



June 2017 LIPA Board Workshop

Financial and Credit Ratings Topics

June 14, 2017

PFM Financial Advisors LLC



Agenda

- I. Update on Public Power Credit Conditions and Comparisons**
- II. The Public Power Landscape – Activity and Challenges**
- III. Current Credit Drivers**
- IV. Addressing the Challenges**
- V. Questions and Comments**



I. Public Power Credit Conditions and Comparisons

Dennis Pidherny, Fitch Ratings



Key Issues: U.S. Public Power Sector

LIPA Board Development Workshop

Dennis Pidherny, Managing Director

June 14, 2017

FitchRatings



Environmental Regulations Uncertain....

- Actions by the Trump administration, including threats to dismantle the Clean Power Plan (CPP) and a proposed withdrawal from the Paris climate agreement make the future of environmental regulation uncertain at best.
- EPA remains obligated to regulate CO2 emissions, however prospective new regulations are expected to ease the cost and extend the timetable for compliance.
- Coal-dominant utilities likely to benefit, particularly those in challenged by the CPP: Kansas, Missouri, Nebraska, Tennessee and West Virginia
- Through it all, pressures to reduce carbon emissions will remain

FITCH: TRUMP COULD LOWER US PUBLIC POWER RATE PRESSURES

Fitch Ratings-New York-17 November 2016: Environmental compliance costs for US public power utilities will be lowered, if President-elect Trump's threats to dismantle the Clean Power Plan (CPP) are realized, Fitch Ratings says. The decline in prospective costs would lower revenue requirements and could ease the interest rate pressures that are likely from rising interest rates and higher debt expenses.

The Carbon Effect

Assessing the Challenges for Public Power Special Report

Initiatives Will Increase Costs: Political pressures and legal challenges could slow or prevent implementation of the CPP. However Fitch believes pressures to reduce carbon emission will persist. Be it as a result of legislation, regulation or a voluntary framework, emissions-reduction initiatives are expected to drive operating costs higher if reductions are achieved through the displacement of fossil-fired generation with higher cost carbon-free resources. Industry estimates of annual compliance costs are extremely broad, ranging from \$5.5 billion to \$73 billion.



...but Carbon Pressures Remain

- State level renewable mandates as well as mounting pressure from consumers, local governments and investors alike are expected to affect resource planning for years to come
- Proposals and policies aimed at limiting investment in thermal coal could challenge access to capital
- Current proposals hold low risk for utilities as existing regulations and low natural gas prices have significantly curtailed, if not eliminated coal-fired development
- CA Insurance Commissioner proposal targets wider universe of issuers and activities
- Proliferation could significantly reduce liquidity or force consideration of premature retirement, resulting in financial strain and downward rating pressure

FitchRatings

**FITCH: PARIS EXIT WILL NOT STOP
US PUBLIC POWER CO2 REDUCTION**

FitchRatings

**FITCH: EVOLVING POLICIES MAY
CHALLENGE US PUBLIC POWER LIQUIDITY**

*“California Insurance Commissioner
Dave Jones calls for insurance industry
divestment from coal and disclosure of
climate change-related financial risks”*

