JEA
BOARD AGENDA

DATE: October 17, 2017

TIME: 1:00 PM

PLACE: JEA
21 West Church Street
19th Floor

I. WELCOME

A. Call to Order
B. Time of Reflection
C. Pledge to Flag
D. Adoption of the Agenda
E. Safety Briefing
F. Sunshine Law/Public Records Statement – Jody Brooks, Chief Legal Officer

II. PUBLIC HEARING

To Consider: To Modify the Electric Tariff Documentation and the Water and Sewer Rate Document

A. Call to Order and Comments from the Chair
B. Staff Presentation and Board Discussion – Melissa Dykes, Chief Financial Officer
C. Comments from the Public
Comments from the public at this time should only be related to the Public Hearing
D. Adjourn Public Hearing

III. ACTION ON PUBLIC HEARING

A. Public Hearing to Modify the Electric Tariff Documentation and the Water and Sewer Rate Document – action

IV. PRESENTATIONS AND COMMENTS

A. Comments from the Public
B. Council Liaison's Comments – Matt Schellenberg
C. Office of the Mayor Liaison's Comments – Dr. Johnny Gaffney

D. Nassau County's Ex-Officio Representative's Comments – Mike Mullin

E. Customer Experience – Lessons Learned from Hurricane Irma – Kerri Stewart, Chief Customer Officer

F. MOSH Power Play Exhibit – Kerri Stewart, Chief Customer Officer

V. FOR BOARD CONSIDERATION

A. Consent Agenda – The Consent Agenda consists of agenda items that require Board approval but are routine in nature, or have been discussed during previous public meetings of the Board. The Consent Agenda items require no explanation, discussion or presentation, and are approved by one motion and vote.

1. Approval of Board Meeting Minutes August 15, 2017 – action
2. Approval of Board Meeting Minutes September 19, 2017 – action
3. JEA Early Debt Retirement Update – information
4. Sole Source and Emergency Procurement/Procurement Appeals Board Report – information
5. Directors' & Officers' Liability Insurance – information
6. JEA Economic Impact Analysis – information
7. Monthly JEA Financial Review & Statements – information
8. Monthly JEA Operations Report – information
9. J. D. Power Wave 1 Business Customer Satisfaction Results – information
10. Monthly FY17 Communications & Engagement Calendar and Plan Update – information

B. Strategic Discussions/Action

1. JEA Energy Mix Policy – Mike Brost, Vice President/General Manager, Electric Systems – 10 minutes – presentation/action
2. Universal Solar Expansion and Land Acquisition – Mike Brost, Vice President/General Manager, Electric Systems – 10 minutes – presentation/action
3. Distributed Generation Policy and Proposed Battery Incentive Program – Steve McInall, Director, Electric Production Resource Planning – 10 minutes – presentation/action
4. Approval of Resolution: FY2018 Budgetary Transfers – Melissa Dykes, Chief Financial Officer – 5 minutes – presentation/action
5. JEA Sewer System: Framework to Resiliency Update – Brian Roche, Vice President/General Manager, Water/Wastewater Systems – 15 minutes – presentation/information

6. JEA Five-Year Financial Assumptions and Projections FY2018 - FY2022 – Melissa Dykes, Chief Financial Officer – 10 minutes – presentation/information
7. Monthly Operational and Financial Review – Melissa Dykes, Chief Financial Officer – 10 minutes – presentation/information

C. Open Discussion

D. Other New Business

E. Old Business – none

VI. REPORTS

A. Managing Director/CEO's Report

B. Chair's Report

VII. CLOSING CONSIDERATIONS

A. Announcements – Next Board Meeting November 28, 2017

B. Adjournment

Board Calendar

Board Meetings:	12:00 PM – Third Tuesday of Every Month
	Exceptions: November 28, 2017 and December 12, 2017
Committees:	
Finance & Audit Committee:	December 5, 2017 – 12:00 PM
Compensation Committee:	TBD
Government Affairs Committee:	TBD

A. If you have a disability that requires reasonable accommodations to participate in the above meeting, please call **665-7550** by **8:30 AM** the day before the meeting and we will provide reasonable assistance for you.

B. If a person decides to appeal any decision made by the JEA Board with respect to any matter considered at this meeting, that person will need a record of the proceedings, and, for such purpose, needs to ensure that verbatim record of the proceedings is made, which record includes the evidence and testimony upon which the appeal is to be based.

Building Community

INTER-OFFICE CORRESPONDENCE
October 11, 2017

SUBJECT:	**BOARD MEETING AGENDA**
FROM:	Melissa Charleroy and Cheryl Mock, JEA Executive Assistants
TO:	All Members, JEA Board of Directors

Scheduled times and locations for JEA meetings to be held ***Tuesday, October 17, 2017,*** are as follows:

12:00 PM	**Board Workshop on JEA's Vision for a Brighter Energy Future** **19th Floor, JEA Tower**
1:00 PM	**Board Meeting and Public Hearing to Modify the Electric Tariff Documentation and the Water and Sewer Rate Document** **19th Floor, JEA Tower**

We are looking forward to seeing you on the 17th. Please call Melissa Charleroy at 665-7313 or Cheryl Mock at 665-4202 if you require additional information.

/mmc

cc:

P. McElroy	M. Hightower	S. Tuten	W. Stanford
J. Brooks	T. Hobson	M. Charleroy	M. Evans
M. Brost	B. Roche	C. Mock	J. Gutos
P. Cosgrave	K. Stewart	B. Taylor	L. Bartley
M. Dykes	J. Bryant	M. Ruiz-Adams	S. Datz
A. Hiers	G. Boyce	D. Swain	J. Gabriel, OGC

e-copy:
Brandon Edwards
Security Desk
Security Office
Brandi Sneed
Russell Park
Ted Delay
Timothy Chrisp

I. F.

Sunshine Law/Public Records Statement

Return to Agenda

Florida's Government in the Sunshine Law
Office of General Counsel

This meeting is being held in compliance with Florida's Government in the Sunshine Law, §286.011, Florida Statutes, and shall be open to the public at all times. Official acts of the JEA Board may be conducted at this meeting that will be considered binding on the JEA. Reasonable notice has been provided and minutes of this meeting shall be taken and promptly recorded.

II. B.

Public Hearing Staff Presentation and Board Discussion

Return to Agenda

Rate Hearing

JEA Board of Directors Meeting

October 17, 2017

JEA SolarMax Rider

JEA's Vision for a Brighter Energy Future

JEA SolarMax will provide large corporate users with renewable energy initiatives an alternative to rooftop solar by offering the opportunity to enter into long-term solar energy agreements for all or a portion of their energy needs. This option provides large customers the ability to participate in solar development within the JEA service territory, making solar more available to all customers.

JEA SolarMax is available to customers requesting a minimum of 7,000,000 kWh of solar energy annually, expiring September 30, 2019

- The customer will enter into a five- or ten-year agreement with JEA to purchase a percent of their monthly energy from JEA solar sources
- The customer will be billed at the applicable retail rate, and the elected SolarMax energy will be charged at the pass-through cost of energy associated with a specific installation in lieu of the levelized fuel charge

Leachate

- JEA's Buckman Wastewater Treatment Facility (Buckman) treats the majority of biosolids produced at JEA's other regional wastewater treatment facilities, as well as landfill leachate from the City of Jacksonville's two primary landfills.
- The original relationship involved reciprocal treatment services provided by each entity for the benefit of the other where the City delivered landfill leachate to JEA and JEA delivered solids from its wastewater treatment processes for landfill disposal by the City.
- JEA engaged Burton & Associates, now a part of Stantec, to identify and analyze the costs associated with treatment of this landfill leachate.
- Two significant changes necessitate a review and update of JEA's charges for treatment of landfill leachate: operational issues at Buckman and JEA's solids management processes.
    - Solids are now being processed for beneficial reuse, and are no longer delivered to the City's landfills.
    - JEA is currently evaluating a replacement system for the treatment of biosolids, including the landfill leachate.
- The outcome of this study could have a substantial impact on the capital recovery portion of the cost of service.

*The rate proposed for FY2018 is **$5.16** per 100 gallons to collect the marginal cost of leachate treatment.*

JEA and the City will endeavor to create a recovery mechanism for the capital components of the rate once a new treatment process has been designed and engineered, which will collect the full cost of service, to be implemented in FY2019.

Cost Component	Cost (Per 100 Gal)
UV Energy Costs	$2.11
UV Technician	$1.62
UV Bulbs	$0.78
Strength Costs	$0.65
Total:	**$5.16**

Recommendation

Staff recommends, pending the outcome of the public hearing, that the Board adopt the attached Resolution 2017-33 and its attachments (see Exhibits II through III) prepared by staff and approved by the Chief Legal Officer to document the action taken.

1. JEA SolarMax Rider

2. Leachate waste rate

All changes proposed to be effective November 1st 2017

III. A.

Public Hearing to Modify the Electric Documentation and the Water and Sewer Rate Document

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**PUBLIC HEARING TO MODIFY THE ELECTRIC TARIFF DOCUMENTATION AND THE WATER AND SEWER RATE DOCUMENT**

Purpose: ☐ Information Only ☒ Action Required ☐ Advice/Direction

Issue: JEA has an ongoing plan to review, update, and where possible, expand its rate options to provide customers more rate choices for their utility services.

Significance:

SEE ATTACHED

Effect:

MEMORANDUM FOR

Cost or Benefit:

DETAILS

Recommended Board action: Staff recommends, pending the outcome of the public hearing, that the Board adopt the attached Resolution 2017-33 and its attachments (see Exhibits II through III) prepared by staff and approved by the Chief Legal Officer to document the action taken.

For additional information, contact: Melissa Dykes

Submitted by: PEM/MHD/RFW

Building Community

INTER-OFFICE MEMORANDUM

October 2, 2017

SUBJECT:	**PUBLIC HEARING TO MODIFY THE ELECTRIC TARIFF DOCUMENTATION AND THE WATER AND SEWER RATE DOCUMENT**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
JEA continues to review, update, and where possible, expand its rate options to provide customers more choices for their utility services.

As a part of JEA's vision for a brighter energy future, a new customer option has been developed: JEA SolarMax. This option will provide large corporate users with renewable energy initiatives an alternative to rooftop solar by offering the opportunity to enter into long-term solar energy agreements for all or a portion of their energy needs. Additionally, this option provides large customers the ability to participate in solar development within the JEA service territory, making solar more available to all customers.

As discussed in August, JEA is addressing the rate charged for leachate waste. JEA's Buckman Wastewater Treatment Facility (Buckman) treats the majority of biosolids produced at JEA's other regional wastewater treatment facilities, as well as landfill leachate from the City of Jacksonville's two primary landfills. The City has relied on JEA for these treatment services for many years. The original relationship involved reciprocal treatment services provided by each entity for the benefit of the other. The City delivered landfill leachate to JEA, and JEA delivered solids from its wastewater treatment processes for landfill disposal by the City.

JEA engaged Burton & Associates, now a part of Stantec, to identify and analyze the costs associated with treatment of this landfill leachate. Two significant changes necessitate a review and update of JEA's charges for treatment of landfill leachate: operational issues at Buckman and JEA's solids management processes. Solids are now being processed for beneficial reuse and are no longer delivered to the City's landfills.

JEA is currently evaluating a replacement system for the treatment of biosolids, including the landfill leachate. The outcome of this study could have a substantial impact on the capital recovery portion of the cost of service.

DISCUSSION:
During the public hearing, staff will present the following proposed changes:

A. **JEA SolarMax Rider** – This new option is available to customers requesting a minimum of 7,000,000 kWh of solar energy annually, expiring September 30, 2019.
- The customer will enter into a five- or ten-year agreement with JEA to purchase a percent of their monthly energy from JEA solar sources
- The customer will be billed at the applicable retail rate, and the elected SolarMax energy will be charged at the pass-through cost of energy associated with a specific installation in lieu of the levelized fuel charge

B. **Leachate** – Staff recommends a two-step process for adjusting the rate for leachate waste. The rate proposed for FY2018 is $5.16 per 100 gallons to collect the marginal cost of leachate treatment. This rate does not include recovery for the capital assets needed to treat the landfill leachate. JEA and the City will endeavor to create a recovery mechanism for the capital components of the rate once a new treatment process has been designed and engineered, which will collect the full cost of service, to be implemented in FY2019.

