

PCMG and Associates

Marlon Griffing, Ph.D

Education

Ph.D., M.A., B.A., Economics, University of Nebraska-Lincoln

Position

Senior Consultant – PCMG and Associates	2015 – present
Senior Consultant – Snavelly King Majoros and Associates	2013 – 2014
Utilities Financial Analyst – Minnesota Department of Commerce	2003 – 2013
Independent Consultant	2003
Senior Consultant – QSI Consulting	2000 – 2002
Economic Analyst – Nebraska Public Service Commission	1998 – 2000

Professional Experience

Dr. Griffing holds bachelors, masters, and doctoral degrees in economics. Dr. Griffing is well versed in microeconomics, cost/benefit analysis and econometric analysis. He has over 18 years' experience as an expert witness and consultant, addressing the cost of capital, capital structure, and rate design of natural-gas and electric utilities in general rate cases; reliability and supply adequacy for natural-gas, electricity and oil-pipeline companies in certificate of need cases; and competitive-environment issues for telecommunications utilities. Dr. Griffing testified on cost-of-capital issues for the Minnesota Department of Commerce (DOC) from 2004-2013. He also managed the DOC's testimony in two oil-pipeline certificate-of-need cases and arbitrated a telecommunications dispute for the Nebraska Public Service Commission. Dr. Griffing has appeared before the regulatory agencies of Arkansas, Maine, Minnesota, Nebraska, New Jersey, New Mexico, North Dakota, Pennsylvania, and South Dakota.

Cost of Capital Appearances

1. In Re: The Matter of the Columbia Gas of Pennsylvania for a General Rate Increase in Distribution Gas Service (Appearance: Cost of Capital on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2018-2647577
2. In the Matter of the Application of Black Hills Energy Arkansas, Inc. for Approval of a General Tariff Change in Rates and Tariffs (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Arkansas Attorney General)
Arkansas Public Service Commission Docket 17-071-U

3. In the Matter of the Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in Oklahoma (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201700496
4. Application of Fayson Lake Water Company for the Approval of an Increase in Rates and Other Appropriate Relief (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17101041
5. In the Matter of the Petition of New Jersey-American Water Company, Inc. for Approval of an Increased Tariff Rates and Charges for Water and Sewer Service, Change in Depreciation Rates, and Other Tariff Modifications (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17090985
6. In re: Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-17-295
7. Petition of Middlesex Water Company for Approval of an Increase in its Rates for Water Service and Other Tariff Changes, and an Order Authorizing Special Accounting Treatment of Income Tax Refund Proceeds and Future Income Tax Deductions (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17101049
8. In the Matter of the Petition of Andover Utility Company, Inc. for Approval of an Increase in Rates for Wastewater Service (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17070726
9. In the Matter of Petition of SUEZ Water Arlington Hills Inc. for Approval of an Increase in Rates for Wastewater Services and other Tariff Changes (2016-2017) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16050510
10. In the Matter of Request by Emera Maine for Approval of a Rate Change (2016) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 15-00360

11. ENMAX Energy Corporation (EEC) Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Analysis: cost of capital, risk element identification on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480
12. Pennsylvania Public Utilities Commission vs. West Penn Power Co., Pennsylvania Electric Co., Pennsylvania Power Co., and Metropolitan Edison Co. (2014-2015) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return behalf of the Office of the Pennsylvania Consumer Advocate)
PA Docket Nos. R-2014-2428742-R-2014-2428745
13. In the Matter of the Application of Minnesota Energy Resources Corporation for Authority to Increase Rates for Natural Gas Service in Minnesota (2010-2012) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/GR-10-977
14. In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Utility Service in Minnesota (2010-2011) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. E017/GR-10-239
15. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation, for Authority to Increase Rates for Natural Gas Service in Minnesota (2009-2010) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-09-1153
16. In the Matter of an Application by CenterPoint Energy Resources Corp., D/B/A CenterPoint Minnesota Gas to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G008/GR-08-1075
17. In the Matter of Minnesota Energy Resources Corporation's Application for Authority to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/GR-08-835

18. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation and Wholly Owned Subsidiary of Xcel Energy Inc., for Authority to Increase Rates for Natural Gas Service in Minnesota (2006-2007) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-06-1429
19. In the Matter of the Application of CenterPoint Energy Resources Corp., D/B/A CenterPoint Energy Minnesota Gas, for Authority to Increase Natural Gas Rates in Minnesota (2005-2006) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G008/GR-05-1380
20. In the Matter of a Petition by Interstate Power and Light Company for Authority to Increase Electric Rates in Minnesota (2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. E001/GR-05-748
21. In the Matter of the Petition of Northern States Power Company dba Xcel Energy Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-04-1511
22. In the Matter of the Petition of Great Plains Natural Gas Company's Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G004/GR-04-1487
23. In the Matter of the Petition of CenterPoint Energy Minnegasco, A Division of CenterPoint Resources Corp. for Authority to Increase Natural Gas Rates in Minnesota (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
Docket No. G008/GR-04-901

PART I

Item 1. *Business*

The Company

Aqua America, Inc. (referred to as “Aqua America”, the “Company”, “we”, “us”, or “our”), a Pennsylvania corporation, is the holding company for regulated utilities providing water or wastewater services to an estimated three million people in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, and Virginia. Our largest operating subsidiary is Aqua Pennsylvania, Inc., which accounted for approximately 52% of our operating revenues and approximately 74% of our net income for 2017. As of December 31, 2017, Aqua Pennsylvania provided water or wastewater services to approximately one-half of the total number of people we serve. Aqua Pennsylvania’s service territory is located in the suburban areas in counties north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. Our other regulated utility subsidiaries provide similar services in seven other states. In addition, the Company’s market-based activities are conducted through Aqua Infrastructure, LLC and Aqua Resources Inc. Aqua Infrastructure provides non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources provides water and wastewater service through two operating and maintenance contracts with municipal authorities close to our utility companies’ service territory; and offers, through a third party, water and wastewater line repair service and protection solutions to households. In 2017, we completed the sale of business units that are reported within Aqua Resources, which installed and tested devices that prevent the contamination of potable water and repaired water and wastewater systems, and repaired and performed maintenance on water and wastewater systems. Additionally, during 2016, we completed the sale of business units within Aqua Resources, which provided liquid waste hauling and disposal services and inspection, and cleaning and repair of storm and sanitary wastewater lines.

Aqua America, which prior to its name change in 2004 was known as Philadelphia Suburban Corporation, was formed in 1968 as a holding company for its primary subsidiary, Aqua Pennsylvania, formerly known as Philadelphia Suburban Water Company. In the early 1990s, we embarked on a growth through acquisition strategy focused on water and wastewater operations. Our most significant transactions to date have been the merger with Consumers Water Company in 1999, the acquisition of the regulated water and wastewater operations of AquaSource, Inc. in 2003, the acquisition of Heater Utilities, Inc. in 2004, and the acquisition of American Water Works Company, Inc.’s regulated water and wastewater operations in Ohio in 2012. Since the early 1990s, our business strategy has been primarily directed toward the regulated water and wastewater utility industry, where we have more than quadrupled the number of regulated customers we serve, and have extended our regulated operations from southeastern Pennsylvania to include our current regulated utility operations throughout Pennsylvania and in seven other states. During 2010 through 2013, we sold our utility operations in six states, pursuant to a portfolio rationalization strategy to focus our operations in areas where we have critical mass and economic growth potential. Currently, the Company seeks to acquire businesses in the U.S. regulated sector, which includes water and wastewater utilities and other regulated utilities, and to pursue growth ventures in market-based activities, such as infrastructure opportunities that are supplementary and complementary to our regulated businesses.

[Table of Contents](#)

The following table reports our operating revenues, by principal state, for the Regulated segment and Other and eliminations for the year ended December 31, 2017:

	Operating Revenues (000's)	Operating Revenues (%)
Pennsylvania	\$ 419,594	51.9%
Ohio	106,254	13.1%
Texas	72,312	8.9%
Illinois	64,129	7.9%
North Carolina	54,991	6.8%
Other states (1)	87,625	10.8%
Regulated segment total	804,905	99.4%
Other and eliminations	4,620	0.6%
Consolidated	\$ 809,525	100.0%

(1) Includes our operating subsidiaries in the following states: New Jersey, Indiana, and Virginia.