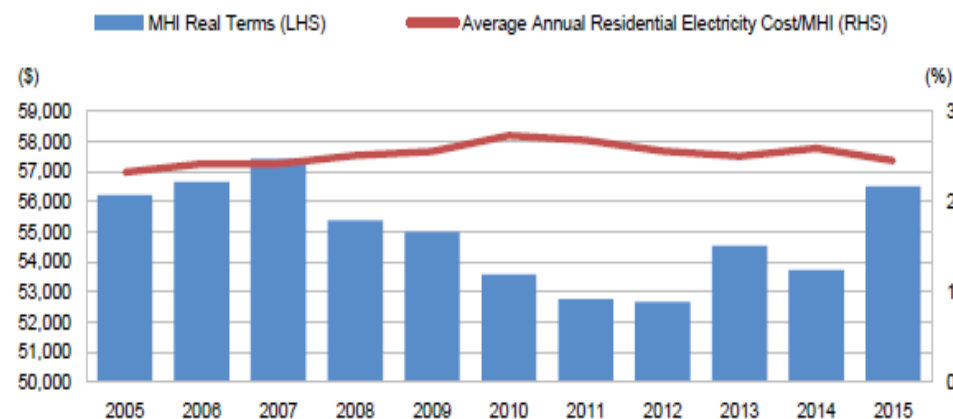
Key Sector Issues



Affordability Improves; Stronger Growth Forecasted

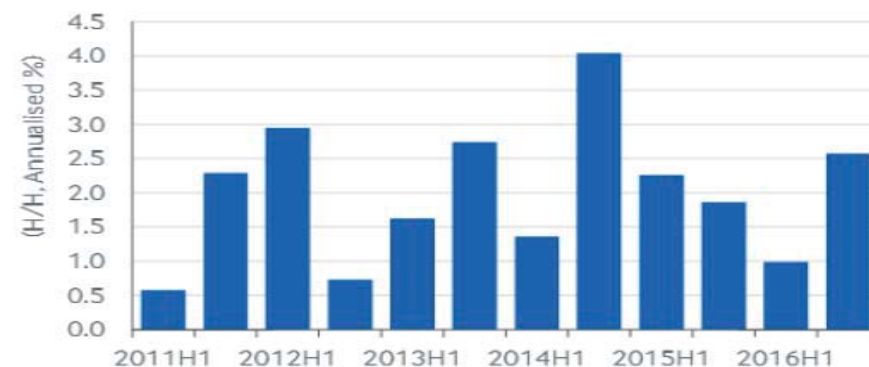
- Ability of residential customers to afford electric costs approaching pre-recession levels, easing rate pressures
- Real household income rose dramatically in 2015 after modest improvements in 2013 and 2014
- GDP growth lower in 2016 (1.6%)
- Fitch's growth forecasts recently revised up moderately; Improved prospects for investment, stronger global outlook and increased confidence;
- Economic growth expected in 2017 (2.3%) and 2018 (2.6%)
- Real incomes are forecast to remain supported by low oil prices, continued steady job growth and a gradual increase in wage growth
- Household net worth reached a record \$94.8 trillion in Q1 2017

Residential Electric Cost to Median Household Income



MHI – Median household income.
Source: Fitch

United States - GDP Growth (Half Yearly)



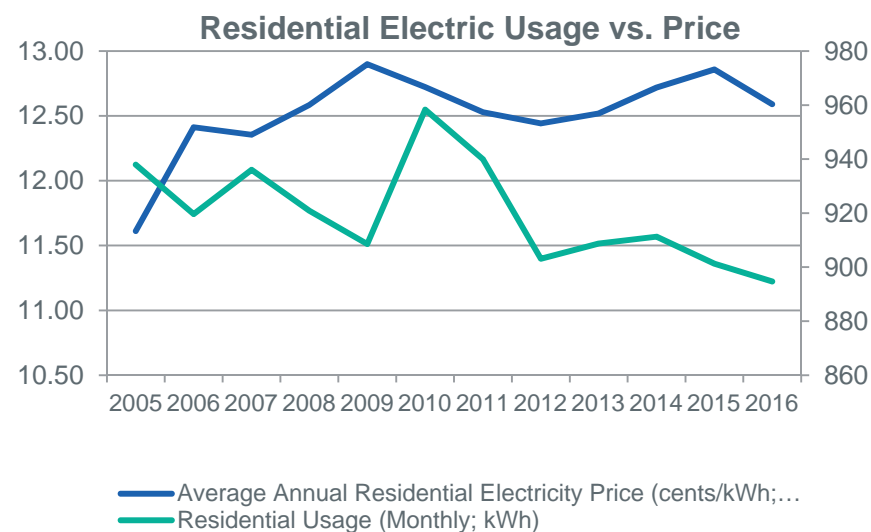
Source: BEA, Datastream, Fitch

Key Sector Issues



Affordability Improves; Price and Consumption Declining

- Lower electric costs tied more to declining consumption than lower electric prices; Residential consumption has declined approximately 4% since 2005; Real prices have risen nearly 9%
- Total residential consumption forecast unchanged for 2016, decline of 1.5% for 2017; Per capita declines continue
- Real price decline of 2.0% estimated for 2016, unchanged for 2017
- Improved affordability should support rate setting strategies



Residential Usage (Monthly; kWh)

US Average: 898

LIPA Average: 799

Average Annual Residential Electricity Price (cents/kWh)

US Average: 12.86

LIPA Average: 19.19

Affordability Index:

US Average: 2.45%

LIPA Average: 1.87%

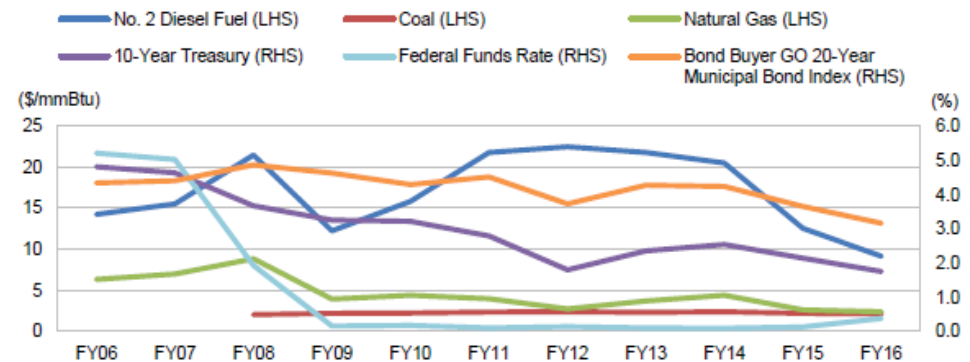
Key Sector Issues



Lower Fuel Cost Broadly Positive

- Low fuel costs and energy prices should remain broadly positive through 2017
- Fitch 2017 base case (\$2.75/mcf) and long-term (\$3.25/mcf) natural gas prices are lower than a year ago; Lingering effects of mild U.S. weather and high inventories; Higher levels of production tied to increase in US oil rig activity
- AEO 2017 Reference case forecasts increasing gas prices through 2020 driven by production expansion into more expensive-to-produce areas and increased export demand.
- Post-2020 prices will be driven by continued improvements in drilling technologies
- Given the sector's growing reliance on natural gas generation at ~34% in 2016, a sudden unexpected rise in cost remains a concern.