Staff has submitted all Electric Tariff Documentation changes to the Florida Public Service Commission.

RECOMMENDATION:

Staff recommends, pending the outcome of the public hearing, that the Board adopt the attached Resolution 2017-33 and its attachments (see Exhibits II through III) prepared by staff and approved by the Chief Legal Officer to document the action taken.

_____

Paul E. McElroy, Managing Director/CEO

PEM/MHD/RFW

RESOLUTION 2017-33

A RESOLUTION REGARDING RATE SCHEDULE CHANGES AND ADDITIONS TO THE EXISTING ELECTRIC TARIFF DOCUMENTATION AND WATER AND SEWER RATE DOCUMENT; CONDUCTING A PUBLIC HEARING AND FINDING THE MODIFICATIONS OF THE TARIFF DOCUMENTATION AND RATE DOCUMENT TO BE REASONABLE; IMPOSING THESE MODIFICATIONS FOLLOWING THE PUBLIC HEARING; PROVIDING FOR THE IMPLEMENTATION OF THESE MODIFICATIONS, AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, JEA, pursuant to duly published notice, a copy of which is attached hereto as **Exhibit I**, held a public hearing to consider changes to the existing Electric Tariff Documentation to create the JEA SolarMax Rider and the Water and Sewer Rate Document to create a new rate for leachate waste; and

WHEREAS, at that public hearing JEA presented statements and documentation which demonstrated the requested modifications of the existing Electric Tariff Documentation and the Water and Sewer Rate Document; and

WHEREAS, rate matters addressed at the public hearing were: creation of the SolarMax Rider, and creation of a new rate for leachate waste; and

WHEREAS, any public testimony which was presented at the Public Hearing was considered; and

WHEREAS, JEA has heard all presentations, reviewed all documentation and is fully advised of the premises; now therefore:

BE IT RESOLVED by JEA:

1. Modifications to the JEA Electric Tariff Documentation creating the SolarMax Rider, copies of which are attached hereto as **Exhibit II**, and incorporated herein by reference, are hereby found to be reasonable, and accordingly are adopted effective November 1, 2017.

2. Modifications to the JEA Water and Sewer Rate Document creating a new rate for leachate waste, a copy of which is attached hereto as **Exhibit III**, and incorporated herein by reference, are hereby found to be reasonable, and accordingly are adopted effective November 1, 2017.

3. Staff is authorized to take any necessary administrative actions to implement the approved JEA Electric Tariff Documentation and Water and Sewer Rate Document modifications.

4. This Resolution shall be effective immediately upon passage by the Board.

Dated this 17th day of October, 2017.

JEA

By: _____
Alan Howard, Chair

Form Approved:

By: _____
Jody Brooks, JEA Chief Legal Officer

Notice of Public Hearing

JEA continues to review, update, and where possible, expand its rate options to provide customers more choices for their utility services. The following actions, if passed, could result in bill changes and modifications to bring rates more in line with costs and best practices.

JEA will conduct a public hearing at 12 p.m., or as soon thereafter as the matter may be heard, on Tuesday, October 17, 2017 at the JEA Tower, 21 West Church St., Jacksonville, Florida 32202, to consider the following:

A. Modification of the Electric Rate Documentation creating the SolarMax Rider and;
B. Modification of the Water and Sewer Rate Document creating a new rate for leachate waste

The public is invited to be present and heard. If any person with a disability requires reasonable accommodations to participate in the above hearing, please call (904) 665-7550 no later than three (3) days before the meeting.

If a person decides to appeal any decisions made by JEA with respect to any matter considered at the proceedings, for the purpose of such appeal, that person will need a record of the proceedings and for such purpose, that person may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Alan Howard
Chair

Form Approved:

Jody Brooks, Chief Legal Officer

EXHIBIT I

III. A.
10/17/2017

ELECTRIC TARIFF DOCUMENTATION

VOLUME 1

JEA
21 W. Church St.
Jacksonville, Florida 32202-3139
(904) 665-6000

DESCRIPTION OF TERRITORY SERVED

JEA furnishes retail electric service to the major portion of Duval County, including the City of Atlantic Beach and the Town of Baldwin. In addition, JEA provides retail electric service to the Town of Orange Park, to parts of St. Johns and Clay Counties and wholesale electric service to the City of Fernandina Beach.

Submitted to the Public Service Commission

Approved by the JEA Board
~~**November 15, 2016**~~**October 17, 2017**

TABLE OF CONTENTS

(Continued from Sheet No. 4.0)

Rate Schedule Designations		Sheet Number
SL	Street Lighting	13.0
JSSR	JEA SolarSmart Rider	15.00
JSMR	JEA SolarMax Rider	15.10
MA	Multiple Account Load Factor Improvement Rider	16.00
GSLDR-5	General Service Large Demand Rider (Closed to new customers)	16.10
GSXLD	General Service Extra Large Demand Rider	16.20
LDI	Load Density Improvement Rider (Closed to new customers)	16.30
IS	Interruptible Service Rider	16.40
CS	Curtailable Service Rider	16.50
EDP	Economic Development Rider	17.00
ES	Economic Stimulus Rider	18.00
OS	Unmetered Miscellaneous Service for Traffic Signals and Other Uses	22.0
	Disclaimer	23.0

EXCESS REACTIVE DEMAND (KVAR) POLICY

Effective October 1, 2006:

This policy applies to all accounts receiving service under GSD, GSDT, GSLD, GSLDT, GSXLD, IS, CS, and the Multiple Account Rider as applied to any of these rates.

The customer's utilization equipment shall not result in a target power factor (TPF) at the point of delivery of less than ninety percent (90%) lagging at the time of maximum demand. Should this TPF be less than ninety percent (90%) lagging during any month, JEA may adjust the readings taken to determine the Total Demand.

If TPF is less than ninety percent (90%) lagging then the Billing Demand (BD) is calculated using the following formula:

BD = Maximum measured 15-minute demand (kW) X (TPF / PF)

PF = power factor calculated per the following formula

PF = COS(ATAN(kVar/kW)

kVar in the above formula is the kVar measured coincident with the maximum 15-minute kW demand used in the formula. For GSDT and GSLDT the off-peak demand will be used for determining Excess Reactive Demand.

ENVIRONMENTAL CHARGE

Effective October 1, 2007

This Environmental Charge applies to all rate classes. The said energy charge stated in each rate schedule for each kilowatt hour billed in accordance with JEA's normal billing cycle shall be increased by the Environmental Charge per kilowatt hour as indicated below.

Rate for all rate classes = $0.00062 per kWh

JEA SolarSmart and SolarMax kWh as defined on Sheet No. 15.0 and 15.1 are exempt from Environmental Charge.

NET METERING

Effective October 1, 2009

Net metering is authorized for residential and commercial customers in accordance with JEA's Net Metering Policy.

EXHIBIT II

JEA SOLARMAX RIDER
(Expires 9/30/2019)

AVAILABLE:

In all territory served by JEA

APPLICABLE:

Available upon request to any customer that enters into a JEA SolarMax Rate Agreement (Agreement) and meets the following conditions:

a) Minimum 7,000,000 kWh of annual solar power purchases requested at time of Agreement execution
b) No delinquent account balance
c) Not taking service under a time of day rate schedule

RATE PER MONTH:
Charges per month shall consist of the basic monthly, demand, energy, fuel and environmental charges per the applicable rate schedule as modified below:

Fuel Charge: JEA SolarMax kWh will be billed at the price set forth in the Agreement

Remaining kWh not selected as JEA SolarMax will be billed at the Levelized Fuel Rate as stated in the Fuel and Purchased Power Cost Recovery Charge Policy (Sheet No. 5.0).

Environmental Charge: JEA SolarMax kWh are exempt from the Environmental Charge (Sheet No. 5.1)

Definition of JEA SolarMax kWh: The elected percentage of total kWh per billing period rounded to the nearest kWh as set forth in the Agreement

TERMS AND CONDITIONS:

(a) Customers may elect to receive up to 100% of their energy from JEA solar energy sources.

(b) Customers may enroll at any time.

(c) New solar installations are subject to JEA's system limitations and operational limits of solar power within JEA's service territory.

(d) Energy produced from JEA solar sources may not be specifically delivered to the customer.

(e) Any Fuel Credit, approved by JEA's Board, will be calculated using the total kWh less JEA SolarMax kWh in the month a credit is given.

(Continued from Sheet No. 17.1)

Term of Service

a) Service under this rider shall be for at least six (6) years but not more than eight (8) years for projects greater than 5,000 kW, from the commencement of service and will terminate at the end of the final year.

b) JEA may terminate service under this Rider if the Customer fails to maintain the full-time employees and/or the Customer fails to take the required amount of metered demand specified in the Economic Development Program Rider Service Agreement. If JEA elects to terminate the Economic Development Program Rider Service Agreement for noncompliance with Rider EDP, the Customer is no longer entitled to discounts provided by Rider EDP.

c) Customers desiring to terminate service under this rider will be required to give JEA thirty (30) days written notice. If the Customer elects to terminate the Economic Development Program Rider Service Agreement the Customer is no longer entitled to discounts provided by Rider EDP.

Terms and Conditions

a) Service hereunder shall be subject to the Rules and Regulations of JEA.

b) Service under this Rider shall not be available where the service is provided solely or predominately for:
   1) Multi-tenant residential or commercial properties
   2) Any service deemed “Temporary”

c) A name change or other superficial change at an existing location, where the ownership and/or control over the premise is not changed, will not be considered as a new Customer.

d) If a change of ownership of the same business occurs after the Customer has initiated an Economic Development Program Rider Service Agreement, the successor Customer may be allowed to continue the balance of the agreement provided there are no reductions in employment or metered demand.

e) This Rider is not available for load shifted between service delivery points within JEA’s service territory.

f) This Rider is not available for renewal or extension beyond the date listed in the Economic Development Program Rider Service Agreement.

g) Election of this Rider will preclude the election of any other JEA Rider, with the exception of JEA SolarSmart or SolarMax Riders, for new metered demand.

h) Customer must maintain their JEA account in a current status. JEA retains the right to terminate this Rider at any time if Customer is classified as a “High Risk Customer” as defined in JEA Procedure MBC 302 Credit & Collections

JEA SOLARMAX RATE AGREEMENT

In accordance with the following terms and conditions, _____

(hereinafter called the Customer), requests on this _____day of_____, _____from

JEA, solar power purchases from _____ installation

located in _____, Florida.

a) Customer agrees to one of the following terms for solar energy purchases
   a. _____ 5 years
   b. _____ 10 years

b) Percent of total monthly energy elected to come from JEA solar sources _____%

c) Price in ¢/kWh for elected JEA SolarMax kWh for the term of the Agreement:

Year	1	2	3	4	5	6*	7*	8*	9*	10*
PPA Price										
Administrative Cost Recovery										
Total ¢/kWh										

*For a 5 year term, years 6-10 not applicable

JEA AGREES:

1. To provide kWh identified above, in accordance with the terms of JEA's currently effective JEA SolarMax Rider on file at the Florida Public Service Commission (FPSC) or any successive JEA SolarMax Rider approved by the FPSC.

THE CUSTOMER AGREES:

1. To be responsible for paying, when due, all bills rendered by JEA pursuant to JEA's currently effective JEA SolarMax Rider on file at the FPSC or any successive JEA SolarMax Rider approved by the FPSC, for service provided in accordance with this Agreement.

IT IS MUTUALLY AGREED THAT:

1. This Agreement shall be for a term as selected above from the date of initiation of service. The date of initiation of service shall be the latter of the first day of the Customer billing period following the commercial operating date of the installation, or the date of this Agreement.
2. JEA shall assign to the Customer all Renewable Energy Credits associated with the JEA SolarMax kWh purchased by the Customer and are thereby the possession of the Customer.
3. This Agreement shall be transferable to facilities with a similar load owned or leased by the Customer upon (90) ninety days advance written notice to JEA.
4. The Customer's ability to continue receiving the JEA SolarMax Rider terminates upon the termination of this Agreement.

