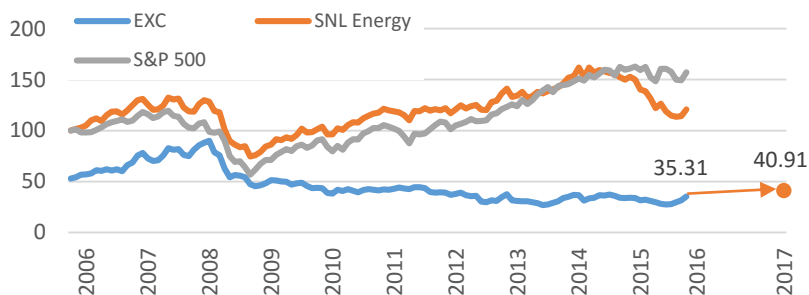


Rating: BUY



Exelon is a market leader in nuclear energy in the U.S. As states take on clean energy initiatives and seek to lower emissions they need to look to reliable power generation to supply baseload power. Nuclear is the obvious choice. With over 40% of nuclear power capacity in the Midwest and 30% in the Mid-Atlantic, EXC is well positioned to participate in the clean energy future.

Significant coal capacity is coming offline in EXC's regions. Over 70% of Exelon's generation capacity is in the Midwest and Mid-Atlantic where up to 15% of capacity is and will be coming offline in the next few years as coal plants are retired. This will put a strain on power supply, possibly leading to higher prices. Players with baseload capacity in the area, such as Exelon, can benefit greatly from this shift in power.

Management's revenue goals are achievable. Our bottom up revenue growth assumptions lead to a forecast of 2-4% in the coming years, in line with management's goals. This is driven by increases in prices in the coming year and next year, assuming falling supply in EXC's largest regions.

Nuclear stigma weighing stock. The market is significantly undervaluing EXC, with the stock trading at the lower end of the electric utility universe at 7.0x EV/EBITDA and 8.4x P/E. We believe the market underestimates the upside of nuclear in today's clean energy environment. Furthermore, tough operating years for Exelon in 2011-2013 are still weighing on the stock despite the company's successful turnaround strategy.

18% upside based on our DCF. Our DCF valuation leads us to conclude that there is a 18% upside to an investment in EXC. The implied multiples from our valuation, 16.7x P/E and 7.7x EV/EBITDA, are more in line with historicals yet still slightly lower than the industry.



Initiation Report

Exelon Corp. (EXC)

Nuclear Means Clean Energy Upside

March 28th, 2016

Price	\$35.31
Target Price	\$40.91
Market Cap	\$30,901
52-wk range	\$25.09-\$35.50
Shares Outst.	890 MM
P/E	14.2x
Dividend Yield	4.0%
Beta	0.7
EPS	\$2.55

Kristrun Frostadottir

kristrun.frostadottir@yale.edu

Tel: (203) 393 6825

Please see the disclaimer at the end of this report for important information

© 2016, Kristrun Frostadottir

Contents

Recent performance	3
Company Overview	4
Generation Business	4
Utility Business	5
Operating Model	5
Issues: Tough Years Post 2010	6
Exelon's Turnaround Strategy	6
Main Regions and Status of Nuclear Plants	7
Management Goals	8
1. Revenue & Earnings Growth	8
Management Says	8
What We Think About Revenue Growth	8
How It Affects Our Valuation	10
What We Think About Earnings Growth & How It Affects Our Valuation	11
2. Investment	12
Management Says	12
What We Think & How It Affects Our Valuation	12
3. Balance Sheet Strength	12
Management Says	12
What We Think & How It Affects Our Valuation	12
Other performance metrics	13
Valuation	13
Discounted Cash Flow Using APV	13
Multiples Analysis	14
Why Undervalued?	15
Catalysts:	15
Risks	16
Appendix	17
Important Disclaimer	21

Recent performance

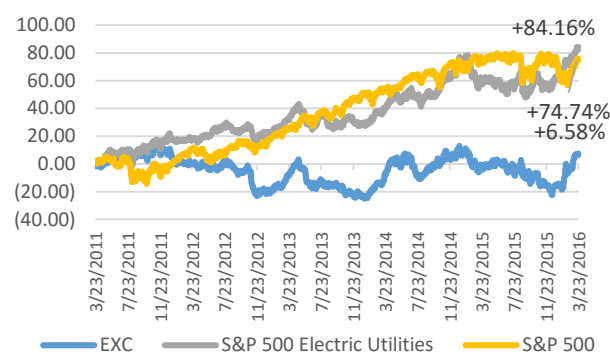
Exelon has underperformed the market over the past few years. We believe Exelon is a good investment going forward, given its current undervaluation based on our intrinsic valuation as well as multiples analysis. Management has taken decisive measures in the past couple of years to turn around the generation and utility business. Firstly, the company is putting greater emphasis on its utility business, seeking a higher share of its earnings from utilities which provide more earnings stability and visibility given its regulated nature. A recently announced merger

with Pepco Holdings (PHI) will assist with this goal, where a similar merger with Constellation Energy (CEG) recently provided evidence that the company is successfully choosing its targets to grow its earnings from regulated utilities. Secondly, Exelon is focusing on strengthening its balance sheet, by reducing debt going forward. This way management seeks to ensure it can safely seek out growth investments and continue paying out dividends without leaning too much on the balance sheet. Management has previously shown a strong will for sustainability in these matters, having cut their dividend by 40% in 2013, a difficult decision following tough years for the company. Dividend payout ratios are now more in line with pre-2011 years and the company is trading at a good yield compared to peers, yielding around 4.0%.

There is great potential in the Midwest and Mid-Atlantic regions for revenue growth, where Exelon has over 70% of its generation capacity. As coal plants are being retired energy analysts have noted that prices could rise in the region as supply wanes. Exelon's nuclear plant assets have decades left in them. The company has consistently received license renewal for the plants given positive results from inspections. As states move towards a clean energy future, with emissions goals recently set after the Paris Climate Change Conference and the Clean Power Plan, there is increased need for reliable clean baseload power that renewable energy sources cannot provide. We believe Exelon's nuclear plants will continue to be supported by state governments, in the current period of low energy prices, as shutting down baseload plants is political unfeasible.

Our DCF valuation reveals a 18% upside to EXC's current market valuation. Furthermore, the company is currently trading significantly below its peers. We believe this undervaluation is related to the previous underperformance of EXC during its 'tough years' in 2011-2013. Even though the company has been turning around its business and seeking ways to increase revenue stability in a low electric price environment this is not yet reflected in EXC's market valuation. Additionally, we believe the market is not taking into account the significance of coal retirements for Exelon's business as a strong baseload provider of energy in the Midwest and Mid-Atlantic. The stigma of 'nuclear' may have weighed on the company as the market may not believe Exelon can keep its plants online for much longer, despite their long-life potential. We believe the market is underestimating the clean energy role of nuclear and governmental will to assist plants in remaining economically viable. Many associate a clean energy future first and foremost with renewable energy, however nuclear energy may be the way forward in the medium term as energy reliability is still a big issue for state governments when choosing which way to rationally seek clean energy alternatives.

