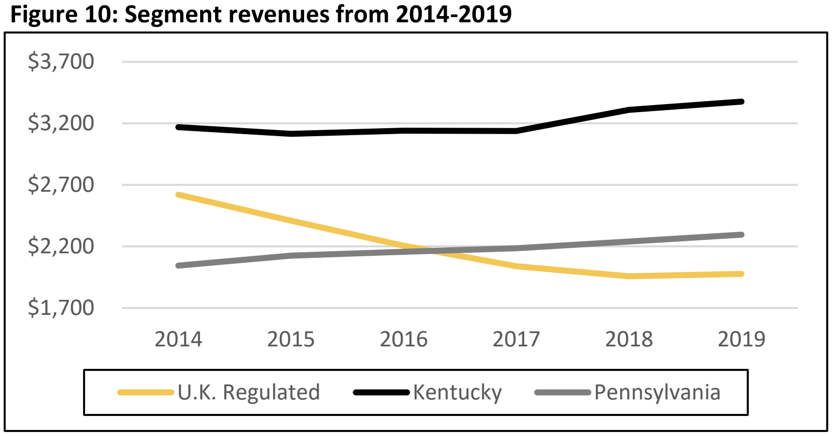
Source: IMCP Valuation Model

Revenues

Prior to fiscal year 2018, PPL experienced negative sales growth for a few years. The declining sales in the U.K. segment was the main driver as the United States sales have been increasing between 0.5% and 1% in the same period. The average growth rate for the United States from 2014 through 2016 is 0.7% while the United Kingdom had an average of -8.0%.

Overall revenue fell by 2.0% from $5,699 million in 2015 to $7,517 million in 2016. The driving factor for the decline was the U.K. segment's Ofgem regulatory matters. PPL was required to return £161 million to consumers in the U.K. because of a judicial decision related to electricity distribution losses, translating to a $209.3 million loss of revenue in 2015 at a rate of $1.30 per pound. I predict these losses are not recurring; however, 2017 revenues were adversely affected by exchange rates. As of Q3-2017, there was a negative $183 million change in revenues from 2016 due to foreign currency exchange rates; this is separate from the loss on derivative instruments. After 2017, I expect revenues will begin to stabilize at 1.0% growth, as management has time to predict and plan for a stable pound.

Figure 10: Segment revenues from 2014-2019

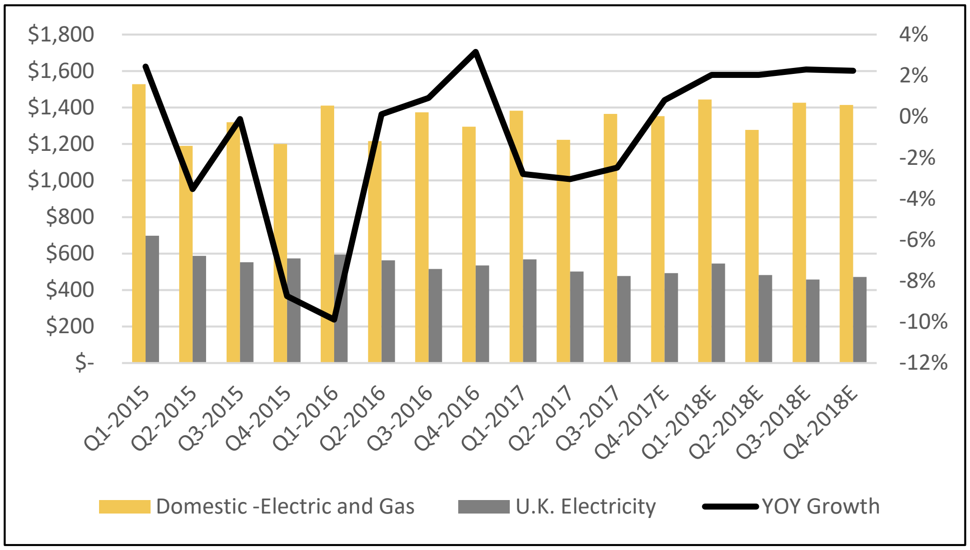


Source: IMCP Valuation Model

I anticipate 2017 full year revenue to be around $7,737 million, a 1.9% decline from 2016. Foreign currency loss was the largest contributor to negative growth. For nine months ending September 30, 2017, growth was -2.8%. In the final three quarters of 2017, operating revenues total $5,521 million vs. a $5,685 in 2016. Historically, the first and third quarters tend to generate more revenue. These are the coldest and warmest times of year for the southern United States, boosting gas usage, a driver for Kentucky Regulated.

Future revenues are also dependent on rate cases. New base electricity rates for KU increase sales 3.2%, while LG&E's rates for electricity and gas increased 5.2% and 2.1% on July 1, 2017, which boosted Q3-2017 sales.

Figure 11: Segment revenues from 2014-2016



Source: Company Reports

I am less optimistic on revenue than consensus for the rest of 2017, but more confident in 2018 and 2019. My 2017 EPS is at the low range of consensus while I predict higher than consensus for 2018 and 2019. I believe this is because of with a more stable pound, giving management time to stabilize margins and hedge currency risk.