(Continue on Sheet 35.1)

EXHIBIT II

(Continued from Sheet 35.0)

5. This Agreement shall inure to the benefit of, and be binding upon the successors and assigns of the Customer and JEA.
6. This Agreement is subject to JEA's Electric Tariff Documentation, as now written, or as may be hereafter revised, amended or supplemented. In the event of any conflict between the terms of this Agreement and the provisions of the JEA Electric Tariff Documentation, the provisions of the Electric Tariff Documentation shall control, as now written, or as may be hereafter revised, amended or supplemented.

IN WITNESS WHEREOF, the parties herby caused this Agreement to be executed by their duly authorized representatives to be effective as of the day and year first written above.

Rate and Terms Accepted:

_____	JEA
Customer (Print or type name of Organization)	
By: _____	By:_____
Signature (Authorized Representative)	(Signature)
_____	_____
(Print or type name)	(Print or type name)
Title:_____	Title:_____

WATER AND SEWER

RATE DOCUMENT

JEA

21 West Church St.
Jacksonville, FL 32202
(904) 665-6000

DESCRIPTION OF TERRITORY SERVED

JEA furnishes retail and wholesale potable and reclaimed water and sewer services to major portions of Duval County and some portions of St. Johns, Clay, and Nassau cCounties.

Approved by the JEA Board

~~July 21, 2015~~October 17, 2017

Ryan Wannemacher, Director
Financial Planning, Budgets and Rates

Effective ~~October~~ November 1, ~~2015~~2017

EXHIBIT III

The surcharge shall consist of an amount calculated according to the following formula:

S = Vs x {$0.0008031 (COD - 650) + $0.0009810 (SS - 300)}

Where:

S = surcharge in dollars;

Vs = sewage volume in ~~-~~kgal~~-~~;

$0.0008031 = unit charge factor for COD based on 9.629 cents per pound of COD;

COD = chemical oxygen demand strength index in parts per million by weight;

650 = allowable COD strength under normal volume charges in parts per million by weight;

$0.0009810 = unit charge factor for suspended solids based upon 11.763 cents per pound of suspended solids; and

SS = suspended solids strength index.

The amount of the surcharge for the use of JEA's sewer system shall be separately stated as a part of the total sewer service charge for the billing period and shall be payable, collectible and enforceable in the manner provided for sewer service charges. Unless otherwise required by JEA for compliance with local, s~~S~~tate and federal law or regulations, each customer to which this surcharge applies shall submit, on a monthly basis, a laboratory analysis of such scope as to permit JEA to render an accurate billing of this charge as provided herein.

Each sewer customer to which this surcharge could apply that does not submit a laboratory analysis shall be charged a sewer surcharge based upon the average surcharge factors of other customers who have the same property use code as assigned by the Duval County Property Appraiser's Office or based upon factors assigned by JEA until reporting of actual surcharge factors are provided by the sewer customer.

403 - Scavenger and Leachate Waste Charges

(a) Scavenger wastes, as described in JEA Rules and Regulations for Water and Sewer Service, may be disposed of at a JEA sewage treatment plant after approval of JEA and with prior payment of a charge of $4.49~~-~~ for each 100 gallons of waste based on the full capacity of each vehicle for each discharge. There shall be a minimum fee of $ 30.00 for each discharge.

(b) Leachate waste may be disposed of at a JEA sewage treatment plant after approval of JEA at a charge of $5.16 per 100 gallons of waste based on the full capacity of each vehicle for each discharge.

IV. E.

Customer Experience – Lessons Learned from Hurricane Irma

Enhance Electric Outage Communications

Lessons Learned from Hurricane Irma

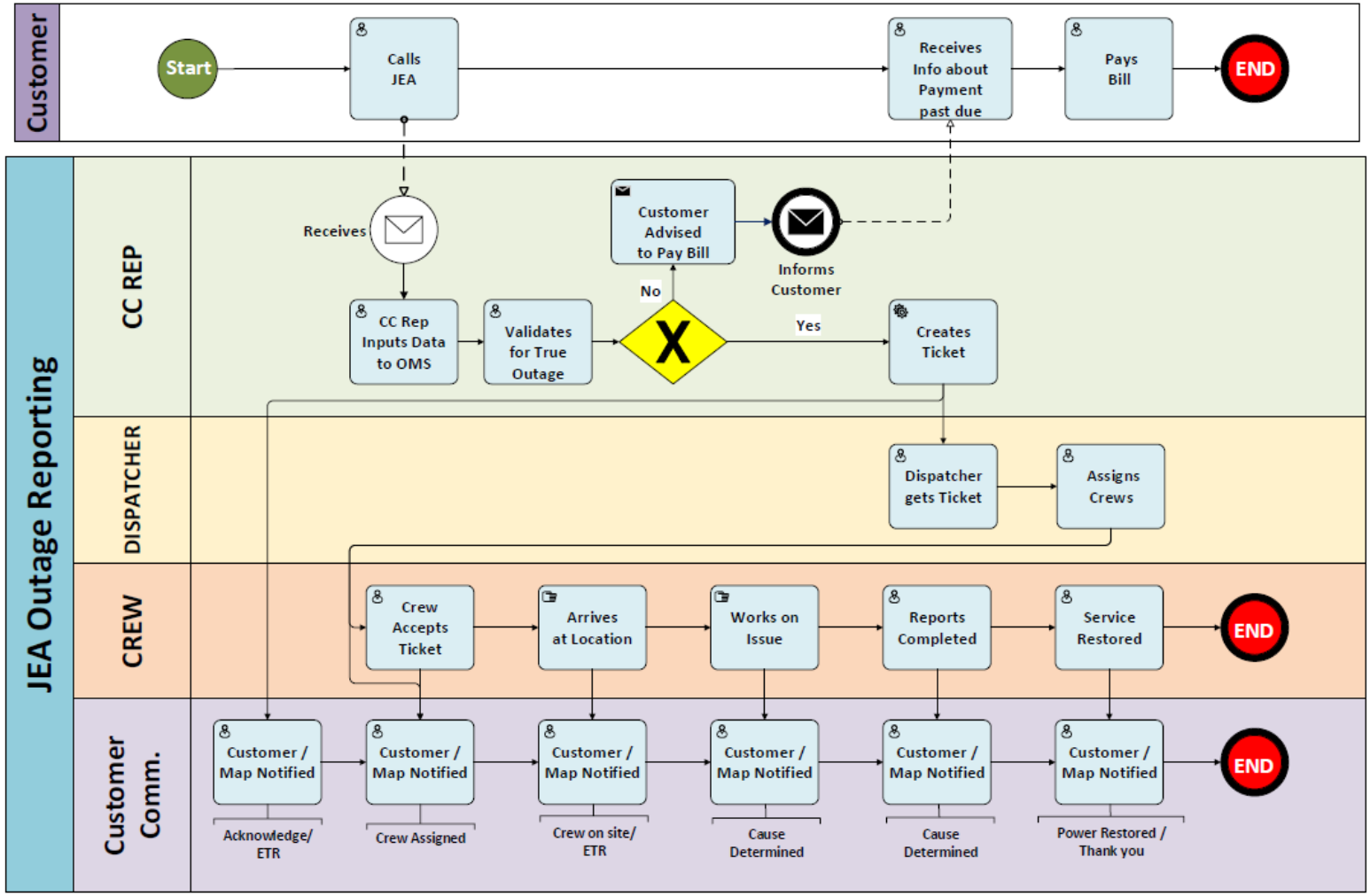
JEA Board of Directors

October 17, 2017

Customer Experience Outage Communications Vision

Our vision is to provide customers who are experiencing an outage with timely, accurate information through their preferred channel in such a way as to eliminate or reduce the stress caused by having the outage. Because JEA is their trusted advisor when it comes to power outages, they can rest assured that they will have the information they need to make key decisions for their family, their property or their business.

High Level Process Map for JEA Outage Reporting Process



High Level Outage Reporting Process Chart Ver1

Printed on: 2/13/2017

Critical Functions by Area

Customer Experience

- Consistency of content across all channels—voice, email, text, map (Acknowledgement, ETRs, Crew Status, Cause, Number of Customers Affected, Safety)
- IVR-create tickets, updates, alert opt-in
- jea.com-create tickets, updates, alert sign-up
- Alerts and map branding
- Alerts sent
- CCC education
- Critical issues related to specific business segments (critical care, etc.)
- Text out
- CCC enters tickets

Electric System

- Generates tickets
- Validates outage
- Assigns crews
- Reassigns tickets
- Groups tickets
- Updates ETRs
- Updates Status
- Updates Cause
- Closes tickets
- Manages system switching
- Input data into connectivity model
- Determine outage at circuit level
- Determine number of customers affected
- Accurate data

Finance/GIS

- Manages database structure for connectivity model

Supported by Technology Services

Critical Systems by Area

Customer Experience

- IVR
- jea.com
- FMS Web
- Ifactor
- Message Broadcast
- FMS-TA

Electric System

- FMS
- OMS
- CAD
- SCADA
- Data

Finance/GIS

- GIS

Supported by Technology Services

Top 3 Communication Concerns During Irma

- Some customers received inaccurate information about their restoration status when they went on-line to look at their accounts or called 665-6000.

- Many customers were relying on the outage map for specific information related to their specific outage and were disappointed with the information provided.

- Some customers received proactive notices (emails and automated phone calls) that were either inaccurate or misleading about ETRs.

Lessons Learned from Hurricane Irma

Issue: Customers received inaccurate information about their restoration status (ETRs) when they went on-line to look at their accounts or called 665-6000.

Improved Customer Experience Recommendation for Evaluation:

- Recommend that automated individual ETRs are turned off the day the storm is predicted to reach our territory and a global restoration message is on all outages until after the post-storm-strike assessment has been done.

- The Electric Systems team: generates tickets, validates outages, assigns crews, reassigns tickets, groups tickets, updates ETRs, updates status, updates cause, closes tickets, manages system switching, inputs data into connectivity model, determines outage at circuit level, and determines number of customers affected. In order to provide consistency of content across all channels – voice, email, map, text, social media, the underlying work-order systems must be functioning and updated timely and accurately.

- Customer satisfaction improves when providing more points information about an outage (acknowledgements, ETRs, crew status, cause, number of customers affected, safety, etc.). System(s) of record for each of these points of information need to be agreed upon and the data fields within the identified system(s) should be audited for verbiage used/displayed (e.g. 'under assessment') for accuracy/clarity of the data.

Lessons Learned from Hurricane Irma

Issue: During Hurricane Irma, many customers were relying on the outage map for specific information related to their specific outage and were disappointed with the information provided.

Improved Customer Experience Recommendation for Evaluation:

- A decision matrix should be established for if and when the JEA.com outage map should be switched from automated to manual mode and when switched, when to switch back to “blue sky” mode.

- The recommendation, if OMS, SCADA, IVR and phones are down meaning any one of these systems are not functioning, is to switch the map to manual mode and the numbers that should have been displayed (from OMS) would be entered manually into the zip code format. JEA.com language accompanying the map and CCC scripts should strongly recommend that customers log into their account to check the status of their service directly rather than using the outage map for individual account information.

- If the map has been switched to a manual mode, the map would be returned to normal mode as soon as OMS, SCADA, IVR and phones are restored with individual ETRs being given by circuit based on information from assessment process and number of crew available to complete restoration. Also recommend that ETR for a circuit be based on restoration of worst/last customer.

Lessons Learned from Irma

Issue: Customers received proactive notices (emails and automated phone calls) that were either inaccurate or misleading about ETRs.

Improved Customer Experience Recommendation for Evaluation:

- Strict adherence to approved content for e-mails, automated calls and CCC scripts.
- In the instance of an extreme event, either more resources need to be assigned to SOCC for information to be updated timely and accurately; or an agreed upon, documented, manual workaround needs to be established before the event and adhered to during the event.
- Recommend that updates—to both the map and customers— are only uploaded/sent when a circuit is completely restored.
- Recommend that ETR for a circuit be based on restoration of worst/last customer. From a customer experience perspective, waiting a little longer to get your restoration message is preferable to getting one when your power is still out or getting multiple messages.

Return to Agenda

IV.F.