Fig. 1 Total Return EXC and Market Indices

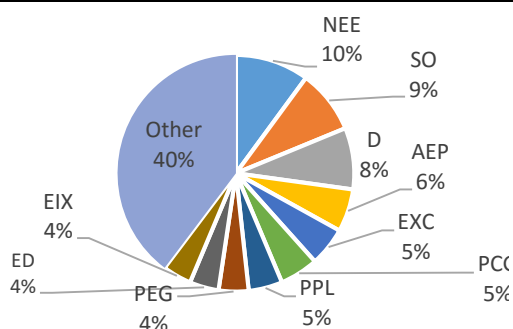


Source: SNL Energy Data

Company Overview

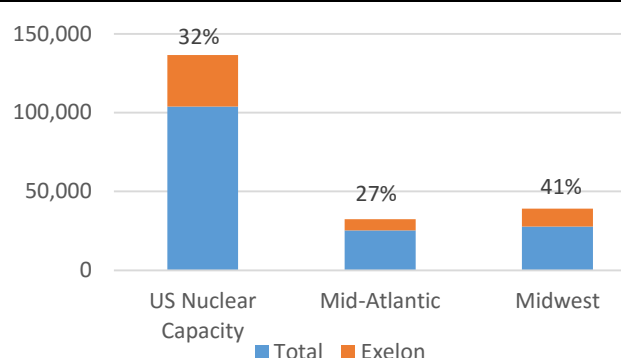
Exelon Corporation (EXC) is a utility services holding company. It engages through Exelon Generation in energy generation and through ComEd, PECO and BGE, in the energy delivery business. Exelon is the 5th largest conventional electric utility company, in terms of capitalization, according to data from Thomson Reuters, with around 5% of market share based on capitalization.

Fig. 2 Electricity Companies' Market Share



Source: Thomson Reuters Data

Fig. 3 U.S. Nuclear Capacity (MWh) & Exelon's Share



Source: EIA.gov

Generation Business

The Generation business consists of power generation as well as physical delivery. Through its customer-facing business, Constellation, Exelon markets its power and sells electricity and natural gas in wholesale markets and to retail customers. Additionally, Generation sells renewable energy and other energy related products and services and participates in natural gas and oil exploration and production activities. Generation has six reportable segments based on geographic regions; the Mid-Atlantic, Midwest, New England, New York, ERCOT and other power regions.

Table 1. Generating Resources as of December 31st 2015

Type of Capacity	MW
Owned generation assets	
Nuclear	19,460
Fossil (primarily natural gas)	9,682
Renewable	3,599
Total owned	32,741
Long-term power purchase contracts	7,419
Total generating resources	40,160

Generation is one of the largest competitive electric generation companies in the United States, given its owned capacity of 33,000 megawatts and roughly 7,500 MW in long-term power purchase contracts. It is a public utility under the Federal Power Act and subject to FERC's ratemaking jurisdiction over wholesale sales and transmission of electricity. Around 60% of Exelon Generation's generation assets are nuclear, with a third primarily natural gas and the rest devoted to renewable energy.

Generation has long term contracts for the purchase of nuclear fuel. All of the company's enrichment requirements have been contracted through 2020. In addition, contracts for fuel fabrication are valid through at least 2022. The company does not anticipate any difficulty in obtaining the necessary services to meet its nuclear fuel requirements in the coming years, and has not had issues in the past securing access to nuclear fuel. EXC's natural gas requirements are secured through long and short-term contracts, as well as spot-market purchases.

As a share of nuclear power generation, Exelon is a market leader with around a third of the nuclear power generated in the U.S. In the Midwest it represents over 40% of power generated from nuclear facilities, and just under a third in the Mid-Atlantic.

Table 2. Exelon Generation Geographic Segments and Revenues

<i>Reportable Segments</i>	<i>Geographic operations</i>	<i>% of capacity</i>	<i>% of revenue</i>
Mid-Atlantic	Eastern half of PJM: Pennsylvania, New Jersey, Maryland, Virginia, West Virginia, Delaware, D.C. and parts of North Carolina	36%	37%
Midwest	Western half of PJM: Portions of Illinois, Indiana, Ohio, Michigan, Kentucky, Tennessee. MISO (excluding Southern Region): North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin and remaining parts of Illinois, Indiana, Michigan and Ohio not covered by PJM. Parts of Montana, Missouri and Kentucky.	37%	30%
New England	ISO-NE: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont	7%	14%
New York	ISO-NY: State of New York	3%	6%
ERCOT	ERCOT: Texas	11%	5%
Other Power Regions	Aggregate of regions not considered individually significant	6%	7%

*Revenue from Exelon Generation's Reportable Segments in 2015

Source: Company Financials

Utility Business

Exelon's three energy delivery businesses operate across various regions of the United States; ComEd (northern Illinois, including the City of Chicago), PECO (southeastern Pennsylvania, including the City of Philadelphia) and BGE (central Maryland, including the City of Baltimore). The energy delivery business consists of purchase and regulated retail sale of electricity and provision of electricity transmission and distribution services to retail customers. Furthermore, PECO and BGE purchase natural gas and participate in the regulated retail sale of gas in addition to providing natural gas distribution to retail customers in the Pennsylvania counties surrounding the City of Philadelphia (PECO) and in central Maryland and the City of Baltimore (PECO).

Operating Model

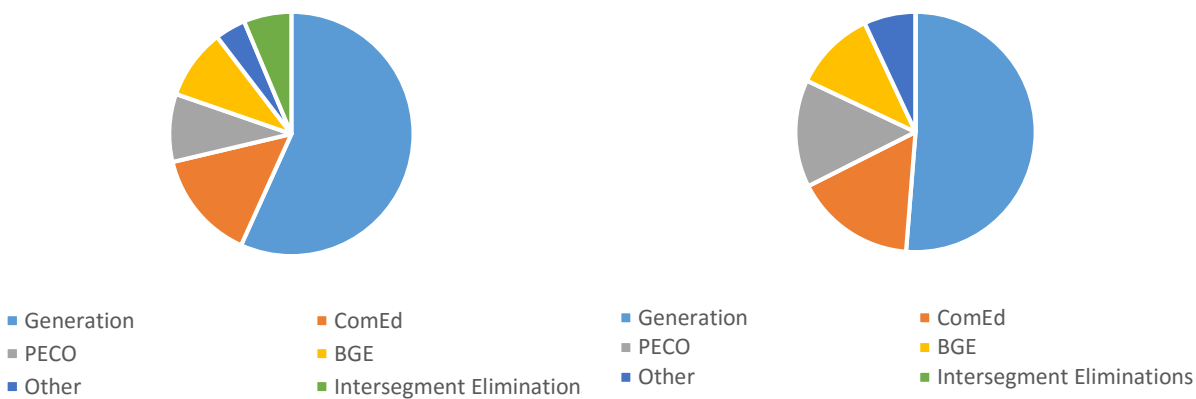
Exelon's revenues were just under \$30 billion in 2015. Around 60% this operating revenue was sourced from Generation, with the rest split between the three utility segments and service segments. This trend

has been relatively stable over the past few years. The net income attributed to each segment is similarly split, with just over 60% attributable to Exelon Generation of the total income of \$2.3 billion in 2015. In terms of capital expenditure and assets, the split is closer to 50/50.