Figure 12: Segment revenues from 2014-2016

*millions	2017E	2018E	2019E
Revenue Estimate*	$7,373	$7,520	$7,662
YoY Growth	-1.92%	1.99%	1.89%
Revenue Consensus*	$7,518	$7,943	$8,195
YoY Growth	0.01%	5.65%	3.17%
EPS Estimate	$2.11	$2.47	$2.56
YoY Growth	-24.99%	17.07%	3.81%
EPS Consensus	$2.18	$2.32	$2.42
YoY Growth	-11.02%	6.42%	4.31%
EPS Guidance High	$2.10	-	-
EPS Guidance Low	$2.25	-	-

Return on Equity

PPL has historically achieved an average return on equity above it comps (refer to figure 3). In 2015, ROE was significantly impacted by the Supply spinoff, greatly reducing the bottom line but also reducing taxes by 32.0%. The increase from 2017 to 2018 is driven by a boost in EBIT/sales because of the 2.0% sales increase and lower currency losses. The return on assets dropped in 2017 as net income declined due to sales, then picks up in 2018 due to lower currency losses.

Figure 13: Segment revenues from 2014-2016

5-stage DuPont	2014	2015	2016	2017	2018	2019
EBIT / sales	38%	38%	46%	38%	43%	44%
Sales / avg assets	0.17	0.17	0.19	0.19	0.18	0.18
EBT / EBIT	71.6%	70.4%	74.2%	68.2%	69.8%	69.5%
Net income /EBT	81.6%	33.0%	74.6%	75.1%	75.1%	75.1%
ROA	3.7%	1.5%	4.9%	3.6%	4.0%	4.1%
Avg assets / avg equity	3.65	3.74	3.92	3.84	3.65	3.38
ROE	13.3%	5.8%	19.2%	13.9%	14.8%	13.7%

The historical trend of increasing equity will reduce Avg assets / avg equity, but will be offset with increasing ROA. Except for the Supply spinoff in 2015, DuPont analysis reveals ROE is most affected by avg assets / avg equity.

Free Cash Flow

PPL's ability to generate FCF is also very affected by the Pounds performance. The utility industry is very capital intensive and companies are highly leveraged. While PPL's FCFF in 2017 is negative, after interest expenses and new debts, the firm has a positive $602 FCFE, then increasing in 2018 due to higher margins, lower NFA increases, and more debt gains.

I expect the FCFF and the FCFE to rise significantly in 2018 and 2019 as management adjusts currency hedging and as debt increases, it will more than capital expenditures.

Please note the high cash flows in 2015was due to the sale of PPL's Supply segment.

Figure 14: Segment revenues from 2014-2016

Free Cash Flow With Cash and Debt							
	2013	2014	2015	2016	2017E	2018E	2019E
NOPAT	$1,984	$2,006	$2,278	$2,564	$2,100	$2,401	$2,504
Growth		1.1%	13.6%	12.6%	-18.1%	14.3%	4.3%
NOWC	$1,257	$1,717	$171	-$329	-$159	$1,157	$2,492
Net fixed assets	$40,199	$41,720	$36,655	$36,248	$38,427	$39,193	$39,932
Total net operating capital	$41,456	$43,437	$36,826	$35,919	$38,268	$40,349	$42,424
Growth		4.8%	-15.2%	-2.5%	6.5%	5.4%	5.1%
- Change in NOWC		$460	-$1,546	-$500	$170	$1,316	$1,335
- Change in NFA		$1,521	-$5,065	-$407	$2,179	$766	$739
FCFF		$25	$8,889	$3,471	-$249	$320	$430
Growth			35463.3%	-60.9%	-107.2%	-228.4%	34.4%
- After-tax interest expense		$569	$675	$662	$669	$752	$849
+ Net new short-term and long-term debt		$249	-$1,893	-$715	$1,520	$2,189	$2,042
FCFE		-$295	$6,321	$2,094	$602	$1,756	$1,624
Growth			-2242.7%	-66.9%	-71.2%	191.6%	-7.6%

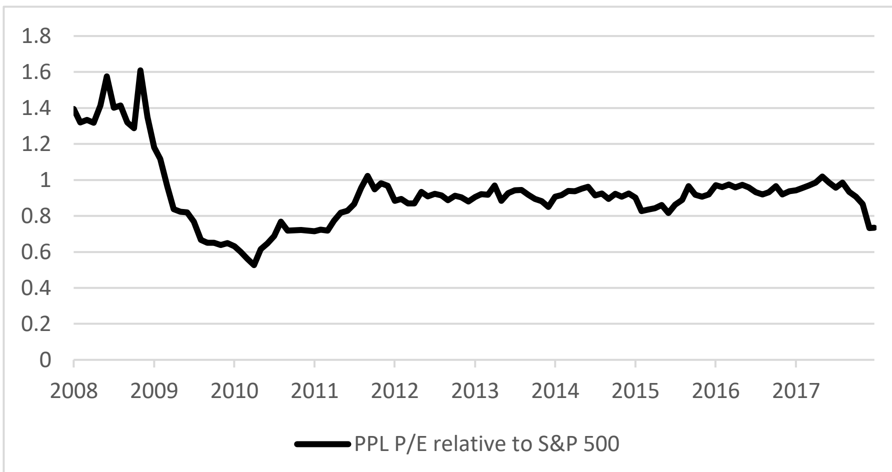
Valuation

PPL was valued using a 3-stage discounting cash flow model and a relative valuation approach. Based on forecasted NTM P/E and expected 2018 EPS of $2.43, the stock is overvalued with a target price of $28.82. A P/B relative valuation regression, based on ROE, shows PPL to be slightly undervalued compared to its peers. Price-to-book valuation yielded a price of $35.27. A detailed DCF analysis values PPL slightly lower, at $35.53. Based on these valuations, I believe PPL Corporation is worth about $35.00 a share.