MOSH POWER PLAY EXHIBIT

A presentation will be provided at the October 17, 2017 JEA Board Meeting

Return to Agenda

V. A. 1.

Approval of Board Meeting Minutes August 15, 2017

JEA
BOARD MINUTES
August 15, 2017

The JEA Board met in regular session on Tuesday, August 15, 2017, on the 19th Floor, 21 W. Church Street, Jacksonville, Florida. Present were Alan Howard, Frederick Newbill, Tom Petway, Husein Cumber and Kelly Flanagan. Delores Kesler attended telephonically.

Agenda Item I – Welcome

A. The meeting was **called to order** at 12:02 PM by Chair Howard.

B. A **Moment of Reflection** was observed by all.

C. The **Pledge of Allegiance** was led by Chair Howard.

D. **Adoption of Agenda** – The agenda was approved on **motion** by Secretary Newbill and second by Mr. Cumber.

E. The **Safety Briefing** was given by Paul McElroy, Managing Director/Chief Executive Officer.

F. **Sunshine Law/Public Records Statement** – Jody Brooks, Chief Legal Officer, stated this Board Meeting is being held in compliance with Florida's Government in the Sunshine Law, §286.011. The complete statement can be found in section I. F. of the Board package.

Agenda Item II – Presentations and Comments

A. **Comments from the Public** –

1. Diane Royal, addressed the Board regarding smart meters.

2. Scott Kennelly, addressed the Board regarding smart meters and water quality.

B. **Council Liaison's Comments** – Council Member Matt Schellenberg thanked the JEA staff for providing a review of the JEA FY2018 budget prior to the August 18, 2017 City Council Finance Committee budget meeting.

C. **Office of the Mayor Liaison's Comments –** Dr. Gaffney advised the Board that the Mayor sends his thanks and appreciation for the hard work of the JEA employees.

D. **Nassau County's Ex-Officio Representative's Comments –** Mr. Mullin was not in attendance.

E. **2017 J. D. Power Electric Residential Results –** Kerri Stewart, Chief Customer Officer, provided an overview of the six drivers that are part of the J.D. Power Residential Results including Power Quality & Reliability, Price, Billing & Payment, Corporate Citizenship, Communications and Customer Service and JEA's final results for the year. Ms. Stewart advised that, overall, JEA's score increased by 44 points to 747, ranking JEA in the top quartile.

F. **JEA Billing & Collections** – Kerri Stewart, Chief Customer Officer, provided the Board with an overview of JEA's timeline for billing and collection. Ms. Stewart also advised of various forms of communication used to alert customers of pending disconnection, the payment extension options, and bill management options provided to customers to assist them in managing their accounts.

Agenda Item V – For Board Consideration

A. Consent Agenda – used for items that require no explanation, discussion or presentation and are approved by one motion and vote. On **motion** by Ms. Flanagan and second by Secretary Newbill, item 1 on the Consent Agenda was unanimously approved and items 2 through 4 were received for information.

1. Approval of Board Meeting Minutes July 18, 2017 – approved
2. Monthly JEA Financial Review & Statements – received for information
3. Monthly JEA Operations Report – received for information
4. Monthly FY17 Communications & Engagement Calendar and Plan Update – received for information

B. Strategic Discussions/Action

1. Cedar Bay Transmission Service Conversion – Mike Brost, Vice President/General Manager, Electric Systems, advised the Board of Amendment #2 to Interconnection and Transmission Service Agreement to convert the existing transmission service provided by the Cedar Bay Agreement to transmission service under JEA's Board approved Open Access Transmission Tariff (OATT). Mr. Brost advised that there would be no change in the character of service or price. On **motion** by Ms. Flanagan and second by Mr. Petway, the Amendment was approved by the Board.
2. Water Supply Sustainability Plan – Brian Roche, Vice President/General Manager, Water/Wastewater Systems, provided the Board with a history of the JEA Water/ Wastewater department. Mr. Roche advised the Board of the current water supply and conditions JEA must meet to maintain permits from the St. Johns River Water Management District. Mr. Roche provided information on JEA's significant investments to increase water supply capacity, JEA's implementation of the Total Water Management Plan and how innovative application of technologies will help with future water demand. This item was received for information.
3. Recommendation to Call a Public Hearing to Modify the Water and Sewer Rate Document – Melissa Dykes, Chief Financial Officer, explained to the Board that JEA and the City of Jacksonville previously entered into an agreement whereby the City would process JEA's solid waste and JEA would process the City's landfill leachate. The net cost of these services at the time of the agreement was $0.39 per hundred gallons. Since that time, JEA has modified the wastewater treatment process and now has a beneficial reuse for the solid waste. As a result, JEA is no longer using the City's landfill to dispose of this waste. Ms. Dykes advised that a cost of service study highlighted the leachate rate as an area that needs further analysis. Ms. Dykes stated that JEA is evaluating the most economical way to treat the leachate going forward. The proposed rate will cover the marginal cost of leachate treatment while the evaluation of the treatment process is completed. Based on the results of a study conducted by Stantec, an external consultant, JEA staff is recommending that the Board call a public hearing to modify the Water and Sewer Rate Document to include a leachate treatment rate of $5.16 charge per 100 gallons. On **motion** by Mr. Cumber and second by Secretary Newbill, the Board approved a rate hearing to be held at the September 19, 2017 Board meeting.
4. Monthly Operational and Financial Review – Melissa Dykes, Chief Financial Officer, reviewed the operational and financial results for the period ending July 31, 2017. This item was received for information.

C. Open Discussion – Board Members held discussions regarding open positions on the Public Service Commission.

D. Other New Business – Paul McElroy, Managing Director/Chief Executive Officer, requested the Board to call a rate hearing for the Electric System Rate Tariff specifically to expand the SolarSmart Program for large commercial customers. On **motion** by Secretary Newbill and second by Mr. Cumber, the Board approved a rate hearing to be held at the September 19, 2017 Board meeting.

E. Old Business – The Chair advised that the land swap agreement is progressing.

Agenda Item IV – Reports

A. Finance and Audit Committee Report – Kelly Flanagan, Committee Chair

1. Approval of Minutes – May 8, 2017 – On **motion** by Mr. Petway and second by Vice Chair Kesler, the minutes were approved.
2. Approval of Annual Internal Audit Plan – On **motion** by Mr. Petway and second by Committee Chair Flanagan, the annual internal audit plan was approved.
3. Annual Approval of Audit Services Charter – On **motion** by Mr. Cumber and second by Vice Chair Kesler, the audit services charter was approved.
4. Audit Services – Quarterly ERM/Audit Update – received for information
5. Ethics Officer Quarterly Report – received for information
6. Ernst & Young FY2017 Annual Financial Audit Plan – On **motion** by Secretary Newbill and second by Mr. Petway, the E&Y FY2017 annual financial audit plan was approved.
7. Electric System and Water and Sewer System Reserve Fund Quarterly Report – received for information
8. JEA Commercial Natural Gas Sales – received for information
9. Plant Vogtle Update – received for information
10. JEA Energy Market Risk Management Policy Report – received for information
11. Announcements
    a. Next Meeting, December 5, 2017, 12:00 – 2:00 PM

B. Managing Director/CEO's Report – Paul McElroy, Managing Director/CEO provided an updated on the following items:

1. Budget Hearing for City Council Finance Committee to be held Friday, August 18, 2017.
2. Comprehensive Solar Strategy including large scale economic development of solar generating capabilities within the county, expansion of Solar Smart and Net Metering will be presented in a future workshop.
3. Financial Results – includes favorable trends and opportunities for further debt reduction
4. Florida Department of Environmental Protection (FDEP) Consultant Review of JEA's Capacity Management, Operations and Maintenance (CMOM) current program will be presented to the Board at a future meeting.

5. August 26, 2017 is Lineman Appreciation Day

C. Chair's Report – Chair Howard requested Mr. McElroy provide a Plant Vogtle update. Through the Chair, Mr. Petway requested an update on our preparedness for hurricane season, pension reform and the new JEA building.

Through the Chair, Mr. Cumber requested a comprehensive report on Plant Vogtle economics, the financial impact to JEA and triggers being monitored for action.

The Chair thanked JEA staff for their hard work and the Board Members for their time and participation.

Agenda Item V – Closing Considerations

A. Announcements – Next Board Meeting – September 19, 2017

B. Adjournment

With no further business claiming the attention of the Board, Chair Howard adjourned the meeting at 1:39 PM.

APPROVED BY:

_____
SECRETARY

DATE: _____

Board Meeting recorded by:

_____
Cheryl W. Mock
Executive Assistant

V. A. 2.

Approval of Board Meeting Minutes September 19, 2017

JEA
BOARD MINUTES
September 19, 2017

The JEA Board met in regular session on Tuesday, September 19, 2017, on the 8th Floor, 21 W. Church Street, Jacksonville, Florida. Present were Alan Howard, Frederick Newbill, Tom Petway, Husein Cumber and Delores Kesler. Kelly Flanagan was absent and excused.

Agenda Item I – Welcome

A. The meeting was **called to order** at 12:05 PM by Chair Howard.

B. The **Safety Briefing** was given by Paul McElroy, Managing Director/Chief Executive Officer.

Chair Howard advised that the September Board meeting items will be deferred to October and that this meeting would consist of discussions around Hurricane Irma efforts.

Agenda Item II – Reports

Mayor Lenny Curry thanked the linemen and workers of JEA for their hard work and efforts to restore power. He advised that his concern was individual customer communications.

Each Senior Leadership Team member provided details of their preparation for the hurricane, the efforts of their teams throughout the hurricane and lessons learned. The following members of JEA's response teams were recognized for their exceptional work: Allen Flowers, Wesley Zufall, Brandon Shaw, Lee Heatwole, Gregory Daniels, Derek Robinson, Matt Stafford, Chris Richardson, Bert Sparks, Lance Castor, Bradley Mayo and Jesse Ferraraccio.

The Board thanked the leadership team for their work and management of the storm response. They thanked the workers for all of their efforts to restore power and thanked those on the support team. Chair Howard indicated that he shared the concerns of the mayor regarding communications and directed JEA to follow up on the mayor's concerns.

Board Members held discussions regarding the restoration processes of other utilities, providing clarity that the Chair will speak on behalf of the Board for all media inquiries and the further need for reduction of Sanitary Sewer Overflows (SSOs) and continued preventative maintenance of tree limbs.

Agenda Item V – Closing Considerations

A. **Announcements** – Next Board Meeting – October 17, 2017

B. **Adjournment**

With no further business claiming the attention of the Board, Chair Howard adjourned the meeting at 1:17 PM.

APPROVED BY:

_____
Frederick Newbill, Secretary

Date: _____

Board Meeting recorded by:

_____
Cheryl W. Mock
Executive Assistant

V. A. 3.

JEA Early Debt Retirement Update

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**JEA EARLY DEBT RETIREMENT UPDATE**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: The Board previously delegated to the Managing Director/CEO and the Chief Financial Officer the authority to approve and execute early retirements of debt, subject to the Annual Budget and related City Budget Ordinance. Staff is providing the Board an Early Debt Retirement Schedule summarizing such early retirements completed in fiscal year 2017.

Significance: Staff is reporting to the Board the completed early debt retirement transactions for fiscal year 2017, consistent with the JEA Early Debt Retirement Strategy agenda item approved by the Board on May 21, 2013.

Effect: Lowered outstanding Electric System and Water and Sewer System debt recorded on JEA's books as of September 30, 2017 and lowers debt service for those systems in subsequent fiscal years.

Cost or Benefit: The ability to early retire debt allows for flexibility in managing debt service.

Recommended Board action: This item is submitted for information. No action by the Board is required.

For additional information, contact: Joe Orfano, 665-4541

Submitted by: PEM/ MHD/ JEO

Return to Agenda

Building Community

INTER-OFFICE MEMORANDUM
October 2, 2017

SUBJECT:	**JEA EARLY DEBT RETIREMENT UPDATE**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
As part of JEA's ongoing debt management program, when desiring to retire debt early, JEA has historically utilized various sources of funds for defeasing debt, calling bonds for early redemption or purchasing bonds on the secondary market. Typically, an escrow is used when calling bonds or defeasing debt prior to maturity.