The DCF model used to value Exelon’s business below takes into consideration the difference between the two groups of operating segments, generation and utilities, where revenues from each geographic segment in Exelon’s Generation business are forecasted separately from the utilities. Here the price expected in each region is multiplied by capacity. The price is based on two factors; around-the-clock (ATC) prices that are determined based on supply and demand in electricity markets on a daily basis and capacity prices that are determined in regulated auctions years ahead of time. For the utilities business a fixed EBIT margin is used going forward.

Fig. 4 Energy Operating Revenue Split

Fig. 5 Net Income Split



Source: SNL Energy Data

Issues: Tough Years Post 2010

Exelon experienced falling profitability starting in 2010. Increased supply due to hydraulic fracturing techniques began putting downward pressure on prices around this time. In 2011 and 2012 Exelon’s power plants were hit hard by falling prices as high-priced supply contracts expired, exposing more of the company’s production to low power prices.¹ Newly appointed CEO Chris Crane decided to cut dividends in 2013 by 40% noting it was necessary for Exelon to be able to invest in growth without leaning too heavily on the balance sheet. The same year, the French utility company EDF, the world’s biggest operator of nuclear plants, pulled out of nuclear energy projects in the U.S. due to falling energy prices. This resulted in a fallout of Exelon’s U.S. nuclear venture with EDF.²

Exelon’s Turnaround Strategy

Given the changing environment, with falling power prices and increased competition from subsidized renewables such as wind, Exelon decided to change its business strategy starting in 2013. The new plan has focused on strengthening the regulated utilities business, shifting investment away from merchant

¹ <http://www.chicagobusiness.com/article/20130207/NEWS11/130209834/exelon-ceo-crane-swallows-hard-on-dividend-cut-looks-forward>
² Note that EDF still owns the stake in Constellation (CENG), EXC’s selling and market arm. EDF and EXC entered into a Put Option agreement in April 2014. This provides EDF with option of selling its 49.99% stake in CENG as of January 2016. No sale has taken place at this point.
<http://www.businessspectator.com.au/news/2013/7/31/renewable-energy/edf-exits-us-nuclear-focuses-renewables>

generation business, which faces price volatility, to its three regulated utilities ComEd, BGE and PECO. This involves increased investments infrastructure.

Furthermore, the company has been focusing on cost savings, with previous plans to reach cost synergies of \$305 and \$550 million respectively in 2013 and 2014, and ongoing cuts of around \$350 million in 2016-2018. Realizing that a significant amount of the U.S. coal generation fleet is coming off line in areas the company is active in, Exelon has hoped for the situation to balance itself out with prices recovering as supply falls. While this transition takes place, Exelon is adapting to market conditions by increasing the reliability of its revenue via the regulated utilities business, at the same time maintaining its generation fleet and applying for plant relicensing to be able to take advantage of new market opportunities after coal generation wanes.³

Tough Years 2011-2013

Fig. 6 Revenue Growth Falls Behind Sales Growth With Falling Prices

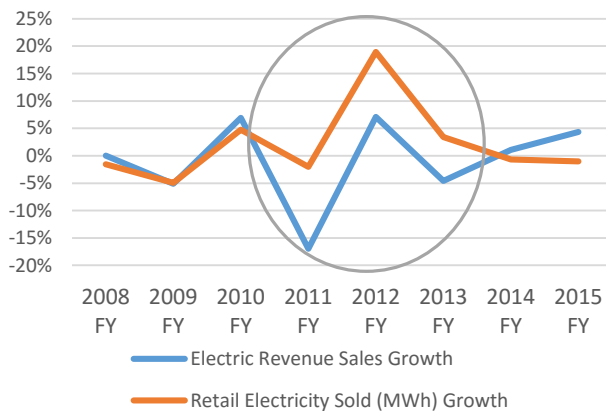
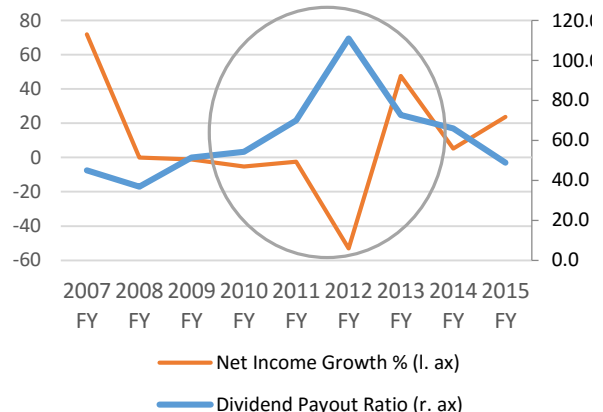


Fig. 7 Net Income Growth Plummetts & Dividend Ratio Spikes Leading to Dividend Cut in 2013



Source: SNL Energy Data

Main Regions and Status of Nuclear Plants

Around 70% of Exelon’s Generation capacity is in the Mid-Atlantic and Midwest regions. Additionally, three of the four nuclear plants that have been cited as uneconomically due to falling power prices are situated in the Midwest, with the fourth in New York. Quad Cities, Clinton and Byron in the Midwest have been hit hard given low electricity prices, but management has been focused on keeping the plants running by seeking additional funding at the state level for the plants. Specifically, higher capacity prices in the most recent auction in the PJM area in the Midwest are promising for the plants. In New York the company has made a reliability contract with a public utility in the state that provides extra payments for the generation so as to keep the baseload power supplied by the Ginna nuclear plant running. Forthcoming result of ongoing talks surrounding increased payments or higher prices to Exelon’s nuclear plants, in order to keep the baseload nuclear power running, is expected to greatly affect the market’s view on the viability of Exelon’s generation capacity and revenue in the coming years.

Additionally, the Midwest region is of specific importance to Exelon given the large number of coal plants that are in the process of retiring in the region. This could create additional opportunities for Exelon to

³ <http://www.utilitydive.com/news/how-the-biggest-nuclear-operator-in-the-us-is-changing-its-business-model/171801/>

stake its claim as an important source of baseload energy in the region, as renewable sources have not been able to consistently meet energy demand. With increased importance of clean energy and emissions free generation, emphasized at the most recent Paris meetings in December, state officials might increasingly look towards nuclear as a midterm solution to achieving emissions goals.

Management Goals

Exelon's management has outlined a number of strategic and operational goals for the business, as noted in their annual and quarterly filings as well as investor presentations. The strategic and operational goals are categorized into three key themes here; 1) revenue and earnings growth, 2) investment and 3) balance sheet strength. Finally, we look at some profitability measures.

1. Revenue & Earnings Growth

Management Says

The integrated nature of Exelon's business, with power generation as well as distribution via regulated utilities, is set up to deliver stable revenue growth and sustainable earnings. The dividends to investors are covered by the utilities in order to insulate them from earnings volatility of the generation business. Exelon seeks to produce earnings growth of 3-5% per year from 2015-2018.

Exelon is shifting its earnings mix, which is currently roughly equally split to a 60/40 split, with more focus now on generating earnings from the regulated utilities. The acquisition of Pepco Holdings (PHI), that was just announced on March 23rd, eases this shift.⁴

A cost management initiative is to achieve \$300-\$350 million of annual cost savings at Exelon Generation and Corporate. They are to begin in 2016, at which 35% of savings will be realized, and fully realized in 2018. The estimated EPS benefit of this is \$0.13-\$0.18.