<u>Trading History</u>

PPL is currently trading slightly below its ten-year average NTM P/E relative to the S&P 500. PPL's P/E typically has traded below the S&P 500 within a range of 0.8 to 1.6 time the market. PPL's current NTM P/E is at 14 compared to its ten-year average of 13.08. I expect a decline as interest rates rise.

Figure 15: PPL NTM P/E relative to S&P 500



Source: FactSet

If the NTM P/E lowers to 12.7 through the end of 2018, it should trade at $30.86 by the end of the year based on my 2018 EPS estimate.

- Price= P/E x EPS = 12.7 x $2.56 = $32.51

Discounting $32.51 back to today at 7.05% cost of equity yields a price of $30.24.

<u>Relative Valuation</u>

PPL Corporation is currently trading at a P/E lower than its comps; NTM P/E of 14.3 compared to an average of 16.0. PPL's P/B and P/S is higher than its peers, likely due to higher net profit margins and ROE.

Figure 16: PPL comparable companies

Ticker		Current Price	Market Value	Price Change 1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	Earnings Growth LTG	NTM	2016	2017	2018	2019	Pst 5yr	Beta	LT Debt/ Equity	S&P Rating	LTM Dividend Yield	Payout
PPL	PPL CORP	$32.27	$22,046	0.8	3.7	(14.4)	(15.0)	(6.5)	4.3	-0.1	2.3%	175.7%	-25.0%	15.2%	0.4%	0.6%	0.37	178.7%	B	5.11%	70.8%
AEP	AMERICAN ELECTRIC POWER	$69.70	$34,284	1.8	(5.4)	(5.3)	1.2	11.5	(5.3)	10.2		6.8%	-8.4%	7.8%	5.7%		0.01		B+	3.25%	
EXC	EXELON CORP	$38.68	$37,136	1.2	(0.8)	(3.5)	4.5	9.4	(1.9)	2.3	40.6%	7.6%	-0.7%	8.3%	-2.1%	-20.0%	0.25	114.2%	B	3.32%	58.3%
D	DOMINION ENERGY	$76.69	$49,432	1.5	(4.7)	(3.8)	(0.1)	1.2	(5.4)	5.8	16.3%	10.5%	-5.8%	12.3%	6.0%	7.1%	0.18	189.7%	B	3.74%	87.5%
SO	SOUTHERN CO	$44.62	$44,782	1.2	(8.0)	(14.5)	(4.6)	(8.0)	(7.2)	4.0	457.9%	0.0%	2.1%	3.1%	3.6%	-0.1%	0.25	114.2%	B	3.32%	58.3%
PEG	PUBLIC SERVICE ENTRP GRP	$51.12	$25,869	1.4	0.1	4.0	16.6	17.8	(0.7)	2.4	201.7%	-0.3%	0.7%	2.1%	1.3%	-10.6%	0.18	189.7%	B	3.74%	87.5%
DUK	DUKE ENERGY CORP	$78.90	$55,221	2.1	(6.3)	(10.1)	(5.9)	2.4	(6.2)	4.3	25.6%	3.3%	-2.8%	5.9%	5.2%	-4.0%	0.02	117.5%	B	4.15%	91.5%
Average			$38,396	1.4	(3.1)	(6.8)	(0.5)	4.0	(3.2)	4.1	124.1%	29.1%	-5.7%	7.8%	2.9%	-4.5%	0.18	150.7%		3.81%	75.6%
Median			$37,136	1.4	(4.7)	(5.3)	(0.1)	2.4	(5.3)	4.0	33.1%	6.8%	-2.8%	7.8%	3.6%	-2.1%	0.18	148.1%		3.74%	79.1%
SPX		$2,839		0.1	5.8	11.0	14.6	23.5	6.2			0.5%	10.2%	11.0%	10.1%						