U.S. Average Cost of Fuel and Interest Rates



GO – General obligation. MmBtu – Million British thermal units. FY – Fiscal year. Note: Coal data for 2006 and 2007 unavailable.

Source: U.S. Energy Information Administration, U.S. Federal Reserve.

Natural gas spot price at Henry Hub
2016 dollars per million British thermal units



U.S. Energy Information Administration

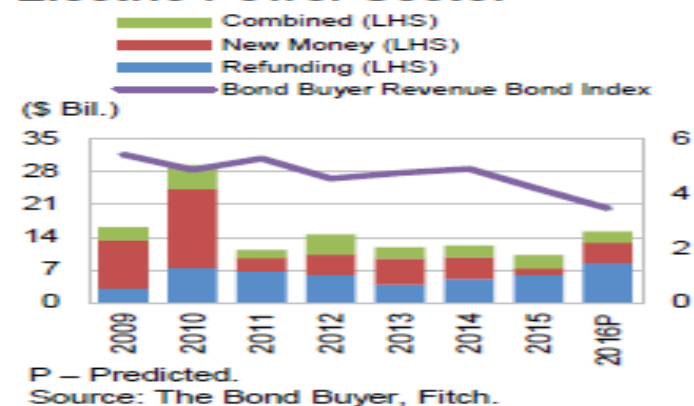
Key Sector Issues



Low Interest Rates Positive; Upward Pressure Mounts

- Low interest rates and robust access to the capital markets have been positive
- Replacement and refunding of debt has reduce revenue requirements; More than 80% of 2015-2016 electric power debt earmarked for refunding; Further gains from refunding could be limited
- Fitch now expects the Fed to hike rates three times in 2017; a total of seven hikes over 2017 and 2018 versus two hikes in previous eight years; US 10-year Treasury yield of 3.1% by the end of 2018
- Higher short-term rates should not pose a material risk to issuers; Low percentage of short-term debt and unhedged variable rate exposure (4.5%); LIPA exposure, 8.4%.
- Higher long-term rates may limit headroom created in recent years and could result in upward pressure on rates.

Municipal Bond Issuance — Electric Power Sector



Medium-Term Outlook for U.S. Interest Rates

(%)	Fed Funds Rate	U.S. 10-Year Bond Yields	Real Fed Funds Rate	Real 10-year Bond Yields	CPI Inflation
March 2017	1.0	2.5	(1.5)	0.0	2.5
December 2017	1.5	2.8	(0.8)	0.5	2.3
December 2018	2.5	3.1	0.1	0.7	2.4
December 2020	3.5-4.0	4.0-5.0	1.5-2.0	2.0-3.0	2.0

Source: Fitch.

Key Sector Issues



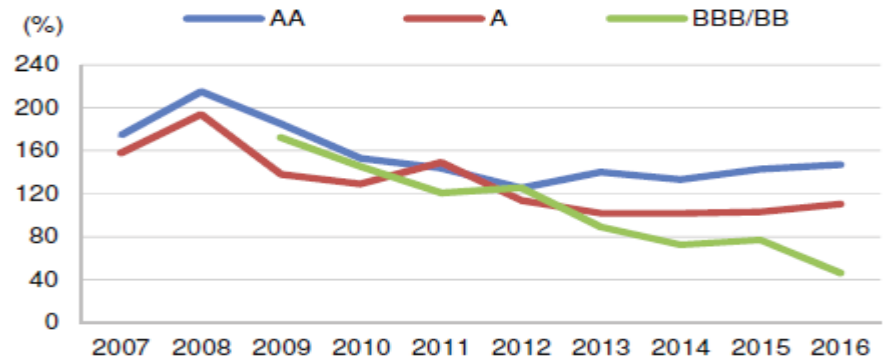
Declining Rates of Capital Investing

- Rate of capital investment is expected to decline in the near term, continuing a trend begun earlier this decade.
- Since 2010, the median ratio of capital investment to depreciation has steadily declined from 166% to 125%.
- Low growth in electric consumption, particularly for residential users, robust access to excess energy production and uncertainty related to environmental regulations all contributed to delayed investment
- Renewal and replacement investment remains steady, and investment in transmission has grown;

Retail Electric Trends

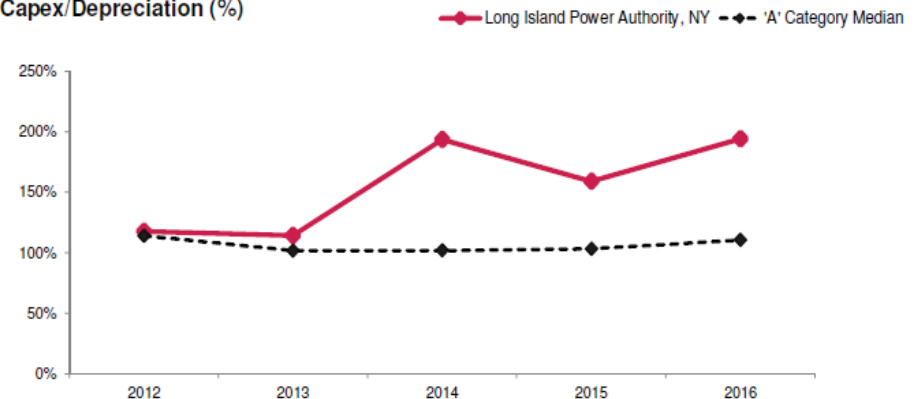
Capex/Depreciation and Amortization

Indicates whether annual capital spending keeps pace with depreciation.