The above is to assist in delivering steady dividends. Dividends were \$1.24 per share last, with the company announcing during its fourth quarter earnings release this past February a 2.5% increase a year, as of June 2016. The plan is to increase the dividend by 2.5% in 2017 and 2018 as well.

What We Think About Revenue Growth

Exelon has great potential for ongoing stable revenue growth in our opinion. Four reasons lie behind this view:

- 1) *The Midwest and Mid-Atlantic regions have a lot of potential as coal plants are retired*
- 2) *Nuclear is increasingly viewed as medium term solution to a decarbonized future*
- 3) *Rate cases have been a success*
- 4) *Exelon's nuclear assets have decades of life left in them*

Retiring Plants Create a Void to be Filled

Compliance with the Environmental Protection Agency's (EPA) various environmental regulation is weighing heavily on coal and oil burning electricity generators in the United States. The MATS rule (Mercury and Air Toxic Standards) was finalized in 2011, with its implementation already in early stages. The recently discussed Clean Power Plan will also require states to limit their emissions of greenhouse gases, on a state by state basis. A number of companies have already retired their power plants citing

⁴ <https://www.snl.com/InteractiveX/article.aspx?ID=35862815>

these rules as a key driver behind the retirement. Over 16,000 MW is expected to have been retired last year due to the MATS rule alone. SNL Energy notes that close to 42,000 MW of capacity has been announced for coal retirements for 2012-2021, with a further 17,000 MW at risk. As such the total capacity retired could be nearly 59 GW. SNL Energy notes that “this would lead to a meaningful tightening of the supply-demand balance in the PJM and MISO markets as well as the Southeast”.⁵ They estimate that retiring capacity as a percentage of total installed capacity in the PJM area could be in the range of 11-18%, as well as parts of MISO (western part of Midwest) which could be in the range of 5-18%.

The Midwest region is home to 37% of Generation’s capacity, generating around a third of the revenue of the reportable generation segments. Furthermore, Exelon controls over 40% of the nuclear power generation in the region. The Mid-Atlantic on the other hand carries 36% of Exelon’s capacity, providing 37% of Generations power revenues. Exelon’s nuclear plants are around 27% of the nuclear power generating capacity in the Mid-Atlantic. It is clear that the retiring capacity in the Midwest and Mid-Atlantic regions create a void that needs to be filled by reliable baseload energy that is low on emissions. Natural gas plants provide lower emissions, but still around 50% of equivalent coal emissions.⁶ Renewable energy sources, such as wind, solar and hydro, have intermittency issues resulting in their inability to provide baseload power to customers. This could be a big opportunity for Exelon to better use its capacity, and raise its operating capacity factor given its zero emissions nuclear power generation. Additionally, increased price volatility is expected as supply falls. This would lead to higher ATC (around-the-clock) prices, further benefiting plants that manage to stay online. The big question is whether Exelon can take advantage of this position.

Nuclear Means Reliable Clean Energy

Exelon’s operations in the Midwest are often a point of discussion as three of the four nuclear plants that have been identified in the past few years as uneconomically are in the Midwest; Byron (2347 MW), Quad Cities (1403 MW) and Clinton (1069 MW). Having previously noted that they might be forced to retire the plants, Exelon’s management is now more optimistic regarding plant profitability. Higher capacity prices⁷ in recent auctions in the MISO and PJM areas where the plants operate helped in this respect. Additionally, management has been in discussion with the State of Illinois regarding coming to a resolution that will benefit the currently uneconomic plants, as the government wants to secure the energy outlook for Illinois. A Clean Energy Standard is being discussed as well as an environmental jobs bill. Similar viewpoints have been heard in New York, where the governor is increasingly supportive of plans to increase the economic viability of the Ginna nuclear plant operated by Exelon.⁸ This shift indicates the increased awareness of the necessity of looking towards nuclear power in states where carbon emission targets must be reached without jeopardizing the reliability of electric power generation.

Rate Cases

Recent rate cases have been positive for Exelon, with capacity prices in recent auctions in the PJM and MISO area rising significantly. As an example, the ComEd region in Illinois secured \$215 per day capacity

⁵ SNL Energy: Coal Plants at Risk

⁶ http://www.c2es.org/technology/factsheet/natural-gas#_edn7

⁷ Capacity prices are fixed daily prices decided years in advance in auction, that are added to round the clock market prices for power

⁸ Earnings Transcript February 2016, Exelon EEI presentation in November 2015

charges from 2018/2019 in the PJM auction, up from \$134 in 2016/2017. This translates into around \$9 an hour that is added to the ATC price.⁹

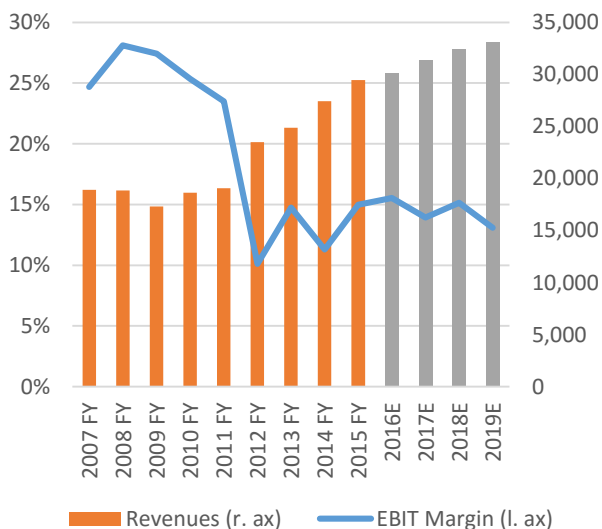
Nuclear Assets Have Years to Spend

Exelon’s nuclear plants have consistently been relicensed in the past, with no noted issues related to their maintenance. As such, these assets should not be viewed as stranded, despite the often negative sentiment surrounding nuclear power. The current clean energy environment and states’ goals makes it highly unlikely that this source of reliable, clean, baseload power will be turned off any time soon.

How It Affects Our Valuation

Given the above indicated views and Exelon’s model of operations we model revenues for the Generation and Utility segment of Exelon’s business separately, assuming a simple fixed EBIT margin for the Utility business. On the generation side we model the geographic revenue segments separately, focusing on the Midwest and Mid-Atlantic in greatest detail as these areas comprise the majority of Generation’s capacity and revenue as well as being the source of greatest upside in terms of revenue growth going forward. The revenue forecast assumes current capacity will be stable throughout the forecast period with a 94% capacity factor at the nuclear plants. The revenue growth potential in our model arises from changes in electricity prices as we do not expect the company to seek to increase its capacity. Were we to assume that EXC could increase its capacity factor further, to take over additional demand, this would raise our revenue forecast. As such we believe our assumptions are prudent. Price forecasts per area are built on

Fig. 8 Revenues (\$MM) & EBIT Margin



Source: SNL Energy Data

We do not include the potential revenue from the PHI merger as there is still some uncertainty around the deal. Although the district court in D.C. has just approved the merger there is a chance that the decision could be appealed.¹⁰

SNL Energy’s forward price curve for each area, to which results from auctions for fixed capacity prices per day are added. For the Midwest and Mid-Atlantic areas we add a premium to the SNL forward prices given our expectation of a tightening of the power supply and Exelon’s strong position to continue using its capacity. Further details of the revenue forecast can be found in the appendix.