Ticker		2017 ROE	P/B	P/E 2015	2016	2017	TTM	NTM	2018	2019	2017 NPM	2017 P/S	OM	ROIC	EV/ EBIT	P/CF Current	P/CF 5-yr	Sales Growth NTM	STM	Pst 5yr	Book Equity
PPL	PPL CORP	13.6%	2.08	33.5	12.1	14.7	14.6	14.3	13.3	13.2	19.5%	2.99	40.7%	6.7%	13.8	7.1	6.2	7.8%	0.8%	0.1%	$15.54
AEP	AMERICAN ELECTRIC POWER	9.8%	1.90	15.8	16.0	20.4		17.8	17.9	17.0	11.8%	2.27	20.2%			7.7			-0.9%	0.7%	$36.74
EXC	EXELON CORP	9.1%	1.32	11.2	13.2	14.8	17.3	12.3	13.4	13.7	7.6%	1.11	12.9%	2.1%	15.3	4.0	3.7	5.2%	-3.5%	11.2%	$29.24
D	DOMINION ENERGY	14.2%	3.03	19.7	20.2	22.6	22.6	19.4	19.1	18.0	17.8%	3.81	30.7%	5.2%	25.4	9.2	9.9	14.7%	4.1%	-4.3%	$25.28
SO	SOUTHERN CO	12.3%	1.86	16.2	17.0	16.3	81.8	14.7	14.7	14.2	13.1%	1.99	25.1%	4.4%	18.6	7.8	7.8	5.2%	-3.5%	2.4%	$23.99
PEG	PUBLIC SERVICE ENTRP GRP	11.2%	1.97	13.3	15.1	17.6	49.6	16.4	17.2	16.9	15.6%	2.73	8.1%	3.9%	24.7	7.1	5.9	14.7%	4.1%	-3.7%	$25.99
DUK	DUKE ENERGY CORP	7.7%	1.33	15.7	16.6	18.4	20.9	16.6	16.3	15.5	13.0%	2.25	24.8%	3.1%	18.3	7.5	7.7	18.3%	3.8%	9.3%	$59.47
Average		11.1%	1.93	17.9	15.7	17.8	34.5	16.0	16.0	15.5	14.1%	2.45	23.2%	4.2%	19.3	7.2	6.9	11.0%	0.7%	2.2%	
Median		11.2%	1.90	15.8	16.0	17.6	21.8	16.4	16.3	15.5	13.1%	2.27	24.8%	4.1%	18.5	7.5	7.0	11.2%	0.8%	0.7%	

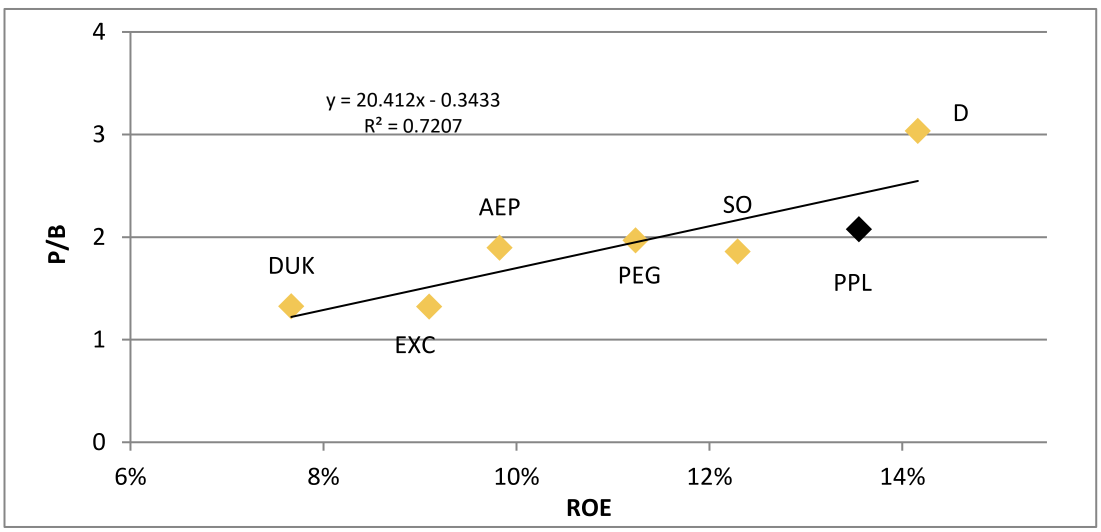
Source: FactSet

Figure looks at the relationship between P/B and ROE. The calculated R-squared of the regression shows ROE explains around 75% of P/B. PPL's ratio is below this regression line, appearing to be undervalued.

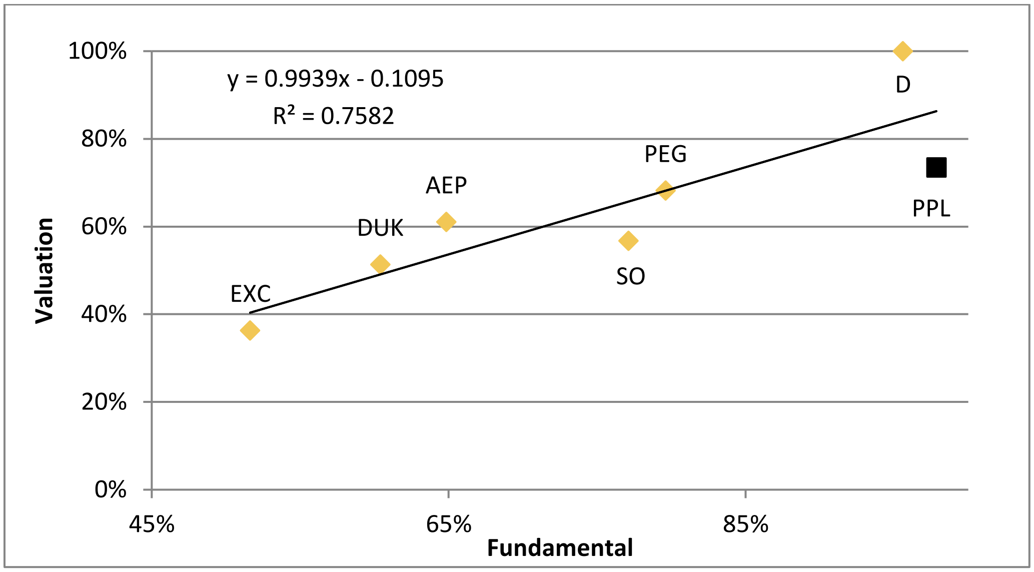
- Estimated P/B = Estimated 2018 ROE (15%) X 13.08 +.3175 = 2.28
- Target Price = Estimated P/B (2.28) X 2018E Book per share ($16.56) = $37.76