Source: Fitch Ratings.

Capex/Depreciation (%)



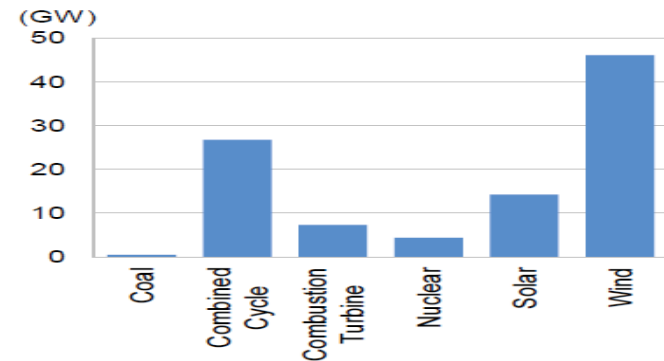
Key Sector Issues



Declining Rates of Capital Investing

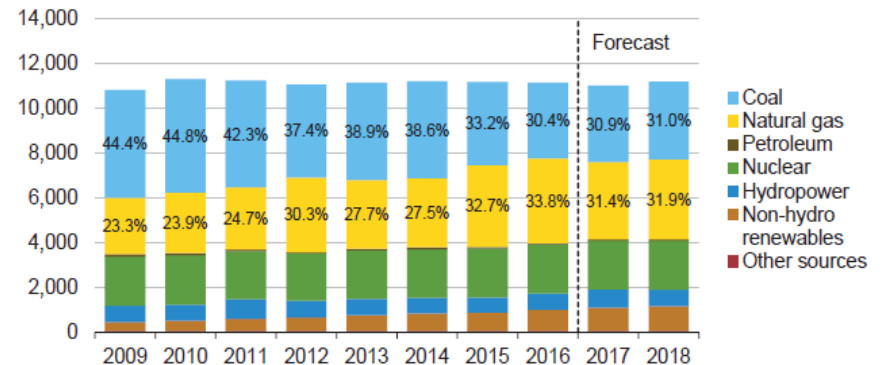
- Fitch expects the rate of investment to remain depressed over the near term.
- EIA forecasts electric power generating net capacity will grow only 1.17% during 2015–2020
- New capacity additions of wind and solar resources will exceed 60 GW;
- Tax credits and incentives will continue to make renewable resource purchase agreements attractive for not-for-profit utilities further limiting investment.
- With the exception of the new Summer and Vogtle units, virtually no additional coal or nuclear resources are anticipated.

Electric Power Sector Capacity Additions 2015–2020



GW – Gigawatts.
Source: U.S. Energy Information Administration.

U.S. electricity generation by fuel, all sectors thousand megawatthours per day



Note: Labels show percentage share of total generation provided by coal and natural gas.

Source: Short-Term Energy Outlook, June 2017.

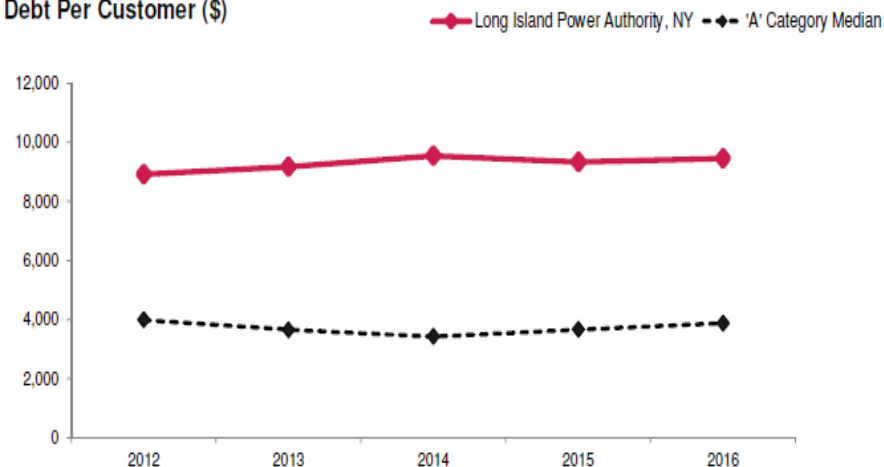
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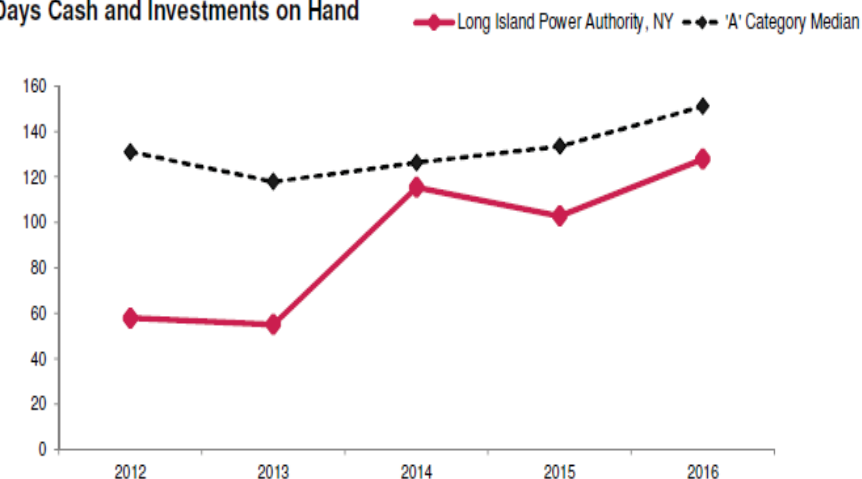
Declining Rates of Capital Investing