Information concerning revenues, net income, identifiable assets and related financial information for the Regulated segment and Other and eliminations for 2017, 2016, and 2015 is set forth in *Management's Discussion and Analysis of Financial Condition and Results of Operations* and in Note 17 – *Segment Information* in the *Notes to Consolidated Financial Statements* which is contained in Item 8 of this Annual Report.

The following table summarizes our operating revenues, by utility customer class, for the Regulated segment and Other and eliminations for the year ended December 31, 2017:

	Operating Revenues (000's)	Operating Revenues (%)
Residential water	\$ 483,865	59.8%
Commercial water	130,373	16.1%
Fire protection	30,619	3.8%
Industrial water	27,880	3.4%
Other water	34,705	4.3%
Total water	707,442	87.4%
Wastewater	87,560	10.8%
Other utility	9,903	1.2%
Regulated segment total	804,905	99.4%
Other and eliminations	4,620	0.6%
Consolidated	\$ 809,525	100.0%

Our utility customer base is diversified among residential water, commercial water, fire protection, industrial water, other water, wastewater customers, and other utility customers (consisting of operating contracts that are closely associated with the utility operations). Residential water and wastewater customers make up the largest component of our utility customer base, with these customers representing approximately 70% of our water and wastewater revenues for 2017, 2016, and 2015, respectively. Substantially all of our water customers are metered, which allows us to measure and bill for our customers' water consumption. Water consumption per customer is affected by local weather conditions during the year, especially during late spring, summer, and early fall. In general, during these seasons, an extended period of dry weather increases consumption, while above average rainfall decreases consumption. Also, an increase in the average temperature generally causes an increase in water consumption. On occasion, abnormally dry weather in our service areas can result in governmental authorities declaring drought warnings and imposing water use restrictions in the affected areas, which

**In the Matter of the Petition of New Jersey-American Water Company Inc.
For Approval of Increased Tariff Rates and Charges for Water and
Wastewater Service, Changes in Depreciation Rates and
Other Tariff Modifications.**

BPU Docket No. WR17090985

Initial Rate Counsel Cost of Capital Data Request

Witness: Frank X. Simpson

RCR-ROE-3 See Exhibit No P-2, Schedule 61, Pages 1-2 of 2. Please provide the issuing agent (e.g., American Water Capital Corp., NJAW) for each long-term debt issue identified in the exhibit.

Response: Please see Discovery Request RCR-ROE-3_Attachment. The data has been provided in the same format as that used for Exhibit No. P-2, Schedule 61, with a column added to show the Issuing Agent.