Our revenue forecast leads us to 2.3% revenue growth in 2016, 4.1% in 2017, 3.5% in 2018 and 1.9% in 2019. This is more or less in line with management’s goals of 3-5%. We then smooth out growth over the next years towards a steady 2.4% growth in line with long-term economic growth numbers.

⁹ Exelon EEI presentation in November 2015, <http://midwestenergynews.com/2015/09/10/big-windfall-for-exelon-plants-in-pjm-capacity-auctions-weakens-case-for-illinois-bailout/>

¹⁰ <https://www.snl.com/InteractiveX/article.aspx?ID=35862815>

What We Think About Earnings Growth & How It Affects Our Valuation

The earnings mix has recently been affected by the merger with CEG which was realized in 2012. The year after was a tough year, with the EDF venture falling out as well as low electricity prices. But two years into the CEG merger earnings have grown and the mix shifted, with 47% of earnings derived from utilities compared to 29% prior to the merger. The recently announced PHI merger should assist with the goal of increasing the share of earnings arising from the utilities business if it is realized.

We are however somewhat skeptical of management's cost reduction plans. The 2013 turnaround strategy of Exelon focused on similar cost saving initiatives alongside the stated and later realized goal of shifting the earnings mix of the company. However, as can be seen from figure 9 expenses have not fallen

Fig. 9 EXC Operating Expenses/Revenue

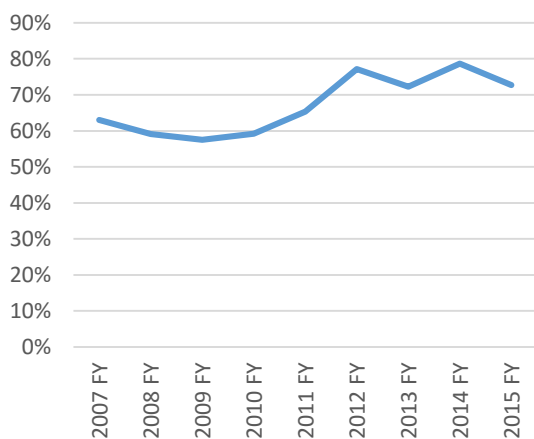
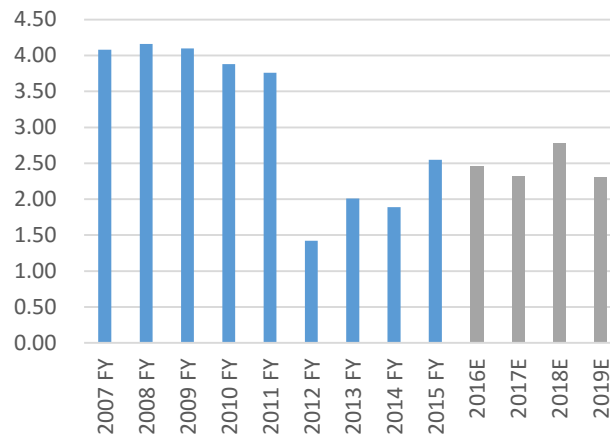


Fig. 10 Earnings Per Share Historical & Forecast

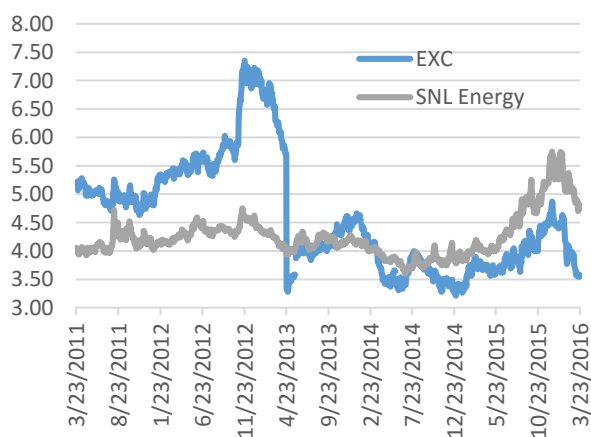


Source: SNL Energy Data

Source: SNL Energy Data & Analyst's Estimation

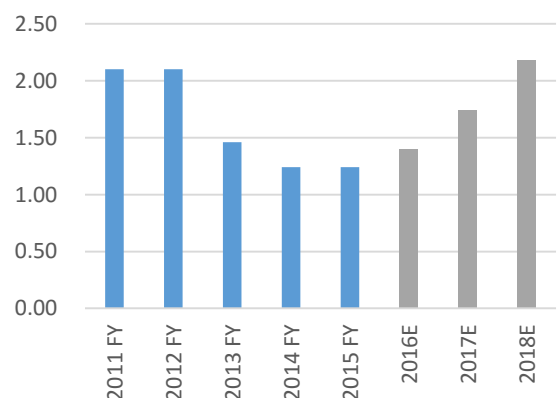
as a percentage of revenue, in fact they increased in 2014 and were still at 2013 levels last year. Hence we model in a slight fall in costs as a percentage of revenue in 2016 and 2017, assuming a mostly steady cost to revenue ratio throughout the forecast period.

Fig. 11 EXC & Energy Sector Dividend Yields



Source: SNL Energy Data

Fig. 12 EXC Dividend Per Share



Source: SNL Energy Data, Financial Statements

In terms of dividends, we believe Exelon's goal of increasing dividend per share by 2.5% per year for the next 3 years is achievable. Given the company's current market valuation the stock is trading just under

4% yield, below the 4.75% average of dividend heavy companies also found in SNL Energy's index. Additionally, its yield is slightly under the average of its peers in the electric utility industry (see multiples analysis in appendix). With our forecast of a rise in the stock's price, this would bring the yield down to around 3.3% in 2016. As figure 7 above showed, the dividend payout ratio has now recovered after its cut in 2013 and has room to rise. As such we believe this dividend increase is achievable and prudent given the expected increase in free cash flow.

2. Investment

Management Says

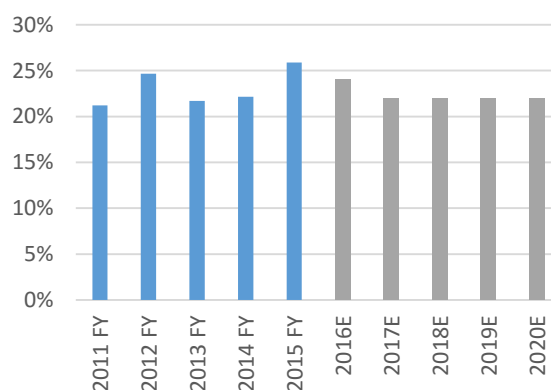
Exelon seeks to prioritize investments in its regulated utilities business in order to minimize earnings volatility. As such it aims to invest \$18 billion in utilities from 2016 to 2020, of which \$11 billion is committed before end of 2018. On the generation side Exelon is focusing on projects that must earn return of >10% of ROE, and claims to be looking at opportunities that may result in investments of close to \$3 billion from 2016 to 2020. Around half of any growth investment is expected to be funded through structured financing, with no incremental equity issuance used. The current capital plan assumes that just over \$11 billion of capex will be needed in the generation business from 2016 to 2018.