Discounting this price back to the present at 7.05% cost of equity gives a target price of $35.27. This is above the current price by over 10%.

Figure 17: P/B vs ROE



Source: IMCP



Source: IMCP, FactSet

Figure 18: Composite valuation, % of range

		Fundamental		Valuation			
	Weight	50.0%	50.0%	50.0%	50.0%		
Ticker	**Name**	**ROE**	**NPM**	**P/B**	**P/S**	**Fund**	**Value**
PPL	PPL CORP	96%	100%	68%	78%	98%	73%
AEP	AMERICAN ELECTRIC POWER CO	69%	60%	63%	60%	65%	61%
EXC	EXELON CORP	64%	39%	44%	29%	52%	36%
D	DOMINION ENERGY INC	100%	91%	100%	100%	96%	100%
SO	SOUTHERN CO	87%	67%	61%	52%	77%	57%
PEG	PUBLIC SERVICE ENTRP GRP INC	79%	80%	65%	72%	80%	68%
DUK	DUKE ENERGY CORP	54%	67%	44%	59%	60%	51%

Source: IMCP, FactSet

<u>Discounted Cash Flow Analysis</u>

Based on a three-stage discounted cash flow model, I estimate the company's stock to be worth

The cost of equity was calculated to be 6.93% using the CAPM with the following assumptions:

- Risk-free rate of 2.62%. This is currently the 10-year Treasury bond yield.
- A beta of 0.60 since the sector is less volatile than the market.
- Market return of 10%. Historically, this has been about the average return of the market.

The cost of equity = 2.62% + .6 x (10% - 2.62%) = 6.93%

Stage One - The model's first stage simply discounts fiscal years 2018 and 2019 free cash flow to equity (FCFE). These per share cash flows are forecasted to be $2.58 and $2.39, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $4.50 per share. Thus, stage one of this discounted cash flow analysis contributes $4.50 to value.

Stage Two - Stage two of the model focuses on fiscal years 2020 to 2024. During this period, FCFE is calculated based on revenue growth, NOPAT margin and capital growth assumptions. The resulting cash flows are then discounted using the company's 7.05% cost of equity. I assume 1.0% sales growth in 2020, staying at 1.0% through 2024. The ratio of NOWC to sales will remain at 2019 levels, and NFA turnover will rise from 2.90 in 2016 to 3.47 in 2021 as revised rates reflect increases in NFA. Also, the NOPAT margin is expected to rise to 33.0% in 2024 from 32.7% in 2019.

Figure 19: FCFE and discounted FCFE, 2018-2024

	2018	2019	2020	2021	2022	2023	2024
FCFE	$2.58	$2.39	$2.18	$2.20	$2.22	$2.24	$2.26
Discounted FCFE	$2.41	$2.08	$1.78	$1.68	$1.58	$1.49	$1.40

Stage Three – Net income for the years 2018 – 2024 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from $2.43 in 2018 to $2.53 in 2024.

Figure 20: EPS estimates for 2018-2024

	2018	2019	2020	2021	2022	2023	2024
EPS	$2.43	$2.44	$2.45	$2.47	$2.49	$2.51	$2.53

Stage three of the model requires an assumption regarding the company's terminal price-toearnings ratio. For the purpose of this analysis, it is generally assumed that as a company grows larger and matures, its P/E ratio will converge near to the historical average of the S&P 500. Therefore, a P/E ratio of 14.7 is assumed at the end of PPL's terminal year. While this may be a low multiple at the end of 2024, one must consider what the market will price in today. A lower multiple may be better to calculate a fair value, but the stock will likely trade above this value because the market will be slow to price in PPL's slow growth.

Given the assumed terminal earnings per share of $2.53 and a price to earnings ratio of 14.7, a terminal value of $37.24 per share is calculated. Using the 7.05% cost of equity, this number is discounted back to a present value of $23.12.

Total Present Value – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $35.54 is calculated (4.50 + 7.92 + 23.12). Given PPL's current price of $32.27, this model indicates that the stock is slightly undervalued.