- Lower capital spending should support sector credit quality;
- Systems debt-funding capex should clearly benefit from lower debt levels.
- The effect on credit quality will depend on alternative use of excess cash.
- Using funds to bolster reserves and reduce outstanding debt would be viewed as more supportive of credit quality than if funds are returned to end users through a reduction in rates

Debt Per Customer (\$)



Days Cash and Investments on Hand

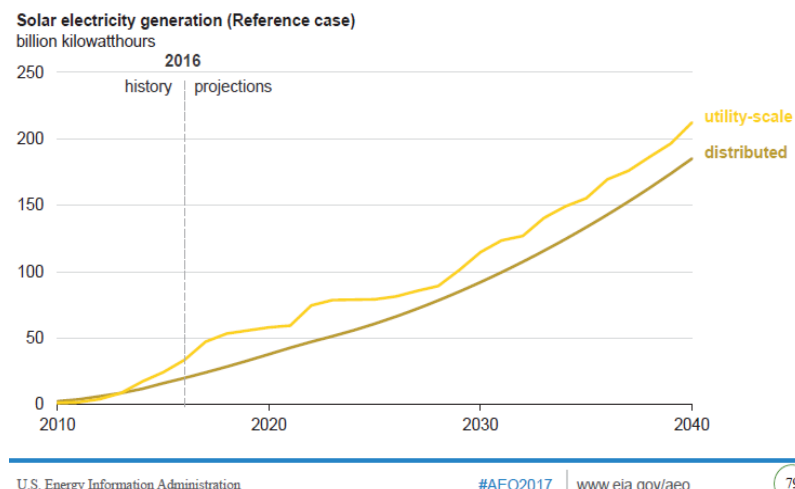


Key Sector Issues

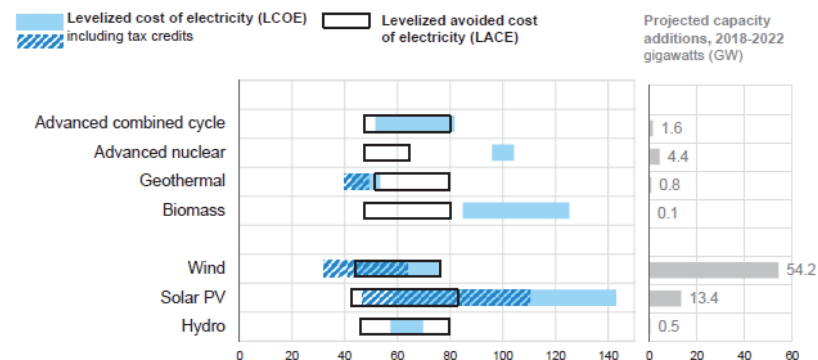


Growing Challenges to Traditional Utility Model

- Customers are increasingly demanding more options to buy renewable energy; tax subsidies, falling costs and customer preferences are driving increased distributed generation
- Distributed PV competes against higher retail electricity prices, which do not necessarily reflect time-of-day or seasonal variation in cost.
- Not a key rating driver in the near term, given a low base, but a worrisome long-term trend for utilities.
- Development of affordable storage solution could spark customer defections over the longer term further upending the traditional utility model.
- Trend requires rate design solutions to minimize revenue loss and cross subsidization; Constructive net metering supportive.



Levelized cost projections by technology, 2022
2016 dollars per megawatthour



Source: U.S. Energy Information Administration, Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2017

Note: Capacity additions include planned and unplanned additions.