On June 15, 2004, the Board approved a defeasance agenda item that delegated to the Managing Director & CEO, the Vice President & COO and the Vice President Financial Services the authority, in regard to a specific defeasance transaction in 2004 and future defeasance transactions for the Water and Sewer System and the Electric System. At its May 21, 2013 meeting, the Board broadened the 2004 authorization to i) expand the Systems to include St. Johns River Power Park System ("SJRPP System"), the Bulk Power Supply System and District Energy System, ii) clarify that early debt retirement is defined as defeasing debt, calling bonds for early redemption and purchasing bonds on the secondary market and iii) delegate to the Managing Director & CEO and the Chief Financial Officer the authority to approve and execute all related actions necessary for the early retirement of debt for the Electric System, SJRPP System, Bulk Power Supply System, Water and Sewer System and District Energy System, subject to the Annual Budget and related Budget Ordinance.

At that meeting, staff indicated it would provide the Board, at least annually, an Early Debt Retirement Schedule showing completed transactions for the fiscal year beginning with fiscal year 2013. The Schedule will not be provided in any year where no transactions occurred. Consistent with the May 21, 2013 agenda item, this agenda item and attached Schedule provide a summary of early debt retirements in the fiscal year ended September 30, 2017.

DISCUSSION:
In fiscal year 2017, staff utilized Electric System Revenue Funds, Renewal and Replacement Funds and Rate Stabilization Funds to defease $25,625,000 in Electric System bonds and $40,515,000 in Subordinated Electric System bonds and Water and Sewer Debt Management Strategy Reserve Funds to defease $6,135,000 in Subordinated Water and Sewer System bonds for combined early debt retirements totaling $72,275,000.

RECOMMENDATION:
No action by the Board is required: This item is submitted for information only as part of staff's responsibility to periodically report early debt retirement activities to the Board.

_____
Paul E. McElroy, Managing Director/CEO

PEM/MHD/JEO

JEA Early Debt Retirement Summary - FY2017

Date	System	Par/Principal	Average Annual Debt Service Savings	Type	Primary Purpose	Impacts	Source of Funds
2/23/2017	Electric	$ 66,140,000	$ 9,157,877	Cash defeasance	Debt reduction in conjunction with rate restructuring plan	Lower future debt service and lower cash balances	Electric Revenue, R&R and Rate Stabilization funds [1]
8/31/2017	W&S	6,135,000	489,215	Cash defeasance	Debt reduction	Lower future debt service and lower cash balances	Debt Management Strategy reserve fund
		$ 72,275,000	**$ 9,647,092**				

Debt Ratio Percentages as of August 31, 2017

	% With Early Debt Retirements	% Without Early Debt Retirements	
Electric*	**61.9%**	**62.5%**	*including JEA, Scherer 4 Project and JEA's share of SJRPP
W&S	**50.1%**	**50.2%**	

[1] Sources of funding were as follows:
($ in millions)

Revenue Fund	$ 19.658
R & R Fund	37.200
Debt Management Strategy Rate Stabilization Fund	12.242
	69.100
Debt Service Sinking Fund	0.829
	$ 69.929

V. A. 4.
Sole Source and Emergency Procurement/Procurement Appeals Board Report

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**SOLE SOURCE & EMERGENCY PROCUREMENT/PROCUREMENT APPEALS BOARD REPORT**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: Sections 1-113 and 1-114 of the JEA Purchasing Code require the Chief Purchasing Officer to submit a report on all Sole Source and Emergency procurements and all Procurement Appeals Board decisions to the JEA Board on a quarterly basis.

Significance: Full transparency of these procurement actions is necessary to maintain public confidence in JEA's bidding process and to ensure competition is achieved when in JEA's best interest.

Effect: JEA's Procurement Department is responsible for maintaining these records and reporting to the JEA Board.

Cost or Benefit: To maintain public confidence in JEA's bidding process and to ensure competition is achieved when in JEA's best interest.

Recommended Board action: This item is submitted for information. No action by the Board is required.

For additional information, contact: John McCarthy, Sr Dir Supply Chain Mgmt & Ops Support.

Submitted by: PEM/MHD/JPM/RMW

Building Community

INTER-OFFICE MEMORANDUM
October 2, 2017

SUBJECT: **SOLE SOURCE & EMERGENCY PROCUREMENT/PROCUREMENT APPEALS BOARD REPORT**

FROM: Paul E. McElroy, Managing Director/CEO

TO: JEA Board of Directors

BACKGROUND:
Sections 1-113 and 1-114 of the JEA Purchasing Code require the Chief Procurement Officer to submit a report on all Sole Source and Emergency procurements and all Procurement Appeals Board decisions to the JEA Board on a quarterly basis.

DISCUSSION:
This report is submitted for the quarter ending September 30, 2017. Summary information for all awards is provided below. A detailed listing for the Formal Sole Source and Emergency Awards is attached. Detailed back-up information for all other awards is retained by the Chief Procurement Officer and is available upon request. There were no Procurement Appeals Board (PAB) actions this quarter.

Quarter Ending September 30, 2017

Formal Awards	**Number**	**%**	**Dollar Amount**	**%**
Total	47		112,690,114	
Sole Source Awards	0	0.00%	0	0.00%
Emergency Awards	0	0.00%	0	0.00%

Informal Awards	**Number**	**%**	**Dollar Amount**	**%**
Total	3,132		18,837,326	
Sole Source Awards	1	0.03%	$ 237,500	1.30%
Emergency Awards	2	0.06%	$ 28,818	0.15%

RECOMMENDATION:
This item is submitted for information. No action by the Board is required.

_____
Paul E. McElroy, Managing Director/CEO

PEM/MHD/JPM/RMW

Total Sole Source & Emergency Procurement Actions

	FY17 Q1	FY17 Q2	FY17 Q3	FY17 Q4
Total Awards	$97.67M	$119.33M	$96.34M	$131.53M
Sole Source ($)	$0M	$0.07M	$0M	$0.24M
Sole Source (%)	0%	0.06%	0%	0.18%
Emergency ($)	$0.10M	$0.72M	$1.6M	$0.03M
Emergency (%)	0.10%	0.60%	1.67%	0.02%

Formal Sole Source Awards by Department - Detailed Listing

12 months ending September 30, 2017

Sole Source Awards (0 Item totaling $0.00)

Award Date	Amount	Requesting Dept	Vendor	Description	Sourcing Basis

Formal Emergency Awards by Department - Detailed Listing

12 months ending September 30, 2017

Emergency Awards (4 Item totaling $2,231,928.15)

Award Date	Amount	Requesting Dept	Vendor	Description	Sourcing Basis
2/16/2017	$650,000.00	M. Dykes (Finance)	Ernst & Young U.S., LLP	FEMA Grant Consulting Engagement - Hurricane Matthew	**Emergency** - JEA procured services through an emergency contract with Ernst and Young to manage and oversee all aspects of the federal disaster grant process and effectively obtain any reimbursement available for damages incurred during Hurricane Matthew.
4/13/2017	$331,600.08	M. Brost (Electric Systems)	Asplundh Tree Expert Co.	Emergency Storm restoration for vegetation - Hurricane Matthew	**Emergency** - JEA procured services through an emergency contract with Asplundh Tree Expert Co. for restoration work on vegetation and debris removal incurred during Hurricane Matthew, in support of Mutual Aid crews.
4/13/2017	$327,054.07	M. Brost (Electric Systems)	Wolf Tree, Inc.	Emergency Storm restoration for vegetation - Hurricane Matthew	**Emergency** - JEA procured services through an emergency contract with Wolf Trees, Inc. for restoration work on vegetation and debris removal incurred during Hurricane Matthew, in support of JEA crews.
5/18/2017	$923,274.00	M. Brost (Electric Systems)	Mitsubishi Electric Power Products, Inc.	Emergency purchase of sync breakers	**Emergency** - JEA procured services through an emergency contract with Mitsubishi Electric Power Products, Inc. for the purchase of six (6) 230 kV sync breakers, due to the shutdown of SJRPP and equipment lead times. Informal bids were obtained from three (3) companies and Mitsubishi submitted the lowest bid.
Total	**$2,231,928.15**				

V. A. 5.
Directors’ & Officers’ Liability Insurance

Return to Agenda

Building Community

V. A. 5.
10/17/2017

AGENDA ITEM SUMMARY

September 27, 2017

SUBJECT:	**DIRECTORS' & OFFICERS' LIABILITY INSURANCE**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: Directors' and Officers' Liability Insurance

Significance: See information above.

Effect: On October 1, 2004, JEA purchased Directors' and Officers' Liability Insurance. This insurance has been renewed each subsequent October 1st.

Cost or Benefit: This insurance provides coverage for JEA, its Officers and Board Members in the event of actual or alleged breach of duty, neglect, error, misstatement or omission, actually or allegedly caused, committed or attempted while acting independently or collectively in their capacity at JEA. The year's cost of renewal is $105,884, a reduction in premium from last year of $2,956.

Recommended Board action: This item is submitted for information.

For additional information, contact: James Chapman, Director Risk Management Services, 665-7781

Submitted by: PEM/TEH/JDC

Commitments to Action

1 Earn Customer Loyalty

2 Deliver Business Excellence

3 Develop an Unbeatable Team

Building Community

INTER-OFFICE MEMORANDUM
September 27, 2017

SUBJECT:	**DIRECTORS' & OFFICERS' LIABILITY INSURANCE**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
On October 1, 2004, JEA purchased Directors' and Officers' Liability insurance. This insurance has been renewed each subsequent October 1. It provides coverage for JEA, its' Officers and Board Members in the event of actual or alleged breach of duty, neglect, error, misstatement or omission, actually or allegedly caused, committed or attempted while acting independently or collectively in their capacity at JEA.

DISCUSSION:
The attached insurance summary explains this coverage.
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RECOMMENDATION:
No Board action is required. This item is submitted for information.

_____
Paul E. McElroy, Managing Director/CEO

PEM/TEH/JDC

Return to Agenda

Building Community®

DIRECTORS' & OFFICERS' LIABILITY INSURANCE

INSURED:	JEA, its' Officers and Board Members
CARRIER:	Associated Electric & Gas Insurance Services Limited (AEGIS)
POLICY PERIOD:	October 1, 2016 thru September 30, 2017
POLICY NUMBER:	DP5029716P
ANNUAL PREMIUM:	$105,884
POLICY LIMIT:	$10,000,000 aggregate for the policy period
DEDUCTIBLE:	$250,000 each claim
COVERAGE:	AEGIS shall pay on behalf of the Insured by reason of any "Wrongful Act" of Officers and Board Members which takes place on or after October 1, 2004.
"WRONGFUL ACT":	Actual or alleged breach of duty, neglect, error, misstatement or omission actually or allegedly caused, committed or attempted by any Officers and Board Members while acting individually or collectively in their capacity for JEA.
EXCLUSIONS OF COVERAGE:	Deliberately fraudulent, dishonest, criminal or malicious act or omission or any knowing and intentional violation of any statute or regulation. Also, any employment related wrongful acts such as termination of employment, discrimination or sexual harassment.

Prepared by: James D. Chapman, JEA Director Risk Management Services
September 6, 2017

V. A. 6.
JEA Economic Impact Analysis

Return to Agenda

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**JEA ECONOMIC IMPACT ANALYSIS**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: The Northeast Florida Regional Council staff conducted an Economic Impact Analysis for JEA. This study provided the general economic impact of JEA on Duval County in 2012.

Significance: This economic impact analysis attempts to calculate the economic impact of the removal of JEA from the local economy. The results are reported as tangible results. The intangible results and the qualitative variables such as public health, safety and welfare, and quality of life are not accounted for in the study.

Effect: JEA is a valued asset in the community and has a significant impact on the Duval County economy.

Cost or Benefit: The Regional Economic Models, Inc. (REMI) and Regional Input-Output Modeling System (RIMS II) economic forecasting models provided the following economic impacts of JEA on the Duval County economy in 2012:

- Jobs 4,500 - 4,700 (Direct and Indirect)
- Gross County Product (GCP) Output between $860 - $910 Million
- % of JEA contribution to GCP is 1.4% to 1.5%

Recommended Board action: This item is submitted for information. No action by the Board is required.