Figure 21: DCF Summary

Summary		
First stage	$4.50	Present value of first 2 year cash flow
Second stage	$7.92	Present value of year 3-7 cash flow
Third stage	$23.12	Present value of terminal value P/E
Value (P/E)	**$35.54**	= value at beg of fiscal yr 18

Scenario Analysis

By adjusting certain metrics within the DCF model, different bull and bear cases for PPL will affect its valuation. Figure 22 displays a more bullish scenario than my original model. Reducing beta from a .6 to a .5 decreases cost of equity to 6.31%, which raises the value to $37.00. If more rate cases become available to PPL through increased capital expenditures, sales growth can be revised up to 2%. This would bring the value to $37.44. A final adjustment of the P/E to bring it up by 1 to 15.7 would add another $1.73, ending up at $39.17.

Figure 22: Bull Summary

Summary		
First stage	$4.54	Present value of first 2 year cash flow
Second stage	$7.40	Present value of year 3-7 cash flow
Third stage	$27.22	Present value of terminal value P/E
Value (P/E)	**$39.17**	= value at beg of fiscal yr 18

A more pessimistic view on markets would result in a value of $32.50 . Unlike the bull case, increasing the beta to .7 moves the cost of equity up to 7.79%, decreasing the value to $34.14. Slowing sales growth to .5% during times of failed rate cases would further reduce the value to $33.96. Further decreasing the P/E by 1 would result in a value of $32.50.

Figure 22: Bear Summary

Summary		
First stage	$4.45	Present value of first 2 year cash flow
Second stage	$8.02	Present value of year 3-7 cash flow
Third stage	$20.03	Present value of terminal value P/E
Value (P/E)	**$32.50**	= value at beg of fiscal yr 18

Business Risks

Interest Rates

Rising interest rates reduce shareholder returns for utilities as they have high yields and are viewed safer than other sectors. Over the past month, markets have adjusted to this possibility but the stocks can still underperform if rates rise further.

Weather

Unexpected weather patterns can adversely affect revenues in given seasons. Kentucky's gas unit's demand peaks during cold season and electric utilities demand moves with differing weather patterns.

U.K. Segment

The U.K.'s regulator, Ofgem, has increased revenues by RPI since setting prices in 2012 through 2013. Changes in this, quick and drastic changes in currency and the U.K.'s overall economy leave PPL's highest earning sector open to risk.

Domestic Rate Cases

Domestic regulators for PPL include FERC, KPSC, VSCC, and PUC. These governing bodies are in charge of approving all rate cases affecting PPL's top line. Environmental regulation also poses a risk, but the current administration is pro coal, PPL's main natural resource.

Appendix 1: Income Statement

Income Statement (in millions)							
Items	2013	2014	2015	2016	2017E	2018E	2019E
Operating Revenue	$7,263	$7,852	$7,669	$7,517	$7,373	$7,520	$7,662
Direct costs (inc. Dep and Amort)	$4,702	$4,985	$4,838	$4,469	$4,318	$4,512	$4,635
Gross Profit	$2,561	$2,867	$2,831	$3,048	$3,055	$3,008	$3,026
Operating Expenses	$55	-$105	-$108	-$390	$260	-$188	-$306
Earnings before inerest and taxes	$2,506	$2,972	$2,939	$3,438	$2,795	$3,196	$3,333
Interest expense	$778	$843	$871	$888	$890	$1,001	$1,129
Earnings before tax	$1,728	$2,129	$2,068	$2,550	$1,905	$2,195	$2,203
Taxes	$360	$692	$465	$648	$474	$546	$548
Income after taxes	$1,368	$1,437	$1,603	$1,902	$1,431	$1,649	$1,655
Other	$238	$300	$921	$0	$0	$0	$0
Net income	$1,130	$1,737	$682	$1,902	$1,431	$1,649	$1,655
Basic Shares	609.0	653.5	669.8	677.6	679.7	679.7	679.7
EPS	$1.86	$2.66	$1.02	$2.81	$2.11	$2.47	$2.56
DPS	$1.47	$1.49	$1.50	$1.52	$1.58	$1.60	$1.62

Appendix 2: Balance Sheet

Balance Sheet (in millions)							
Items	2013	2014	2015	2016	2017E	2018E	2019E
Assets							
Cash	$1,102	$1,751	$836	$341	$676	$2,008	$3,360
Operating assets ex cash	$4,051	$4,408	$1,810	$1,726	$1,655	$1,688	$1,720
Operating assets	$5,153	$6,159	$2,646	$2,067	$2,331	$3,696	$5,079
Operating liabilities	$3,896	$4,442	$2,475	$2,396	$2,490	$2,540	$2,588
Net Operating Working Capital	$1,257	$1,717	$171	-$329	-$159	$1,157	$2,492
Net working Capital ex cash	$155	-$34	-$665	-$670	-$835	-$852	-$868
Net Fixed Assets	$40,199	$41,720	$36,655	$36,248	$38,427	$39,193	$39,932
Invested capital	$41,456	$43,437	$36,826	$35,919	$38,268	$40,349	$42,424
Marketable securities	$907	$985	$0	$0	$0	$0	$0
Total assets	46,259	48,864	39,301	38,315	40,758	42,889	45,011
Liabilities and Equity							
Short-term and long-term debt	$21,608	$21,857	$19,964	$19,249	$20,769	$22,289	$23,809
Other liabilities	$8,289	$8,937	$6,943	$6,771	$6,807	$6,807	$6,807
Debt/equity-like securities	$0	$0	$0	$0	$0	$0	$0
Equity	$12,466	$13,628	$9,919	$9,899	$10,692	$11,253	$11,808
Total supplied capital	$42,363	$44,422	$36,826	$35,919	$38,268	$40,349	$42,424
Total liabilities and equity	46,259	48,864	39,301	38,315	40,758	42,889	45,011