LIPA FACT Comparison



2017 FACT — Public Power: Peer Analysis

Obligor Profile (As of June 1, 2017)	Rating	Outlook	System Type	NERC Region
Long Island Power Authority, NY	A-	Stable	Retail	NPCC
Los Angeles Department of Water & Power – Power System	AA-	Positive	Retail	WECC
Lincoln Electric System, NE	AA	Stable	Retail	SPP

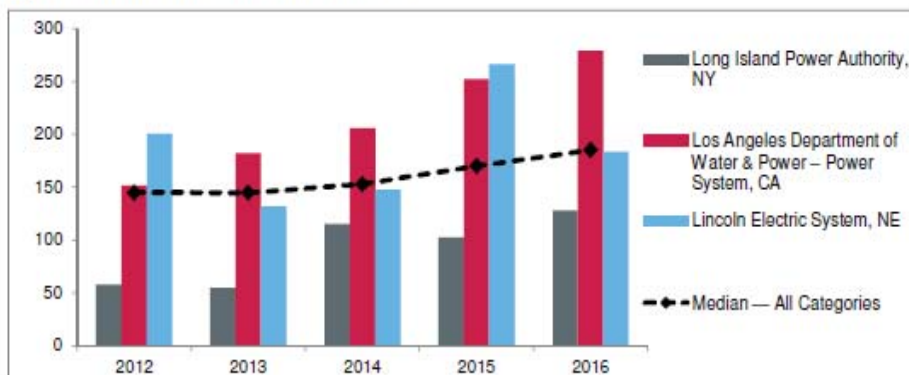
Coverage of Full Obligations (x)



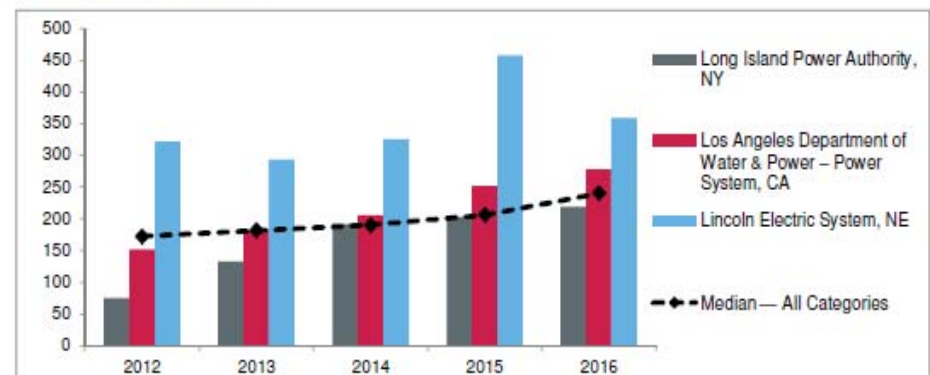
Capex/Depreciation (%)