For additional information, contact: Janice Nelson, 665-6442

Submitted by: PEM/MHD/JRN

Building Community

INTER-OFFICE MEMORANDUM
October 2, 2017

SUBJECT:	**JEA ECONOMIC IMPACT ANALYSIS**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
The Northeast Florida Regional Council conducted an Economic Impact Analysis for JEA. This study reflected the economic impact and value of JEA in Duval County in 2012. The Northeast Florida Council staff conducted this analysis utilizing the Regional Economic Model, Inc. (REMI) Policy Insight and the Regional Input-Output Modeling System (RIMS II). The standard modeling approach is to remove JEA from the factors that make up the economy.

DISCUSSION:
The attached Economic Impact Analysis produced by the Northeast Florida Regional Council calculated the yearly impact of JEA on the Gross County Product (GCP) as summarized below:

- Duval Gross County Product (GCP) in 2012 was $61.85 Billion
- GCP contribution of JEA is $860 Million to $910 Million
- % of JEA contribution to GCP is 1.4% to 1.5%

The REMI and RIMS economic forecasting models provided the following economic impacts:

- Jobs 4,500 - 4,700 (Direct and Indirect)
- GCP output between $860 - $910 Million
- Earnings/Personal Income $206 - $310 Million

As stated in the report, the results are conservative and are reported as tangible results. The intangible results such as public health, safety and welfare, and quality of life are not accounted for in the study.

RECOMMENDATION:
This item is submitted for information. No action by the Board is required.

_____
Paul E. McElroy, Managing Director/CEO

PEM/MHD/JRN

Return to Agenda

V. A. 6.
10/17/2017

JEA

Economic Impact Analysis

Produced by the Northeast Florida Regional Council, 2013

BACKGROUND

JEA is located in Jacksonville, Florida, and serves an estimated 420,000 electric, 305,000 water and 230,000 sewer customers in northeast Florida. JEA was created by the City of Jacksonville to serve those who live in the consolidated city and in the surrounding communities. The sole purpose of JEA is to ensure the electric, water and sewer demands of customers are met. JEA's goal is to provide reliable services while ensuring the natural resources are protected. JEA's facilities and resources are regionally significant and these are shown in Figure 1 below.

Figure 1 Regional Energy Facilities and Resources – 2013

Source: Northeast Florida Regional Council: Proposed SRPP, 2013

JEA has a long standing history in Duval County and the region. Jacksonville's water and sewer systems had been operated by the city since 1880, and an electric system since 1895. The electric system grew with the city, but remained a department of city government until an independent authority was created by the consolidation of city and county governments in 1968. According to Article 21 of the Jacksonville City Charter:

"JEA is authorized to own, manage and operate a utilities system within and outside the City of Jacksonville. JEA is created for the express purpose of acquiring, constructing, operating, financing and otherwise have plenary authority with respect to electric, water, sewer, natural gas and such other utility systems as may be under its control now or in the future."

Electric System[1]

JEA owns and operates an electric system that includes five generating plants, and all transmission and distribution facilities, including 729 miles of transmission lines and 6,547 miles of distribution lines. JEA operates five coal-fired power plants in the Northeast Florida Region. All five are located in Duval County. The five power plants are Kennedy Generation Station, Northside Generating Station, Brandy Branch Generation Station, Southside Generation Station, and the St. Johns River Power Park.

JEA is also a joint owner with Florida Power & Light Company (FPL) of a sixth power plant, the St. Johns River Power Park (SJRPP), which is operated by JEA. JEA produces 3.2 megawatts from a methane-fueled generating facility at the Girvin Road Landfill and 9.6 megawatts from Trail Ridge Landfill. A 12.6-megawatt solar project came online in 2010. JEA's total generating capacity is approximately 3,757 megawatts.

Water and Sewer Systems

JEA's water system consists of 135 artesian wells tapping the Floridan aquifer, which is one of the world's most productive aquifers. Water is distributed through 36 water treatment plants and over 4,200 miles of water lines. More than 3,700 miles of collection lines and seven regional and seven non-regional sewer treatment plants comprise the JEA sewer system.

JEA's reclaimed water system, which supplies water for irrigation purposes reduces nitrogen released to the river because the treatment-enhanced wastewater is not put back into the river. Using reclaimed water for irrigation reduces the demand on the potable water supply taken from the Floridan aquifer.

As a community-owned utility, JEA is not subject to the same state regulations as investor-owned utilities. However, regulated in certain areas of environmental and health matters, power plant location, electric safety and electric rate structure matters.

[1] Source: Northeast Florida Regional Council Proposed SRPP, 2013 and JEA https://www.jea.com/

ANALYSIS APPROACH

This study reflects the economic impact and value of JEA in Duval County. The Northeast Florida Regional Council staff conducted this analysis utilizing Regional Economic Models, Inc. (REMI) Policy Insight and the Regional Input-Output Modeling System (RIMS II). The standard modeling approach to the determining the economic impact of an existing business to a local economy is to remove it from the factors that make up the economy.

REMI is an econometric model that incorporates aspects of four major modeling approaches: Input-Output, General Equilibrium, Econometric, and Economic Geography. Each of these methodologies has distinct advantages as well as limitations when used alone. The REMI integrated modeling approach builds on the strengths of each of these approaches. The REMI is a more robust and sensitive model than standard Input-Output models that rely on standard multipliers to forecast economic output. REMI models the entirety of the local and regional economies. Due to consideration by REMI of the economy as a whole, when considering a single project, *the results are often more modest especially with regard to impacts of new general commercial and general office development*.

RIMS II is an input-output model (I-O) that produces multipliers that are used in economic impact studies to estimate the total impacts of a project in a region. This model is based on a detailed set of industry accounts that measure goods and serves produced by each industry and the use of these goods and services by industries and final users. I-O models such as this do not account for price changes that may results in an increased competition for scarce resources. RIMS II is a single region I-O model and ignores feedback from other regions in the State.

REMI ANALYSIS

The scenario modeled was a simple approach; a removal of the JEA related salaries, capital expenditures and the number of jobs from the Duval County economy. This scenario is assumed to be the best set of assumptions to determine a one year economic impact resulting from an idling of JEA. Essentially, a complete shutdown is unrealistic, but the scenario provides the overall economic value of such an entity in the County.

JEA provided NEFRC staff with the salaries, jobs and capital expenditures for Actual years for 2010, 2011 and 2012 and Average. For this scenario the average for each of the variables was used.

Below is a summary of the REMI model inputs.

1. Salaries – average decrease of **$134,384,792**
2. Full time positions – average reduction of **1,950**
3. Total Capital Expenditures – Average decrease of **$305,396,333**

REMI Control Variables

The first section of the analysis focuses on REMI and the economic impacts.

JEA provided NEFRC staff with the data for direct capital expenditures, full time positions, and total salaries. The analysis year for this project is 2012. During the analysis period the cost of doing business and cost of living was not changed. Table 1 is a summary of the REMI Employment, Gross County Product and Disposable Personal Income per capita for the year 2012. These variables are the control variables.

Table 1 Duval County REMI Control Variables

Category	Units	2012
Total Employment	Thousands (Jobs)	630.33
Private Non-Farm Employment	Thousands (Jobs)	559.60
Gross County Product	Billions of Fixed (2012) Dollars	$ 61.85
Output	Billions of Fixed (2012) Dollars	$ 105.93
Value Added	Billions of Fixed (2012) Dollars	$ 62.52
Personal Income	Billions of Fixed (2012) Dollars	$ 39.63
Disposable Personal Income	Billions of Fixed (2012) Dollars	$ 36.11

Source: REMI PI+ v1.5, 2013

REMI Output Results

Table 2 represents a summary of REMI results through the elimination of JEA from the Duval County economy. This table is directly comparable to Table 1 with the exception of Gross County Product (GCP). Table 3 represents the effect on JEA's elimination from the economy on components of GCP not fully captured in Table 2. Thus to understand the full impact on GCP the total decrease of the combined GCP components must be considered.

Table 2 REMI Summary Results

Category	Units	2012
Total Employment	Thousands (Jobs)	625.67
Private Non-Farm Employment	Thousands (Jobs)	555.14
Gross County Product	Billions of Fixed (2012) Dollars	$ 61.47
Output	Billions of Fixed (2012) Dollars	$ 105.25
Value Added	Billions of Fixed (2012) Dollars	$ 62.13
Personal Income	Billions of Fixed (2012) Dollars	$ 39.32
Disposable Personal Income	Billions of Fixed (2012) Dollars	$ 35.84

Source: REMI PI+ v1.5, 2013

Table 3 REMI Gross County Product (GCP) and Components

The table below indicates the goods and services purchased by persons.

Category	Units	2012
Personal Consumption Expenditures	Millions of Fixed (2012) Dollars	(197)
Gross Private Domestic Fixed Investment	Millions of Fixed (2012) Dollars	(379)
Change in Private Inventories	Millions of Fixed (2012) Dollars	(0)
Exports of Goods and Services	Millions of Fixed (2012) Dollars	(15)
Imports of Goods and Services	Millions of Fixed (2012) Dollars	(244)
Government Consumption Expenditures and Gross Investment	Millions of Fixed (2012) Dollars	(25)
Exogenous Final Demand	Millions of Fixed (2012) Dollars	-
TOTAL DECREASE		**(860)**

Source: REMI PI+ v1.5, 2013

REMI Summary Results

The scenario presented is likely a conservative estimate of an economic impact of a JEA disruption in providing services of water, sewer and electricity. It is important to note that REMI is an econometric model, meaning it is dynamic in establishing statistical relationships between economies throughout the State. The model is not static like an Input-Output model and REMI interlinks economies in the State. Since water, sewer and electricity are a vital service; REMI automatically attempts to compensate for the **demand** for service by utilizing resources outside of the county and pulls the necessary resources to meet the demand and fill the void in supply. Despite the models attempt to reduce the void in supply so as to meet demand, a JEA disruption has a significant impact on the Duval County economy. This is perhaps a more likely scenario than a complete removal of an essential service like JEA from the local economy.

The results are certainly conservative, and are reported as tangible results. The intangible results simply cannot be accounted for in dollar amount and the qualitative variables such as public health, safety; welfare and quality of life are not accounted for.

The results provided below are for total employment, Gross County Product, and Personal Income.

1. **Total Employment (number of jobs available not individuals)** – a decrease of **4,685 jobs**. Includes 1,950 direct JEA jobs from the base assumption with an additional decrease of 2,785 indirect jobs.
2. **Gross County Product** (GCP) **analogous to the Gross Domestic Product** - the direct impact of a JEA shutdown decreases the GCP by $380 million. There is an additional decrease of $480

million in the GCP and these are components of the GCP or induced impacts. In other words, there are significant decreases in *consumption, investments and imports and exports* (see Table 3 above). This can be interpreted as an overall decrease in one year of approximately **$860 million** in the GCP.

3. **Personal Income (wages, salaries and supplements) –** A decrease of **$310 million in personal income** and includes the reduction in JEA salaries of $134.3 million and indirect impacts of an additional reduction of $176 million.

RIMS II ANALYSIS

The Industry Multipliers used for this scenario was Utilities and the RIMS II model included government enterprises in this category. The industry multipliers for only Duval County were used. This ensures that the direct economic impact of removal of JEA from the local economy is reported. As an I-O model, RIMS II does not assume compensating inputs to a local economy for any loss of service to meet demand. This model simply pulls data from the utility category. As mentioned earlier in this report, this scenario ignores mathematical relationships with existing economies in the State. RIMS II accounts for exports by considering each industry's concentration in the local economy. This method does not explicitly account for what is often called cross- hauling. Cross- hauling is when a service such as a JEA completely shuts down, and imports and exports to the local economy are unaccounted for. In this case not only is this scenario unlikely and unrealistic but the RIMS II multipliers reflect inflated impact estimates.

RIMS II Model Assumptions

These multipliers account for both the interindustry effect (direct and indirect) and household spending effects (induced) of a final demand change. These multipliers used for this study are provided below. The category "Utilities" was used from the I-O model. These multipliers are based on the 2010 Annual Input-Output Table for the Nation and 2010 Duval data. The input values listed below are the same values used in the REMI model runs and were provided by JEA.

- Jobs - 1,950
- Sales and Revenue (Output) – $2 billion
- Earnings (average salaries full time) - $134,284,792

RIMS II Multipliers

Jobs – 2.3137

This represents the total change in number of jobs in all industries for each job in Utilities.