Appendix 3: Ratios

Ratios	2013	2014	2015	2016	2017E	2018E	2019E
Profitability							
Gross margin	35.3%	36.5%	36.9%	40.5%	41.4%	40.0%	39.5%
Operating (EBIT) margin	34.5%	37.9%	38.3%	45.7%	37.9%	42.5%	43.5%
Net profit margin	15.6%	22.1%	8.9%	25.3%	19.4%	21.9%	21.6%
Activity							
NFA (gross) turnover		0.19	0.20	0.21	0.20	0.19	0.19
Total asset turnover		0.17	0.17	0.19	0.19	0.18	0.17
Liquidity							
Op asset / op liab	1.32	1.39	1.07	0.86	0.94	1.46	1.96
NOWC Percent of sales		18.9%	12.3%	-1.1%	-3.3%	6.6%	23.8%
Solvency							
Debt to assets	46.7%	44.7%	50.8%	50.2%	51.0%	52.0%	52.9%
Debt to equity	173.3%	160.4%	201.3%	194.5%	194.2%	198.1%	#####
Other liab to assets	17.9%	18.3%	17.7%	17.7%	16.7%	15.9%	15.1%
Total debt to assets	64.6%	63.0%	68.5%	67.9%	67.7%	67.8%	68.0%
Total liabilities to assets	73.1%	72.1%	74.8%	74.2%	73.8%	73.8%	73.8%
Debt to EBIT	8.62	7.35	6.79	5.60	7.43	6.97	7.14
EBIT/interest	3.22	3.53	3.37	3.87	3.14	3.19	2.95
Debt to total net op capital	52.1%	50.3%	54.2%	53.6%	54.3%	55.2%	56.1%
ROIC							
NOPAT to sales	27.3%	25.5%	29.7%	34.1%	28.5%	31.9%	32.7%
Sales to NWC		129.79	(21.94)	(11.26)	(9.80)	(8.92)	(8.91)
Sales to NFA		0.19	0.20	0.21	0.20	0.19	0.19
Sales to IC ex cash		0.19	0.20	0.21	0.20	0.20	0.20
Total ROIC ex cash		4.9%	5.9%	7.2%	5.7%	6.3%	6.5%
ROE							
5-stage							
EBIT / sales		37.9%	38.3%	45.7%	37.9%	42.5%	43.5%
Sales / avg assets		0.17	0.17	0.19	0.19	0.18	0.17
EBT / EBIT		71.6%	70.4%	74.2%	68.2%	68.7%	66.1%
Net income /EBT		81.6%	33.0%	74.6%	75.1%	75.1%	75.1%
ROA		3.7%	1.5%	4.9%	3.6%	3.9%	3.8%
Avg assets / avg equity		3.65	3.74	3.92	3.84	3.81	3.81
ROE		13.3%	5.8%	19.2%	13.9%	15.0%	14.4%
3-stage							
Net income / sales		22.1%	8.9%	25.3%	19.4%	21.9%	21.6%
Sales / avg assets		0.17	0.17	0.19	0.19	0.18	0.17
ROA		3.7%	1.5%	4.9%	3.6%	3.9%	3.8%
Avg assets / avg equity		3.65	3.74	3.92	3.84	3.81	3.81
ROE		13.3%	5.8%	19.2%	13.9%	15.0%	14.4%
Payout Ratio		56.1%	147.4%	54.2%	75.0%	66.0%	66.5%
Retention Ratio		43.9%	-47.4%	45.8%	25.0%	34.0%	33.5%
Sustainable Growth Rate		5.8%	-2.7%	8.8%	3.5%	5.1%	4.8%