Days Cash and Investments on Hand



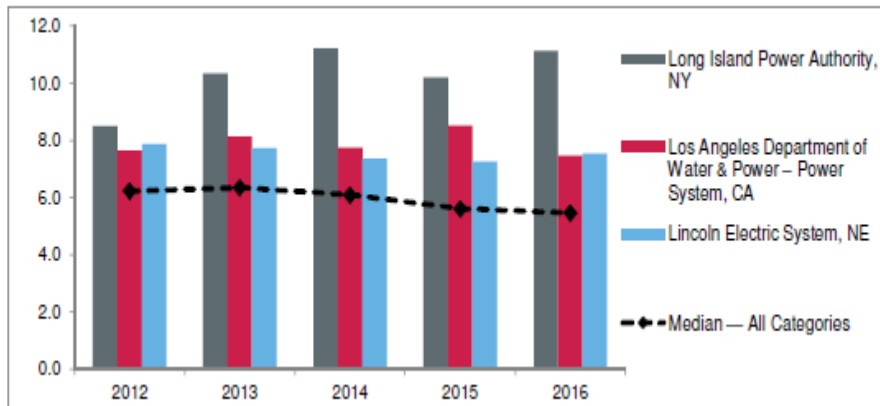
Days Liquidity on Hand



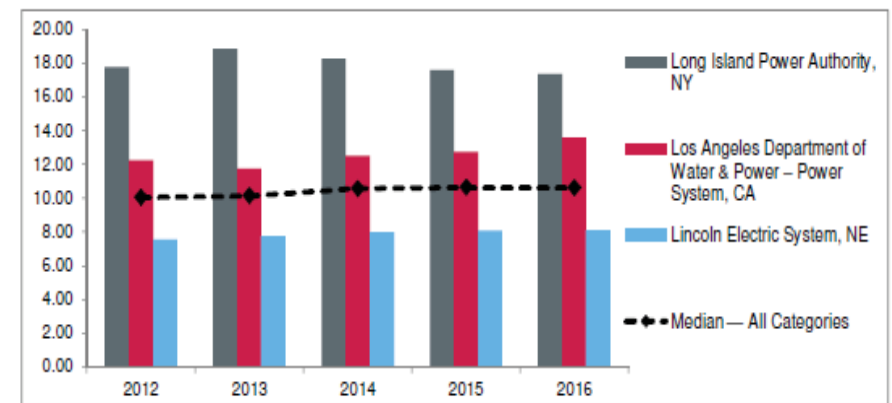
LIPA FACT Comparison



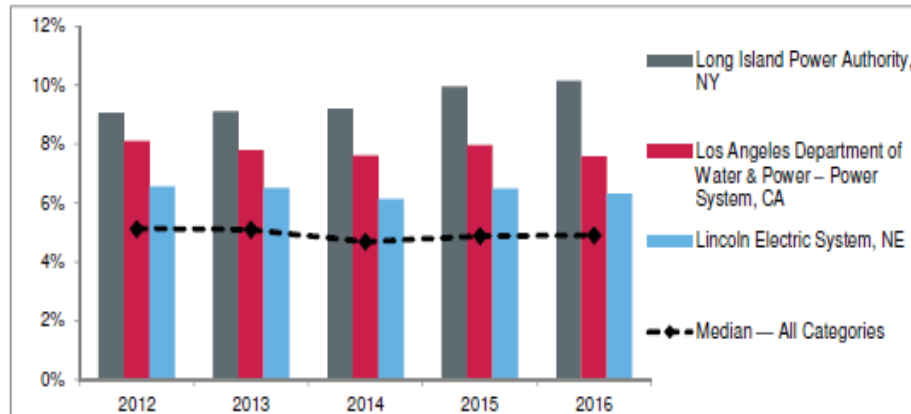
Net Adjusted Debt/Adjusted FADS (x)



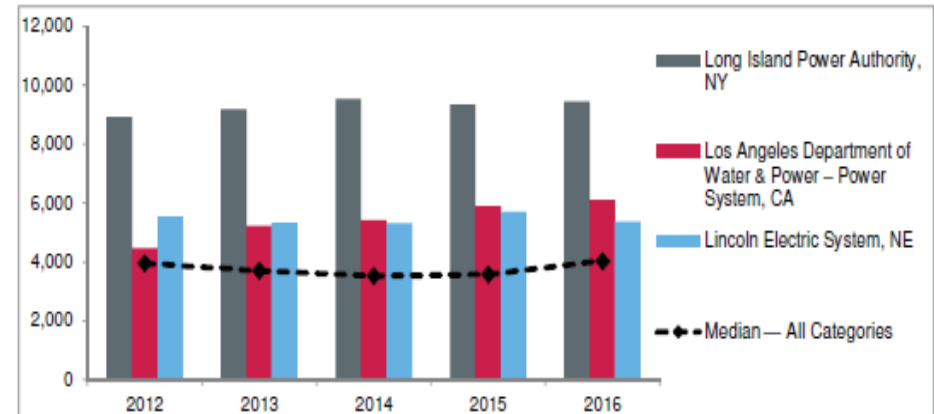
Retail Electric Revenue/kWh (¢/kWh)



Transfer Payment as a % of Operating Revenue



Debt Per Customer (\$)



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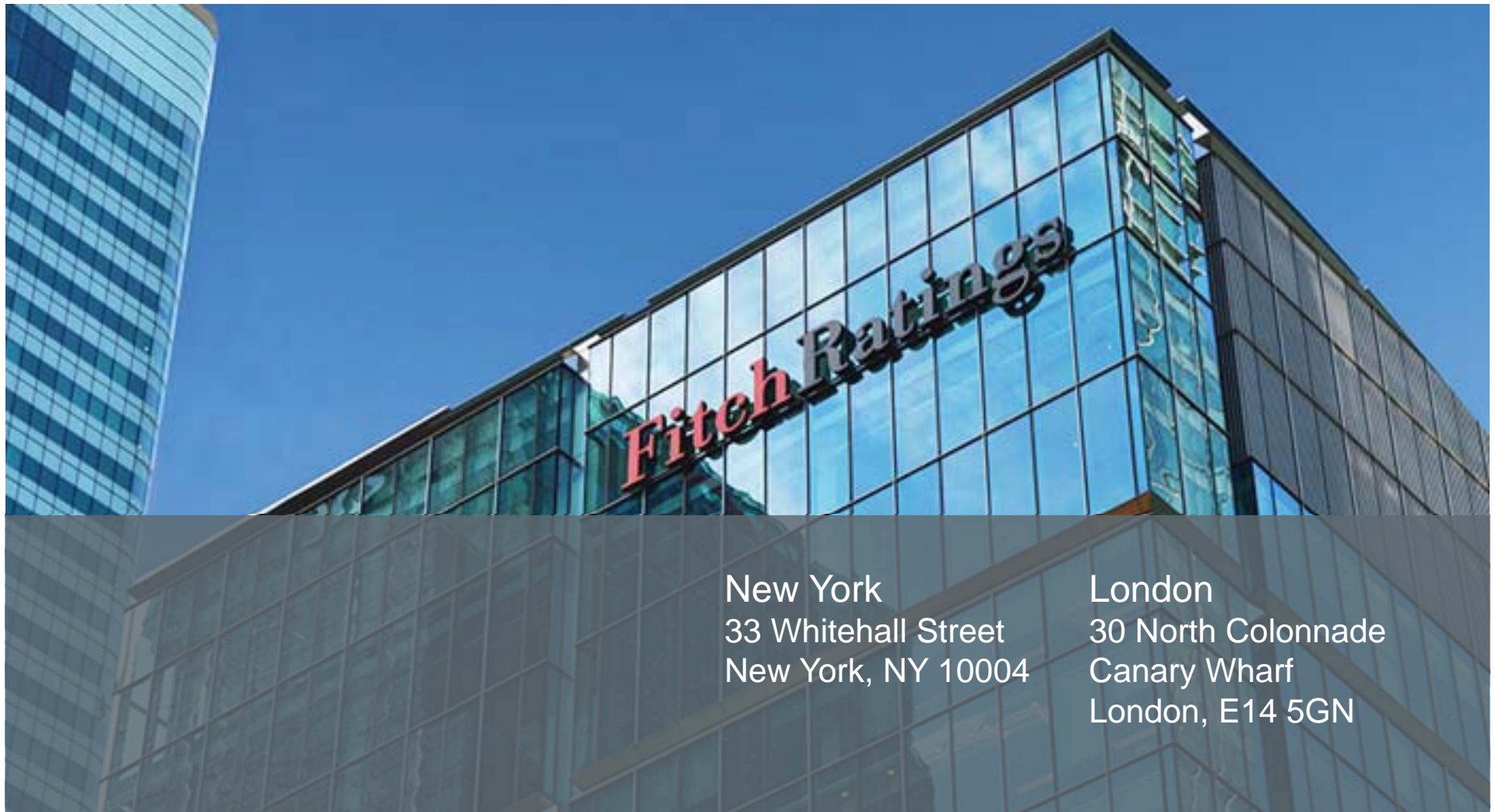
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II. Public Power Activity and Challenges