Total Output Change – $1.4531

In this instance estimating the impact of shutting down an industry in a Duval County, the output-driven multiplier for impact estimation was used. The output-driven multiplier measures the change in output in industry that results from a $1 change in total industry output. Using the

output-driven multiplier instead of the final-demand output multiplier ensures that the impact of the industry's shutdown is reflected correctly.

Earnings Change - $1.5346

Earnings are the total dollar change in earnings of households employed by all industries for each additional dollar of earnings paid directly to households employed by the industry corresponding to Utilities.

RIMS II Summary Results

- Jobs – **a decrease of 4,518 jobs.**
- Sales and Revenue (Output) – a reduction of **$2,906,200,000** - indirect decrease of $906,200,000.
- Earnings (average salaries full time) - reduction **of $206,073,442.**

CONCLUSION

Using the REMI and the RIMS II models provides results on the general economic impact on Duval County that is summarized below.

1. **Jobs– 4,500 – 4,700 fewer jobs.**
2. **GDP/Output – a reduction of $860 – 910 million.**
3. **Earnings/Personal Income - a decrease of $206- 310 million.**

Powering America

The Economic And Workforce Contributions Of The U.S. Electric Power Industry











MJB & A

M.J. Bradley & Associates, LLC

About M.J. Bradley & Associates

M.J. Bradley & Associates, LLC (MJB&A), founded in 1994, is a strategic consulting firm focused on energy and environmental issues. The firm includes a multi-disciplinary team of experts with backgrounds in economics, law, engineering, and policy. The company works with private companies, public agencies, and non-profit organizations to understand and evaluate environmental regulations and policy, facilitate multi-stakeholder initiatives, shape business strategies, and deploy clean energy technologies.

Employee photos courtesy of: American Electric Power, Arizona Public Service, Blue Ridge Energy, Bryan Texas Utilities, Dominion Energy, Georgia Power, Great River Energy, Kissimmee Utility Authority, NorthWestern Energy, and Southside Electric Cooperative.

Summary of Key Findings & Results

MEET THE FUTURE OF ENERGY

Her name is Jennifer Watters. Watters is a generation project manager who oversees major projects at American Electric Power's (AEP's) power plants, including the most recent construction of universal, or large-scale, solar power plants for Indiana Michigan Power Company (I&M). I&M is an operating unit of AEP, an electric company based in Columbus, Ohio. AEP employs about 17,600 workers, supplies electricity to 5.4 million customers in 11 states, and maintains more than 40,000 miles of transmission lines. The company's jobs range from engineer to lineworker, from truck driver to meteorologist, from customer service rep to computer programmer.

Watters' job is not unique to I&M and AEP. In fact, it is just one example of the many high-quality jobs available in the electric power industry—an industry that creates a solid, stable employment base in all 50 states and the District of Columbia, and contributes $880 billion to the U.S. economy each year.

Watters, a 2004 graduate of Ohio Northern University, is project manager for a team that develops solar power plants for I&M from start to finish: siting, design, regulatory approval, contractor selection, and, ultimately, integrating solar power into the energy grid. "I never thought I'd be so excited to see the sun come up," she says, "but every time it does, I smile. These projects allow us to serve our customers with new sources of energy."

Powering America: The Economic and Workforce Contributions of the U.S. Electric Power Industry provides a detailed analysis of the role that electric companies—and employees like Watters—play in the nation's labor force and economy.[1] Employment opportunities are central to the economic health of our nation, and this study provides data that will help to inform federal and state policymakers and other key stakeholders as they tackle important decisions related to jobs, infrastructure, energy, capital deployment, environmental regulation, and economic growth.

FACT

Each job directly provided by the electric power industry supports an additional 1.7 jobs in our communities.

This report finds that the electric power industry directly provides nearly 2.7 million jobs across the United States through its employees, contractors and supply chain, and investments. Moreover, more than 4.4 million jobs are supported through the induced effects of these jobs. In total, the electric power industry supports more than 7 million American jobs, equivalent to about 5 percent of all jobs in the United States.

[1] M.J. Bradley & Associates (MJB&A) worked with Economic Modeling Specialists International (Emsi) to characterize the economic impacts of the electric power industry in the United States. MJB&A conducted this study on behalf of the Edison Electric Institute (EEI), the American Public Power Association (APPA), and the National Rural Electric Cooperative Association (NRECA).

Powering America

Meet Victor Daboin, a senior energy conservation specialist at the Kissimmee Utility Authority (KUA).

After graduating high school, Daboin wasn't eager to go back to school and was unsure which of his varying interests—in IT, drafting, and geographic information systems—he wanted to pursue. Eventually, his mom gave him two options: come work for KUA or enlist in the military. Daboin's mom worked for KUA, so he decided to apply to be a meter reader. He told himself that if he didn't get the job, then he'd enlist in the Navy.

Fourteen years later, Daboin still works for KUA and helps customers use energy efficiently. His role requires a three-step certification process in which candidates must demonstrate a variety of competencies; the process can take up to six years to complete. Daboin completed all three stages in just over a year. He notes that the key to success in the role is understanding the technology and equipment, which he gained working in the meter shop for six years, and being customer-service oriented.

Daboin credits KUA for allowing him to explore a variety of interests and for supportive programs that allow him to go to school while working. He is on track to complete his associate degree in fall 2017, after which he'll begin pursuing a bachelor's degree in electrical engineering.

This report reinforces that the electric power industry underpins all sectors of the economy. Understanding the industry's value, economic contributions, and changing nature is crucial to policy decisions related to employment and economic growth.

The electric power industry—including investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers—is one of the great American success stories. Thomas Edison founded the first electric company in 1881, and, since then, the industry has provided high-quality jobs and has powered our nation's economic growth with remarkable consistency.

At the same time, it is important to understand that the electric power industry of today is not the same as it was 20 years ago—or even five years ago. The industry continues to transform rapidly, and electric companies today are providing new energy solutions to meet customers' changing needs and expectations. This transformation is enabled by the industry's ongoing investment of more than $100 billion each year to make the energy grid more dynamic, more resilient, cleaner, and more secure; to diversify the nation's energy mix; and to integrate new technologies that benefit customers.

FACT

The electric power industry contributes $880 billion to U.S. GDP—5 percent of total GDP.

The electric power industry is committed to meeting customers' needs by delivering electricity that is reliable and affordable, cleaner, and produced using a balanced energy mix that includes traditional energy resources as well as renewable ones. Today, the industry is making significant investments in diverse energy resources, including clean coal, natural gas, nuclear, solar, wind, and energy efficiency. The industry accounts for nearly all of the wind energy deployed across the country and is the largest investor in and owner of solar power. In fact, electric companies own 64 percent of all solar in the country, and the industry's universal solar projects accounted for 72 percent of new solar capacity installed in 2016[2]—as Jennifer Watters' job as a solar project manager exemplifies.

Highlights

This report documents the role that the electric power industry plays in employment, wages, and the economy—both directly and indirectly.[3] Highlights and key findings include:

- **Employment:** The electric power industry directly provides nearly 2.7 million jobs in communities across the United States. This includes jobs that are held by employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers, as well as contractor and supply chain and investment jobs.[4] The industry's impact on employment is even greater when induced jobs are considered. In total, the electric power industry supports more than 7 million jobs. This means about one in every 20 jobs (or 5 percent of all jobs) in the United States depends on the electric power industry.

- **Infrastructure investment:** The electric power industry is the most capital-intensive industry in the United States.[5] The industry operates infrastructure of breathtaking scale and complexity. In 2016, the industry's capital investments exceeded $135 billion—a level of investment that is more than twice what it was a decade ago. These investments benefit customers and support jobs dedicated to building smarter energy infrastructure and to creating a cleaner generation fleet. Many of the individuals who support and build infrastructure projects are represented by organized labor.

- **Economic contributions:** The electric power industry directly contributed $274 billion to U.S. Gross Domestic Product (GDP) in 2014, the latest year for which data are available. That's 1.6 percent of the nation's total economic output. In addition, the spending power of the 7 million jobs in the workforce ripples through our communities to contribute another $606 billion. In total,

[2] *U.S. Solar Market Insight 2016 Year in Review*, GTM Research, March 2017.

[3] The underlying analysis for this report was performed by Economic Modeling Specialists International (Emsi), using its proprietary Multi-Regional Social Accounting Matrix (or the Emsi model). See the Appendix for more background on Emsi's modeling approach, including a table of North American Industry Classification System (NAICS) codes used in this report.

[4] The electric power industry provides about 491,000 jobs for employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers. In addition, the industry provides 756,000 jobs through its contractors and supply chain, and the industry's significant annual investments provide more than 1.4 million jobs.

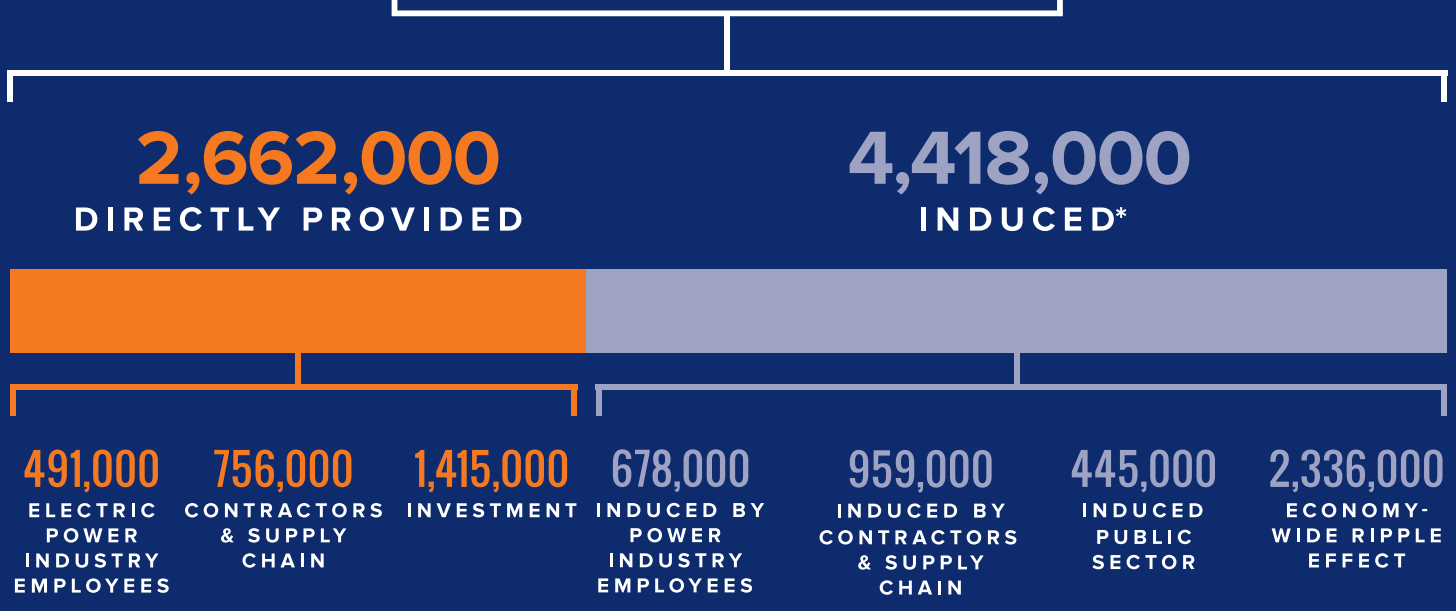
[5] *Fitch Ratings. U.S. Corporate Capex Study: Trends Are Relatively Flat for 2014*, Special Report. September 23, 2013.

The electric power industry

SUPPORTS

7 MILLION+

AMERICAN JOBS



*Induced jobs are spread throughout the economy and include many positions that are the result of paycheck spending by workers and government spending to support the communities around those workers. (As an example, induced jobs can range from elementary school teachers to medical doctors to real estate professionals, not to mention the many jobs in the service economy.)

Powering America

Meet Riley Burdick, an operator for Arizona Public Service (APS).