Appendix 4: 3-stage DCF Model

	Year						
	1	2	3	4	5	6	7
Cash flows	2018	2019	2020	2021	2022	2023	2024
Sales Growth	*2.0%*	*1.9%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
NOPAT / S	*31.9%*	*32.7%*	*32.7%*	*32.8%*	*32.9%*	*32.9%*	*33.0%*
S / NOWC	*6.50*	*3.07*	*3.07*	*3.07*	*3.07*	*3.07*	*3.07*
S / NFA (EOY)	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*
S / IC (EOY)	*0.19*	*0.18*	*0.18*	*0.18*	*0.18*	*0.18*	*0.18*
ROIC (EOY)	*6.0%*	*5.9%*	*5.9%*	*5.9%*	*5.9%*	*5.9%*	*6.0%*
ROIC (BOY)		*6.2%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Share Growth		*0.0%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*
Sales	$7,520	$7,662	$7,738	$7,816	$7,894	$7,973	$8,053
NOPAT	$2,401	$2,504	$2,534	$2,564	$2,595	$2,626	$2,657
Growth		*4.3%*	*1.2%*	*1.2%*	*1.2%*	*1.2%*	*1.2%*
- Change in NOWC	1316	1335	25	25	25	26	26
NOWC EOY	*1157*	*2492*	*2517*	*2542*	*2567*	*2593*	*2619*
Growth NOWC		*115.4%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
- Chg NFA	766	739	399	403	407	411	416
NFA EOY	*39,193*	*39,932*	*40,331*	*40,735*	*41,142*	*41,553*	*41,969*
Growth NFA		*1.9%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
Total inv in op cap	2081	2074	424	428	433	437	441
Total net op cap	40349	42424	42848	43277	43709	44146	44588
FCFF	$320	$430	$2,110	$2,136	$2,162	$2,189	$2,216
% of sales	*4.3%*	*5.6%*	*27.3%*	*27.3%*	*27.4%*	*27.5%*	*27.5%*
Growth		*34.4%*	*391.0%*	*1.2%*	*1.2%*	*1.2%*	*1.2%*
- Interest (1-tax rate)	752	849	857	866	874	883	892
Growth		*12.8%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
+ Net new debt	2189	2042	238	240	243	245	248
Debt	22289	23809	24047	24288	24530	24776	25023
Debt / tot net op capital	*55.2%*	*56.1%*	*56.1%*	*56.1%*	*56.1%*	*56.1%*	*56.1%*
FCFE w debt	$1,756	$1,624	$1,491	$1,511	$1,531	$1,551	$1,572
% of sales	*23.4%*	*21.2%*	*19.3%*	*19.3%*	*19.4%*	*19.5%*	*19.5%*
Growth		*-7.6%*	*-8.2%*	*1.3%*	*1.3%*	*1.3%*	*1.3%*
/ No Shares	679.7	679.7	683.1	686.5	690.0	693.4	696.9
FCFE	$2.58	$2.39	$2.18	$2.20	$2.22	$2.24	$2.26
Growth		*-7.6%*	*-8.6%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*
* Discount factor	0.93	0.87	0.82	0.76	0.71	0.66	0.62
Discounted FCFE	$2.41	$2.08	$1.78	$1.68	$1.58	$1.49	$1.40
Terminal value P/E							
Net income	$1,649	$1,655	$1,677	$1,699	$1,721	$1,743	$1,766
% of sales	*21.9%*	*21.6%*	*21.7%*	*21.7%*	*21.8%*	*21.9%*	*21.9%*
EPS	$2.43	$2.44	$2.45	$2.47	$2.49	$2.51	$2.53
Growth		*0.4%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*
Terminal P/E							14.70
* Terminal EPS							$2.53
Terminal value							$37.24
* Discount factor							0.62
Discounted terminal value							$23.12

First stage	$4.50	Present value of first 2 year cash flow
Second stage	$7.92	Present value of year 3-7 cash flow
Third stage	$23.12	Present value of terminal value P/E
Value (P/E)	**$35.54**	= value at beg of fiscal yr 2018

Appendix 5: Porter's 5 Forces

Threat of New Entrants – Very Low

Significant barriers to entry continue to exist in the industry. As a natural monopoly, WEC benefits from the substantial capital and regulatory requirements necessary for aspiring competitors. Additionally, marginal costs of supplying power to one more customer are minimal. Geographic restraints vary by state but remain favorable for the majority of WEC operations.

Threat of Substitutes - Low

Technology shifts and government subsidies have decreased price points for solar panels and other renewable generation sources. Self-generation is a growing threat to reduce WEC's customer base. Other self-generation techniques, such as microturbines and fuel cells, provide a long-term threat to WEC's demand but remain nonviable options in short-term demand.

Supplier Power - Medium

Companies such as Siemens and General Electric dominate the power systems supply market. Little competition exists amongst these suppliers and the utility industry necessitates high building and development capital expenditures. Heightened needs for capacity and delivery shift power to suppliers of WEC. Natural gas and electric power inputs are highly commoditized and prices are determined by market forces. WEC faces relatively low switching costs with natural gas suppliers and acts to hedge natural gas market price movements.

Buyer Power – Medium to Low

Residential and small commercial and industrial customers have very limited ability to switch suppliers. Customers rarely shift demand for power unless external factors necessitate such actions. As prices rise customers may attempt to reduce energy usage with various conservation efforts. In exchange for low customer buying power, rates and allowed returns are heavily regulated. Retail choice and wholesale rate agreements have shifted power to electric and natural gas buyers, but this represents a small portion of WEC's revenue base.

Intensity of Competition – Low

Industry competition is low due to geographic and regulatory limitations. Independent power producers and retail choice have increased competition, but generally, these are a minimal threat to the industry.

Appendix 6: SWOT Analysis

Strength	**Weaknesses**
Gas Unit	Commodity pricing
United Kingdom operations	Limited ROE
Risk averse management	Weather
Opportunities	**Threats**
Revising rates	Rising interest rates
European markets	Regulation
Green energy	Foreign exchange rates