**ROE and ROR Analysis for New Jersey-American Water
NJAWC and AWCC Issue NJAWC Debt**

Effective Cost of Long-Term Debt
Total Company

**Docket No. WR17090985
Exhibit MFG-4, Page 2 of 3**

Line No.	Nominal Rate	Description	Issuing Agent	Date of Issue	Date of Maturity	Proforma		Principal Amount Issued	Total Premium, Expense & Discount @ Issuance	Net Proceeds	Net Proceeds Ratio	Effective Cost Rate to Maturity	Annualized Int. Cost Effect Rate x Issue Amt
						Principal Amount Outstanding @ March 31, 2017	Principal Amount Outstanding @ September 30, 2018						
1	9.250%	Secured Taxable	NJAW	05/15/1990	05/01/2020	2,000,000	2,000,000	2,000,000	(9,676)	1,990,324	99.52%	9.297%	185,948
2	7.170%	Secured Taxable	NJAW	02/23/1994	02/01/2024	36,000,000	36,000,000	36,000,000	(826,413)	35,173,587	97.70%	7.360%	2,649,713
3	4.925%	Unsecured Taxable	AWCC	06/11/2012	10/15/2037	44,704,000	44,704,000	44,704,000	(923,803)	43,780,197	97.93%	5.070%	2,266,619
4	2.650%	Unsecured Taxable	AWCC	06/11/2012	10/15/2017	15,296,000	-	-	-	0	-	-	0
5	0.000%	Unsecured Tax Exempt	NJAW	11/01/1998	12/01/2018	467,242	-	4,409,757	(71,060)	4,338,697	98.39%	0.081%	3,568
6	4.925%	Unsecured Taxable	AWCC	06/11/2012	10/15/2037	40,000,000	40,000,000	40,000,000	(833,792)	39,166,208	97.92%	5.072%	2,028,628
7	4.530%	Unsecured Tax Exempt	NJAW	11/01/1998	12/01/2018	1,085,000	-	6,215,000	(109,640)	6,105,360	98.24%	4.666%	289,992
8	2.900%	Unsecured Tax Exempt	NJAW	11/09/2000	03/02/2020	70,673	46,272	256,426	(4,267)	252,159	98.34%	3.014%	7,729
9	2.700%	Unsecured Tax Exempt	NJAW	11/08/2001	04/01/2021	196,888	121,814	491,689	(51,981)	439,708	89.43%	3.452%	16,974
10	11.912%	Carriage Lane Lease	NJAW	07/01/2001	06/01/2026	794,475	717,414	1,100,000	-	1,100,000	100.00%	11.909%	130,995
11	4.750%	Secured Tax Exempt	NJAW	08/01/2001	08/01/2021	6,432,411	2,668,005	21,320,278	(2,106,213)	19,214,065	90.12%	5.576%	1,188,756
12	4.350%	Secured Tax Exempt	NJAW	08/01/2002	08/01/2022	165,944	75,944	1,793,581	(209,770)	1,583,811	88.30%	5.306%	95,167
13	4.300%	Unsecured Taxable	AWCC	12/17/2012	12/01/2042	55,000,000	55,000,000	55,000,000	(2,568,222)	52,431,778	95.33%	4.588%	2,523,515
14	4.550%	Unsecured Tax Exempt	NJAW	08/01/2004	08/01/2024	48,119	2	600,754	(71,870)	528,884	88.04%	5.548%	33,328
15	1.600%	Unsecured Tax Exempt	NJAW	11/01/2004	08/01/2024	162,624	127,025	341,601	(29,574)	312,027	91.34%	2.140%	7,309
16	2.400%	Unsecured Tax Exempt	NJAW	11/10/2005	08/01/2025	651,502	512,009	1,253,045	(53,984)	1,199,061	95.69%	2.683%	33,614
17	5.620%	Unsecured Taxable	AWCC	01/31/2007	12/21/2018	27,500,000	12,375,000	12,375,000	(716,194)	11,658,806	94.21%	6.319%	781,941
18	5.770%	Unsecured Taxable	AWCC	01/31/2007	12/21/2021	65,000,000	29,250,000	29,250,000	(2,172,475)	27,077,525	92.57%	6.558%	1,918,239