What We Think & How It Affects Our Valuation

By investing in its utility infrastructure Exelon increases its rate base, i.e. the value of the property it is permitted to earn a specific rate of return on, as decided by the state regulatory agency. Thus, these investments feed directly into the company's revenue stream and earnings, as they assist with seeking higher rates for electricity sales in rate cases. As such the utilities' investment input relates directly to sales and EPS growth.

Management's capex assumptions are more or less in line with historical capital expenditure, in the range of 20-25% of sales revenue per year, albeit slightly lower for the latter portion of the period. We assume capital expenditure as 24% of revenue in 2016, falling to 22% in 2017 and throughout the forecast period.

Fig. 13 Capex % of Revenue Historical & Forecast



Source: SNL Energy Data & Analyst's Estimation

3. Balance Sheet Strength

Management Says

Given last year's large increase in cash, as well as the company's positive outlook for cash flows going forward, Exelon expects a declining debt/EBITDA ratio, starting at 3.2x in 2016 and falling to 2.3x in 2018. This is based on the assumption of roughly \$5350 million cumulative FCF in 2016-2018.¹¹

What We Think & How It Affects Our Valuation

We think this debt reduction will be contingent the company's ability to generate cash flow over the near term. We assume that Exelon will use the increase in cash from last year to pay down some of its debt, so as to bring its cash on balance sheet as a percentage of revenue to the historical average of around 6%

¹¹ Earnings call Q4 2015 Feb 2016

(compared to 22% in 2015). This is assumed to take place over three years, bringing long term debt in 2016 down to 3.2x EBITDA in 2016, 3.0x in 2017 and 2.6x in 2018, in line with management’s goals. After this we assume a steady ratio of long term debt to revenue of around 62%, similar to 2011 levels.

Exelon Selected Balance Sheet Items \$MM

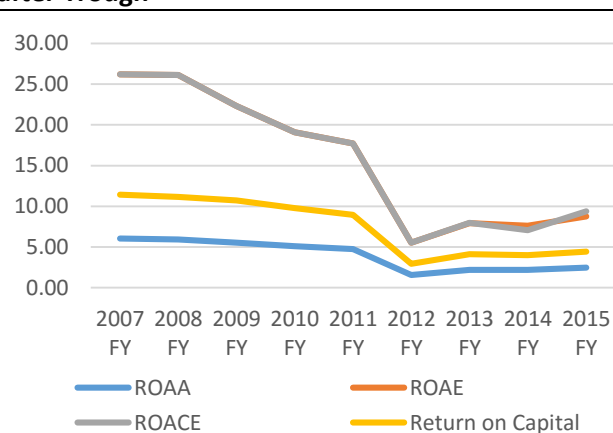
	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Cash & Cash Equivalents	1016	1411	1609	1878	6502	5095	3689	2283	2038	2085
Long Term Debt	11,799	17,190	17,623	19,212	23,645	22,239	20,833	19,426	20,172	20,987

Source: Company financials and analyst’s estimation

Other performance metrics

In terms of profitability Exelon’s strategy of reducing earnings volatility by investing more in their utilities business seems to be paying off. The strategy that management embarked on in 2013 after especially difficult years in 2011 and 2012 has resulted in a rise in all measures of profitability, although the numbers are far from 2007 levels. However, given management’s stated goals of continuing with this strategy of more stable earnings growth from the regulated business, and the low price environment they have been operating in, this improvement should be given credit and shows that things are looking up for Exelon.

Fig. 14 Profitability Showing Signs of Improvement after Trough



Source: SNL Energy Data

Valuation

Discounted Cash Flow Using APV

The price target for Exelon’s stock is based on a DCF using APV equity valuation instead of WACC. This is done in order to independently value the benefit and cost of the company’s debt, as the debt as a share of EBITDA is changing throughout the forecast period. The benefit of the debt is reflected in the interest tax shield that is calculated separately and added to the present value of the discounted cash flows.

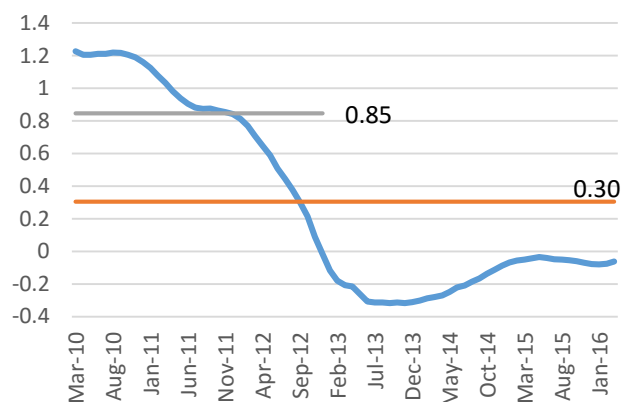
The model is greatly driven by revenue growth, with our assumptions resulting in an annual growth rate of between 1.9%-4.1% in the years 2016-2019. This is in line with management goals of 3-5% growth, although slightly on the lower end based on our bottom up revenue forecast for the generation business and fixed EBIT margin of around 11% starting in 2019. In the years 2016-2018 a 3% sales growth is assumed for the utility business, with a slightly higher EBIT margin given costs reductions modeled in for the years 2016-2018. After 2020 a 2.4% revenue growth for Exelon as a whole is assumed, based on the long-term growth rate of the economy.

The effective tax rate is assumed as 33.7%, based on a five-year historical average. Capex is calculated as a percentage of sales, based on historical capital expenditure needs as discussed above, resulting in a forecast in the range of 22-24% over the forecast period. Changes in net working capital are calculated by projecting the balance sheet and income statement items as historical average percentages of sales.

For the CAPM we chose a risk-free rate of 1.7%, based on the 10-year treasury. The market risk premium we use is 7.0%, the historical value of the premium. We assume a terminal growth rate of 2.4%, based on the assumed long-term growth rate of the economy.

The beta equity we use is based on historical returns data, where we calculate the covariance of 60 months of total return data of Exelon's stock and the S&P 500 and divide it by the variance of the S&P 500 index. Figure 15 shows how the beta of Exelon based on this measure has varied drastically over the past few years. Its low beta since 2012 can be traced to EXC's falling stock price after poor performance years in 2011-2013 as previously discussed. We believe that at a beta of around 0.7 is more in line with the historical performance of the past few years. The levered equity beta is used to calculate the unlevered beta (or asset beta) used in the AVP calculations, where we adjust for the ratio of debt to equity in the capital structure of the company. This gives an unlevered beta of around 0.4. We use the CAPM discount rate to discount the free cash flows from the 'all equity financed' part of the firm. For the debt tax shield cash flows we use the cost of debt to discount. The present values of the 'all equity financed' part of the firm and debt tax shield are then summed up.

Fig. 15 60 Month Beta For Exelon



Source: SNL Energy Data and analyst's calculations

The DCF valuation results in our price target of \$40.91 per share, which is a 18% upside to its recent close price of \$34.72. We believe this warrants a BUY recommendation for Exelon.