Public Power Activity and Challenges

- Selected Public Power Utilities and Activity:
 - The 51st State?
 - New Nuclear Construction
 - Biomass – making the best of challenging contract
 - Adjusting to several new realities that affect demand



Public Power Activity and Challenges

- Puerto Rico Electric Power Authority
 - \$9.4 Bn in debt, plus unfunded pensions
 - Economy and energy demand down sharply (industrial load down 50%)
 - ~45% reliant on oil-fired generation (old, inefficient, unreliable, dirty...)
 - Big capital needs at ~\$4Bn
 - Lower oil prices have allowed rates to decline from 28 cents to 19 cents, but still not covering costs
 - Creditors have agreed to restructuring at ~85 cents on the dollar, and considerable principal deferral
 - PREPA debt to be exchanged with securitization debt
 - Free cash flow provides funds for cap ex for more efficient plants
 - The need to work through court challenges to securitization
 - Securitization is a fix that can't be re-fixed
 - More to come, but this is a Puerto Rico problem, not a public power problem



Public Power Activity and Challenges

- New Nuclear Units Present Big Challenges
 - Decisions made in 2006 don't look as good in light of huge changes
Carbon Economy Cost Increases Delays Nat Gas Prices
 - Major delays and cost overruns that should be absorbed by the contractors
 - Except when the contractor (Westinghouse) goes bankrupt
 - Fortunately, a guarantee by Toshiba - the “Japanese GE”, but now rated below investment grade
 - Toshiba records a \$6+Bn cost to complete four units under contract terms
 - The have a chip business reportedly worth over \$20 Bn
 - Toshiba has agreed to pay ~\$3.7Bn to Vogtle owners for 2 units
 - Owners will assume remaining construction and cost risk
 - Key upcoming decisions to terminate, delay or continue



Public Power Activity and Challenges

- Gainesville, FL Biomass
 - Another “times have changed” story with a decision made ~10 years ago
Carbon Economy Cost Increases Delays Nat Gas Prices
 - Signed a 30 year PPA for 100MW biomass plant
 - Fixed cost component at over \$70 MW – whether needed or not
 - Nat gas is cheaper than biomass fuel, so very limited run time
 - ~\$70MM/yr in fixed cost for minimal output
 - Non-binding agreement to purchase the facility – for \$750MM
 - Big savings with DS on \$750MM much less than ~\$70MM/yr
 - But a difficult decision for Gainesville City Commission



Public Power Activity and Challenges

- Adjusting to the Multiple Causes of Reduced Capital Needs

 - Coal Costs

 - Large Ongoing Capital Costs

 - Uncertain Environmental Landscape

 - Declining Demand and Load Curve of Remaining Demand

 - Renewable Targets and Mandates

 - Renewable Tax Incentives Favor PPAs over Ownership for Munis

 - Declining Renewable Prices

- The Deck is Heavily Stacked Against Coal, and Against Capital Programs

- Smaller Capital Programs, Plant Closures and Studies

 - SRP LADWP JEA Santee MEAG



III. Current Public Power Credit Drivers



Public Power Credit Drivers

- Topics Most Like to be Discussed in a Rating Agency Meeting
 - Large resource and asset activity/decisions, if any
 - Stagnant and declining demand
 - Distributed generation – actual, expected and potential
 - Renewable energy activity – actual, projected and costs
 - Impact of renewable PPA terms on financial metrics and credit
 - Pension and OPEB Obligations and examples
 - Uncertain environmental landscape
 - Cyber security



IV. Addressing the Challenges



Addressing the Challenges

- Addressing the Challenges
 - Low Natural Gas Prices – a BIG help to some, but not all
 - Rate design and rates adjustments
 - Resource plans: flexibility = risk management
 - Preservation of financial metrics: right sizing targets



Questions and Comments