19	6.593%	Unsecured Taxable	AWCC	10/22/2007	10/15/2037	130,000,000	130,000,000	130,000,000	(2,070,619)	127,929,381	98.41%	6.717%	8,732,038
20	5.480%	Secured Taxable	NJAW	05/13/2009	05/13/2019	25,000,000	25,000,000	25,000,000	(23,281)	24,976,719	99.91%	5.492%	1,373,057
21	6.350%	Secured Taxable	NJAW	05/13/2009	05/13/2039	75,000,000	75,000,000	75,000,000	(69,841)	74,930,159	99.91%	6.357%	4,767,742
22	5.700%	Secured Tax Exempt	NJAW	10/20/2009	10/01/2039	134,225,000	134,225,000	134,225,000	(4,956,214)	129,268,786	96.31%	5.966%	8,007,526
23	5.000%	Secured Tax Exempt	NJAW	10/20/2009	10/01/2039	10,500,000	10,500,000	10,500,000	(629,143)	9,870,857	94.01%	5.406%	567,620
24	5.100%	Secured Tax Exempt	NJAW	07/09/2010	06/01/2023	24,700,000	24,700,000	24,700,000	(644,424)	24,055,576	97.39%	5.383%	1,329,503
25	4.450%	Secured Tax Exempt	NJAW	07/09/2010	06/01/2023	15,300,000	15,300,000	15,300,000	(547,712)	14,752,288	96.42%	4.826%	738,327
26	5.600%	Secured Tax Exempt	NJAW	07/09/2010	11/01/2034	110,000,000	110,000,000	110,000,000	(3,165,497)	106,834,503	97.12%	5.822%	6,404,201
27	4.700%	Secured Taxable	NJAW	11/01/2010	12/01/2025	40,000,000	40,000,000	40,000,000	(710,551)	39,289,449	98.22%	4.867%	1,946,895
28	4.875%	Secured Tax Exempt	NJAW	11/01/2010	11/01/2029	35,000,000	35,000,000	35,000,000	(1,033,962)	33,966,038	97.05%	5.120%	1,792,006
29	0.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2030	339,342	134,227	768,359	(53,012)	715,347	93.10%	0.364%	2,796
30	3.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2017	70,000	-	-	-	0	-	-	0
31	4.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2026	740,000	740,000	740,000	-	740,000	100.00%	4.000%	29,597
32	4.125%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2027	90,000	90,000	100,000	38,459	138,459	138.46%	1.507%	1,507
33	0.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2030	4,409,868	3,597,805	7,045,345	(63,086)	6,982,259	99.10%	0.046%	3,223
34	3.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2017	105,000	-	-	-	0	-	-	0
35	4.000%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2026	1,160,000	1,160,000	1,160,000	-	1,160,000	100.00%	4.000%	46,396
36	4.125%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2027	155,000	155,000	155,000	-	155,000	100.00%	4.125%	6,393
37	4.250%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2029	330,000	330,000	330,000	-	330,000	100.00%	4.250%	14,024
38	4.375%	Secured Tax Exempt	NJAW	12/01/2010	08/01/2030	175,000	175,000	175,000	-	175,000	100.00%	4.375%	7,656
39	0.000%	Secured Tax Exempt	NJAW	05/03/2012	08/01/2031	34,409,560	29,129,383	44,576,021	1,366,249	45,942,270	103.06%	-0.157%	(69,901)
40	4.000%	Secured Tax Exempt	NJAW	04/03/2012	08/01/2031	4,895,000	4,895,000	4,895,000	-	4,895,000	100.00%	4.000%	195,784
41	5.000%	Secured Tax Exempt	NJAW	04/03/2012	08/01/2030	9,280,000	9,280,000	9,280,000	-	9,280,000	100.00%	4.999%	463,946