Multiples Analysis

Despite our best efforts to build a bottom-up model of Exelon's business, the revenue forecast that drives the model may not fully capture the potential up- or downside of Exelon's operations. The link between rate decisions for capacity prices and revenues on the one hand and ATC prices and revenues on the other can be unclear as revenues flow between the generation and utilities' business and the segments also generate revenue through other sources such as their marketing business. Although the bottom-up revenue forecast includes these revenue sources, we would also like to sanity check our valuation by looking at relevant multiples for the industry. In fact, many sell side analysts base their investment recommendations on multiples analysis for Exelon and similar electric utilities and generators with a sum-of-the-parts of those multiples rather than a DCF.

As can be seen in the multiples analysis table in the appendix EXC trades significantly below its peers, both when looking at the EV/EBITDA multiple and price to NTM earnings. Its 7.0x EV/EBITDA multiple is lowest among the listed peers and the second lowest in terms of P/E multiple, trading at 14.2x. Historically over

the past ten years the company has traded at between 11x and 20x P/E and in the range of 5x and 9x EV/EBITDA as can be seen in figures 16 and 17. In historical comparison it is clear that the company should be trading more in line with its peers.

Fig. 16 Price/Earnings

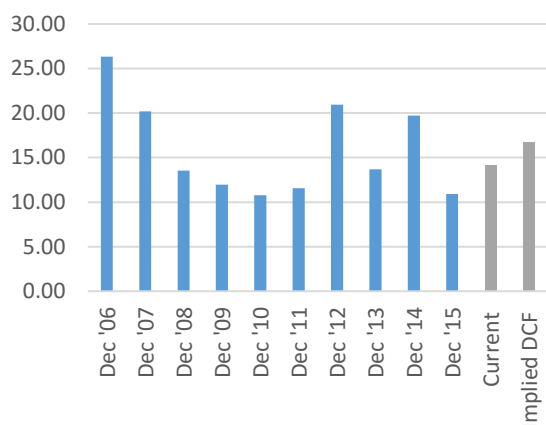
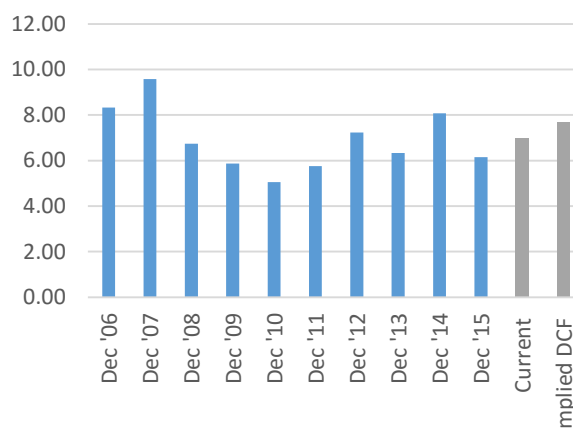


Fig. 17 EV/EBITDA



Source: Factset, Analyst's Estimation

Our DCF valuation results in an implied EV/EBITDA multiple of 7.7x and P/E of 16.7x, closer to the current median values of the peer group but still lower, and similar to levels seen in 2006-08 and even more recently in 2012. This multiples comparison therefore strongly supports our intrinsic DCF valuation which leads us to conclude that EXC is undervalued with a potential upside around 18%.

Why Undervalued?

We believe this undervaluation is related to the previous underperformance of EXC during its 'tough years' in 2011-2013. Even though the company has been turning around its business and seeking ways to increase revenue stability and predictability in a low electric price environment by strengthening its utility business this is not yet reflected in EXC's market valuation. Furthermore, we believe the market is not taking into account the significance of coal retirements for Exelon's business as a strong baseload provider of energy in the Midwest and Mid-Atlantic. The stigma of 'nuclear' may have weighed on the company as the market may not believe Exelon can keep its plants online for much longer, despite their long-life potential. However, this assumes that the federal government as well as states will continue to discount nuclear power as means towards a clean energy future. Recent discussion after the Paris Climate Change meetings this past December and the EPA's Clean Power Plan have however put pressure on state governments to reach emissions goals in the near term. Given the intermittency of renewable energy sources such as solar, hydro and wind, these energy sources are not able to provide the needed baseload power that is required for electric power reliability. Exelon's discussions with state officials both in the Midwest region and New York regarding seeking ways to keep its nuclear power plants economically viable is a strong signal that there is will among state governments to support current nuclear power generation. Many associate a clean energy future first and foremost with renewable energy, however nuclear energy may be the way forward in the medium term as energy reliability is still a big issue for state governments when choosing which way to rationally seek clean energy alternatives.

Catalysts:

We believe the major catalysts for EXC appreciation will be increased awareness in the coming months among state governments around the importance of nuclear as a source of clean energy. We will closely

watch the outcomes of Exelon's discussion with the government in Springfield, as well as decisions this year in New York regarding the Ginna nuclear plant. Governor Cuomo will have to make a decision regarding the future of the Ginna plant this year as the special arrangement with the state's public utility which is currently buying power from Ginna at pre-specified price, runs out in 2017. Furthermore, we believe the market will start to feel the effects of coal retirements on prices this year, as large capacity went offline in the Midwest and Mid-Atlantic last year.

Risks

The main risks to this investment thesis are ongoing low electricity prices. If prices stay low throughout this year and next this will weigh on the profitability of Exelon. However, under such circumstances it is unclear how state regulators and governors will deal with the fall in prices, as it is clear that the baseload energy supplied by nuclear plants such as those operated by Exelon are crucial to the power supply of many regions in the U.S. An extended period of lower ATC prices could result in the revision of capacity price auctions, with nuclear plants allowed a higher price in the auctions than otherwise had been expected. Another risk to this valuation are downside effects associated with the PHI merger, such as difficulties in integrating the two companies' operations.

Multiples Analysis

Exelon Corporation (EXC)

(\$MM except per share data)

Ticke Name	Latest Price	Market Cap	Enterprise Value	EBITDA Margin	EBIT Margin	EV /EBITDA	EV/EBIT	P/E	Total Debt/EV	Dividend Yield	Total Debt /EBITDA	
SO	Southern Company	\$51	\$46,464	\$71,651	39%	26%	10.4x	15.9x	18.1x	0.40	4.6%	4.2x
PCG	PG&E Corporation	\$59	\$29,003	\$43,057	30%	14%	8.6x	18.1x	29.7x	0.40	3.4%	3.5x
AEP	American Electric Power Company, Inc.	\$65	\$31,949	\$48,510	32%	20%	9.3x	15.1x	15.9x	0.43	3.7%	4.0x
NEE	NextEra Energy, Inc.	\$118	\$54,572	\$75,864	39%	19%	12.3x	25.6x	17.1x	0.39	3.0%	4.8x
ED	Consolidated Edison, Inc.	\$76	\$22,184	\$32,260	30%	21%	8.6x	12.3x	15.9x	0.44	4.0%	3.8x
EIX	Edison International	\$71	\$23,243	\$33,220	35%	17%	8.3x	16.5x	19.1x	0.36	2.9%	3.0x
D	Dominion Resources, Inc.	\$73	\$43,812	\$69,185	44%	29%	13.8x	20.7x	21.1x	0.42	3.8%	5.8x
PEG	Public Service Enterprise Group Incorporated	\$46	\$23,316	\$28,952	40%	25%	7.3x	11.4x	11.7x	0.34	4.0%	2.5x
PPL	PPL Corporation	\$37	\$25,061	\$41,944	50%	37%	11.0x	14.7x	14.7x	0.48	4.4%	5.2x
	High	\$118	\$54,572	\$75,864	50%	37%	13.8x	25.6x	29.7x	0.48	4.6%	5.8x
	Average	\$66	\$33,289	\$49,405	38%	23%	10.0x	16.7x	18.2x	0.41	3.8%	4.1x
	Median	\$65	\$29,003	\$43,057	39%	21%	9.3x	15.9x	17.1x	0.40	3.8%	4.0x
	Low	\$37	\$22,184	\$28,952	30%	14%	7.3x	11.4x	11.7x	0.34	2.9%	2.5x
EXC	Exelon Corporation	\$35	\$30,901	\$50,077	24%	16%	7.0x	10.7x	14.2x	0.46	4.0%	3.2x
	Exelon implied multiples						7.7x	11.9x	16.7x		3.4%	

Revenue Forecast Mid-Atlantic

MidAtlantic		PJM West			
		Round the clock energy prices	Fixed capacity prices per day	per hour	
	2016	52.04		134	5.58
	2017	54.80		151	6.29
	2018	55.24		160	6.67
	2019	55.82		150	6.25
		Revenue			
		2016	2017	2018	2019
Nuclear					
Limerick	2317	1,169,598,738.93	1,240,061,470.03	1,256,548,489.00	1,259,808,681.78
Peach Bot	1299	655,722,383.20	695,226,521.18	704,469,783.00	706,297,573.43
Salem	1005	507,314,084.00	537,877,331.63	545,028,585.00	546,442,695.38
Calvert Clif	878	443,205,737.07	469,906,763.35	476,154,326.00	477,389,737.85
Three Mile	837	422,509,341.60	447,963,509.03	453,919,329.00	455,097,050.78
Oyster Cre	625	315,493,833.33	334,500,828.13	338,948,125.00	339,827,546.88
<i>Of total</i>	<i>59%</i>	<i>3,513,844,118.13</i>	<i>3,725,536,423.33</i>	<i>3,775,068,637.00</i>	<i>3,784,863,286.08</i>
Hydro					
Conowingc	572	288,739,956.27	306,135,157.90	310,205,324.00	311,010,170.90
Muddy Rur	1070	540,125,442.67	572,665,417.75	580,279,190.00	581,784,760.25
<i>Of total</i>	<i>14%</i>	<i>828,865,398.93</i>	<i>878,800,575.65</i>	<i>890,484,514.00</i>	<i>892,794,931.15</i>
Wind					
Criterion	70	35,335,309.33	37,464,092.75	37,962,190.00	38,060,685.25
Fourmile	40	20,191,605.33	21,408,053.00	21,692,680.00	21,748,963.00
Fair Wind	30	15,143,704.00	16,056,039.75	16,269,510.00	16,311,722.25
<i>Of total</i>	<i>1%</i>	<i>70,670,618.67</i>	<i>74,928,185.50</i>	<i>75,924,380.00</i>	<i>76,121,370.50</i>
Oil/Gas					
Eddystone	760	383,640,501.33	406,753,007.00	412,160,920.00	413,230,297.00
Perryman	463	233,717,831.73	247,798,213.48	251,092,771.00	251,744,246.73
Croydon	391	197,372,942.13	209,263,718.08	212,045,947.00	212,596,113.33
Handsome	268	135,283,755.73	143,433,955.10	145,340,956.00	145,718,052.10
Notch Cliff	118	59,565,235.73	63,153,756.35	63,993,406.00	64,159,440.85
Westport	116	58,555,655.47	62,083,353.70	62,908,772.00	63,071,992.70
Riverside	113	57,041,285.07	60,477,749.73	61,281,821.00	61,440,820.48
<i>Of total</i>	<i>19%</i>	<i>1,125,177,207.20</i>	<i>1,192,963,753.43</i>	<i>1,208,824,593.00</i>	<i>1,211,960,963.18</i>
Total		5,538,557,342.93	5,872,228,937.90	5,950,302,124.00	5,965,740,550.90
<i>Of total in</i>	<i>94%</i>	<i>5,918,664,313.33</i>	<i>6,275,235,535.63</i>	<i>6,358,666,825.00</i>	<i>6,375,164,779.38</i>

Revenue Forecast Midwest

MidWest		PJM NiHub				
		Round the clock energy prices	Fixed capacity prices per day	per hour		
2016		42.81	134	5.58		
2017		44.88	151	6.29		
2018		47.05	200	8.33		
2019		48.13	200	8.33		
Gen Capacity		Revenue	2016	2017	2018	2019
Braidwoo	2389		1,012,735,005.47	1,070,823,739.55	1,158,955,263.50	1,181,727,151.78
Byron	2347		994,930,539.07	1,051,998,039.65	1,138,580,160.50	1,160,951,705.83
LaSalle	2320		983,484,810.67	1,039,895,804.00	1,125,481,880.00	1,147,596,062.00
Dresden	1845		782,124,774.00	826,986,102.75	895,049,167.50	912,635,661.38
Quad Citi	1403		594,753,960.93	628,868,022.85	680,625,464.50	693,998,825.43
Clinton	1069		453,166,061.47	479,158,885.55	518,594,883.50	528,784,564.78
Total	11373		4,821,195,151.60	5,097,730,594.35	5,517,286,819.50	5,625,693,971.18
Of total in	94%		5,156,088,686	5,451,833,045	5,900,532,805	6,016,470,216

Revenue Forecast ERCOT, New England, New York and Other

ERCOT		ERCOT				
		Round the clock energy prices	Fixed capacity prices per day	per hour		
2016		29.55		6.00		
2017		30.00		6.00		
2018		30.00		6.00		
2019		30.00		6.00		
ERCOT Mostly gas		Revenue	2016	2017	2018	2019
Capacity	3593		1,118,798,975.28	1,133,088,480.00	1,133,088,480.00	1,133,088,480.00
New England revenues			2016	2017	2018	2019
			1,612,060,066.77	1,700,021,167.60	1,939,800,804.48	1,930,237,092.00
New York revenues			2016	2017	2018	2019
			832,937,008.00	838,097,232.00	783,284,948.40	816,687,792.00
Other areas revenues			2016	2017	2018	2019
Mostly wind			1,412,596,184.67	1,421,347,522.00	1,328,390,165.15	1,385,038,782.00

Important Disclaimer

Please read this statement before reading this report.

This report has been written by MBA students at Yale's School of Management in partial fulfillment of their course requirements. *The report is a **student and not a professional** report.* It is intended solely to serve as an example of student work at Yale's School of Management. It is not intended as investment advice. It is based on publicly available information and may not be complete analyses of all relevant data.

If you use this report for any purpose, you do so at your own risk. **YALE UNIVERSITY, YALE SCHOOL OF MANAGEMENT, AND YALE UNIVERSITY'S OFFICERS, FELLOWS, FACULTY, STAFF, AND STUDENTS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, ABOUT THE ACCURACY OR SUITABILITY FOR ANY USE OF THESE REPORTS, AND EXPRESSLY DISCLAIM RESPONSIBIITY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, CAUSED BY USE OF OR RELIANCE ON THESE REPORTS.**