**ROE and ROR Analysis for New Jersey-American Water
NJAWC and AWCC Issue NJAWC Debt**

Effective Cost of Long-Term Debt
Total Company

**Docket No. WR17090985
Exhibit MFG-4, Page 3 of 3**

Line No.	Nominal Rate	Description	Issuing Agent	Date of Issue	Date of Maturity	Proforma		Principal Amount Issued	Total Premium, Expense & Discount @ Issuance	Net Proceeds	Net Proceeds Ratio	Effective Cost Rate to Maturity	Annualized Int. Cost Effect Rate x Issue Amt
						Principal Amount Outstanding @ March 31, 2017	Principal Amount Outstanding @ September 30, 2018						
1	0.000%	Secured Tax Exempt	NJAW	05/03/2012	08/01/2030	3,017,265	2,518,704	4,372,590	108,452	4,481,042	102.48%	-0.134%	(5,870)
2	4.000%	Secured Tax Exempt	NJAW	04/03/2012	08/01/2031	415,000	415,000	415,000		415,000	100.00%	4.000%	16,599
3	5.000%	Secured Tax Exempt	NJAW	04/03/2012	08/01/2030	775,000	775,000	775,000		775,000	100.00%	4.999%	38,745
4	4.285%	Secured Taxable	NJAW	12/19/2012	12/19/2022	700,000	700,000	700,000		700,000	100.00%	4.285%	29,995
5	3.850%	Unsecured Taxable	AWCC	11/20/2013	3/1/2024	70,000,000	70,000,000	70,000,000	(1,666,642.94)	68,333,357	97.62%	4.136%	2,895,255
6	0.000%	Secured Tax Exempt	NJAW	04/03/2014	8/1/2033	4,140,622	3,326,145	5,421,834		5,421,834	100.00%	0.000%	0
7	3.000%	Secured Tax Exempt	NJAW	05/21/2014	8/1/2033	260,000	260,000	260,000		260,000	100.00%	3.000%	7,800
8	3.250%	Secured Tax Exempt	NJAW	05/21/2014	8/1/2033	550,000	550,000	550,000		550,000	100.00%	3.250%	17,874
9	3.500%	Secured Tax Exempt	NJAW	05/21/2014	8/1/2033	885,000	885,000	885,000		885,000	100.00%	3.500%	30,973
10	4.000%	Secured Tax Exempt	NJAW	05/21/2014	8/1/2033	1,110,000	1,110,000	1,775,000		1,775,000	100.00%	4.000%	70,994
11	5.000%	Secured Tax Exempt	NJAW	05/21/2014	8/1/2033	1,085,000	1,085,000	1,085,000	104,000.00	1,189,000	109.59%	4.263%	46,256
12	3.400%	Unsecured Taxable	AWCC	08/14/2014	3/1/2025	43,000,000	43,000,000	43,000,000	(413,475.13)	42,586,525	99.04%	3.510%	1,509,182
13	4.300%	Unsecured Taxable	AWCC	08/13/2015	9/1/2045	86,700,000	86,700,000	86,700,000	(2,050,380.19)	84,649,620	97.64%	4.443%	3,852,273
14	4.000%	Unsecured Taxable	AWCC	11/17/2016	12/1/2046	84,200,000	84,200,000	84,200,000	(1,585,232.93)	82,614,767	98.12%	4.110%	3,460,289
15	2.950%	Reissue for Called Debt	AWCC	08/10/2017	9/1/2027	-	56,756,562	56,756,562	(10,166,453.51)	46,590,108	82.09%	5.267%	2,989,107
16	4.265%	Shorelands	Assumed at acquisition	04/03/2017	8/1/2024	-	2,032,463	2,314,260	-	2,314,260	100.00%	4.264%	98,684
17	3.920%	Provident-Shorelands	Assumed at acquisition	04/03/2017	8/1/2020	-	3,300,000	3,300,000	(65,122.75)	3,234,877	98.03%	4.564%	150,621
18	1.000%	NJEIT Loans	NJAW	06/09/2017	6/30/2037	-	1,307,200	1,307,200	-	1,307,200	100.00%	1.000%	13,072
19	1.000%	NJEIT Loans	NJAW	06/09/2017	6/30/2037	-	1,185,160	1,185,160	-	1,185,160	100.00%	1.000%	11,852
20	1.000%	NJEIT Loans	NJAW	06/09/2017	6/30/2037	-	2,040,657	2,040,657	-	2,040,657	100.00%	1.000%	20,406
21	3.750%	New Issue	AWCC	08/10/2017	9/1/2047	-	60,296,000	60,296,000	(788,069.00)	59,507,931	98.69%	3.823%	2,305,370
22	1.000%	NJEIT Loans	NJAW	12/19/2017	12/19/2037	-	25,000,000	25,000,000	-	25,000,000	100.00%	1.000%	250,000
23	1.000%	NJEIT Loans	NJAW	01/15/2018	01/15/2038	-	21,800,000	21,800,000	-	21,800,000	100.00%	1.000%	218,000
24	4.230%	New Issue	AWCC	07/15/2018	7/15/2048	-	70,000,000	70,000,000	(914,900.00)	69,085,100	98.69%	4.308%	3,015,621
25						1,248,296,533	1,412,251,790	1,470,200,119	(40,759,394)	1,429,440,725		4.8677%	71,565,467