Working 12-hour shifts, distribution operators like Burdick serve as the brains of APS' distribution system, which consists of 1.3 million meters and 29,000 miles of power lines over 34,646 square miles of service territory. It's their job to have situational awareness of the system, staying in close contact with first responders in the field so they can safely and efficiently find the cause of an outage and take the appropriate steps to restore power.

New customer and grid technologies are evolving at a rapid pace, and today's operators have to keep up. With his strong military background, Burdick is up to the challenge. Burdick spent the majority of his "working life" in the U.S. Army. His on-the-job education in the Army placed a premium on safety and leadership, and his studies in emergency and disaster management and counterterrorism at American Military University prepared him well for a job in which anything can happen.

Meet Nate Humphrey, the oldest apprentice lineworker in the history of Southside Electric Cooperative in Crewe, Virginia.

At 37, the U.S. Army veteran with more than 13 years of service as a paratrooper was considered completely disabled because of injuries that stretched from his brain to his legs, the consequences of hellish combat missions in Iraq, Afghanistan, Kosovo, and Kuwait. Humphrey served in the 82nd Airborne Division and the 25th Infantry Division, rising to the level of staff sergeant (E6). He was in seven combat deployments totaling 48 months. He was wounded in Afghanistan and in Iraq, taking shrapnel in both legs and suffering a traumatic brain injury from an improvised explosive device—a roadside bomb.

After attending an open house to learn more about the Power Line Worker School, a partnership between Virginia's community college system and its electric cooperatives, Humphrey sought a medical reevaluation and successfully worked to downgrade his disability classification. After graduation from the school's third class, Southside Electric hired Humphrey in January 2017. Humphrey started on a service truck doing calls to houses and fixing security lights before being moved to an underground crew. "I think I've found my second calling," he says. "I used to defend the country, and now I light it up."

the industry's economic impact is $880 billion annually (approximately 5 percent of the nation's total GDP).[6]

- **Job quality:** As a whole, electric companies provide more than just good pay and good benefits. On average, employees work in the industry for more than 15 years, in careers that support their families and anchor them in their communities. In 2015, median annual wages for electric power industry employee jobs were $73,000—double the national median. Including benefits, the industry's median annual compensation exceeds $100,000.[7] Often, jobs in the electric power industry fill a societal gap, helping to break the cycle of poverty in many communities.

- **Workforce development:** The electric power industry is committed to supporting employees today and to building tomorrow's energy workforce. Through the Center for Energy Workforce Development (CEWD) and partnerships with educational institutions, public workforce systems, and organized labor, the industry is working to create long-term employment solutions for a skilled, diverse workforce in the future. Of note, a majority of the skilled workforce is organized labor, and the industry works with organized labor to provide apprenticeship programs, on-the-job training, and continuing education.

FACT

The electric power industry is responsible for more than 7 million American jobs in communities large and small. From supporting new skills training to STEM education to resources for veterans, women, youth, and adults, the industry is creating long-term solutions and driving employment for a skilled, diverse workforce in the future.

Economic Impact Studies Versus Surveys/Census Methods

A key difference between this report and other recent energy workforce-related reports is the approach used to estimate the job impact numbers. Two methods commonly used are census-style approaches and economic impact modeling approaches. Under a census approach, total job estimates are developed using data self-reported by the targeted industry. A census is a count of all workers said to be related in one way or another to a given industry at any given time. It does not classify how workers are employed or where jobs are located along the supply chain. It also does not estimate an industry's broader economic impact.

This report is based on an economic impact study, which explores the downstream impacts of a job in a specific industry. To model these impacts, the jobs being examined (i.e., the direct jobs) must be identified and classified carefully. The economic and employment contributions of these jobs then are modeled using information that captures the interrelationships of industries, including an industry's reported supply chain and the purchases from that supply chain. The industry's broader economic impact (induced jobs) then is estimated based on spending generated by electric power industry employee, contractor and supply chain, and investment jobs. The initial classification of direct jobs is key to ensuring there is no double counting of downstream impacts. Because census reports are a raw count of jobs without classification, they do not show an industry's downstream impact and cannot be used to generate one.

As discussed in the Appendix, this report uses official, government-collected data as a starting point for its economic impact analysis. The electric power industry jobs reported to the U.S. Bureau of Labor Statistics (BLS) form the basis for modeled investment, supply chain, and induced jobs.

[6] Estimated based on the electric power industry's impact on sales of all U.S. industry sectors and the ratios of those industries' national sales to GDP contributions. Modeled estimates and datasets were provided by Emsi.

[7] Salary information pertains to the electric power industry's approximately 491,000 jobs for employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers.

Powering America

Meet Cassandra Wheeler, a plant manager for Georgia Power's Plant Hammond in northwest Georgia.

Serving in this position since May 2014, Wheeler is responsible for overseeing the safe, reliable, and efficient generation of electricity and providing overall leadership for operations for the four-unit plant. In December 2017, Wheeler will assume a new role as regional director for Georgia Power.

When preparing to graduate from high school in Mobile, Alabama, Wheeler had her sights set on attending college in the state of Louisiana. Her mom made a last-minute decision due to the cost of the college in Louisiana that changed the course of Wheeler's career.

Wheeler already had been contacted by an Air Force recruiter, who painted a picture offering independence and education. She enlisted and, after basic training, attended 10 months of technical training to become a B-1B avionics test technician. After successful completion of the training, she was assigned to the 319th Bomb Wing in Grand Forks, North Dakota, where she was one of only three women. She was promoted to Senior Airman ahead of her peers due to her leadership, job performance, and work ethic. Wheeler credits her time in the Air Force for helping prepare her for a successful career in the electric power industry.

After graduating from the University of Cincinnati with a bachelor's degree in electrical engineering, Wheeler was hired at Alabama Power in 2001. She earned her MBA at the University of Alabama at Birmingham in 2007. Since then, she has served in various leadership roles in generation throughout her 16-year career with Southern Company.

Meet Steve Leathe, hydropower compliance professional at NorthWestern Energy.

Leathe is a Massachusetts native who migrated to Montana after he graduated from the University of Maine with a degree in wildlife management. After earning a master's degree in botany from Montana State University, Leathe spent more than 28 years in various positions with the Montana Department of Fish, Wildlife and Parks before joining NorthWestern Energy in 2007, in part, to broaden his role in helping to maintain a healthy environment for the state's wildlife and its blue-ribbon trout fisheries.

- **Military hiring:** The electric power industry has a long history of employing military veterans because they have the training and skills that match those required for technical, engineering, support, and leadership positions in electric companies. Military veterans are an especially good fit for infrastructure jobs. Military veteran hiring accounted for more than 10 percent of new hires in the industry as of year-end 2014, the latest year for which data are available. The industry's Troops to Energy Jobs program, managed by CEWD, provides job opportunities for veterans, including many without a four-year college degree, and helps veterans transition from the military to rewarding energy careers. Since its creation in 2011, the Troops to Energy Jobs program has worked to streamline the hiring process for veterans, and its real-time database of available industry jobs can be mapped to skills gained in the military.

  Tom Farrell, chairman, president and CEO of Dominion Energy, helped to launch Troops to Energy Jobs and said, "Through the program, dedicated, well-trained, and highly disciplined servicemen and servicewomen have a pathway toward stable, well-paying jobs in the private sector that closely fit their military skills." Farrell was raised in an Army family. He understands the difficulties and strain a career transition can put on military families. "There is no better way to honor our nation's returning veterans than by providing them with the tools they need to transition successfully to civilian life," he said. Since 2011, one out of every five new hires at Dominion Energy has been a military veteran.

With every advancement in technology, Americans are using electricity in more ways than ever. Our ever-increasing dependence on electricity underscores the vital importance of the electric power industry for our nation's security and prosperity and reinforces the role that electric companies play in improving the lives of all Americans. The bottom line: The electric power industry supports American jobs—and good ones—and powers our nation's economy.

The Electric Power Industry Generates Good Jobs

The electric power industry generates many of the best jobs in America—in traditional and in emerging areas. The industry provides employment to an exceptionally large demographic range—to both high school and college graduates, in every region of the country, and for most skill sets.

Overall, the industry offers a diverse number of careers—system operators, engineers, computer programmers, architects, lawyers, accountants, environmental researchers, cybersecurity specialists, call center employees and customer-service representatives, and many more. For example, electric companies employ meteorologists to forecast bad weather, so they can take measures to protect infrastructure and reliability. Foresters work alongside tree trimmers to keep long-distance transmission lines working, sometimes along remote, dangerous terrain. Fraud specialists fight identity theft. Nuclear engineers keep reactors running safely. Landscape architects manage storm water runoff. And electricians, lineworkers, and fieldworkers perform some of the industry's most visible jobs from bucket trucks and cranes.

Importantly, the industry's jobs are stable, which is especially vital for regions of the country where the economy may not be strong. As mentioned earlier, labor unions represent a majority of the industry's skilled workers. Many supplier firms, such as those in construction and heavy equipment, have significant union representation as well. The International Brotherhood of Electrical Workers, the Utility Workers Union of America, and affiliate members of North America's Building Trades Unions are key partners in apprenticeship programs that supply qualified workers to accomplish capital-intensive projects. Apprenticeships let workers train on the job and on the clock, providing a key employment alternative to higher education. The industry also has extensive business and supplier diversity programs that incorporate minority-owned businesses into its supply chain.

Powering America

Meet John Reinhart, demand response and technologies lead for Great River Energy (GRE), a generation and transmission cooperative based in Maple Grove, Minnesota.

As the lead engineer responsible for managing electric load, Reinhart is on the front lines of the co-op's transition to a digitally controlled system, and he's using new data and analysis tools to keep costs low for consumers while increasing the efficiency of the energy grid.

For decades, co-ops have operated demand response programs using one-way radio communication. GRE is now in the process of deploying two-way smart meters that will give Reinhart real-time data. The new system enables the adoption of new control technologies, such as smart thermostats and Wi-Fi-enabled devices.

Reinhart will use these technologies to avoid the need for new electric generating capacity. "A big shift is occurring in the utility industry, and that shift is creating big opportunities. The opportunity to make the grid more efficient, that's what's exciting about my job," says Reinhart.

Paying Talented Workers What They Deserve

Median annual wages for direct electric power industry employees were $73,000 in 2015, the latest year for which data are available. This is twice the national average. With benefits, including health care and retirement contributions, median annual compensation exceeds $100,000.

Nearly every job category in the industry earns a median wage of $30 or more per hour, plus health and retirement benefits. Many of these skilled, well-paying jobs do not require a four-year college degree, unlike many other jobs with similar pay and benefits. Further, employment opportunities in the industry are expected to grow for many types of workers over the next decade.

Energy Infrastructure Projects Are Vital

The electric power industry is committed to providing safe, reliable, affordable, and increasingly clean energy to all customers. The industry also is committed to building a diverse, highly skilled energy workforce to meet customers' evolving energy needs. On average, the industry invests more than $100 billion each year to build smarter, cleaner, and more resilient energy infrastructure.

Since Superstorm Sandy in 2012, investor-owned electric companies alone have invested more than $175 billion in transmission and distribution systems. These investments have hardened the energy grid and support a more efficient response by electric companies following storms, natural disasters, or other events.

FACT

The electric power industry is the most capital-intensive industry in the United States. The industry's investments support jobs and make the energy grid more dynamic, more resilient, cleaner, and more secure for all Americans.

The contributions and scope of the industry's infrastructure jobs cannot be overstated for skilled trade workers. Southern Company's Plant Vogtle is a telling example. The company is investing nearly $10 billion to build two nuclear reactors in Georgia. Southern Company partnered with North America's Building Trades Unions, creating 5,000 onsite jobs for hard-working, highly skilled craftsmen and women. When the two reactors begin operation, the plant will permanently employ 800 workers while providing 2,200 megawatts of zero-emissions energy.

Electricity Drives the U.S. Economy

Nearly everything we do depends on an affordable and reliable supply of electricity. The electric power industry is focused on serving customers and on creating energy solutions to meet customers' changing needs. At the same time, the industry is making long-term investment and planning decisions, and is transforming the energy grid to be responsive to new resources, new technology options, and changing customer expectations.

Several trends are driving change in the industry today. Chief among them are declining costs for natural gas and renewable energy resources that are developed at scale; changing customer expectations; environmental regulations; and the growth of distributed energy resources, including energy storage, private (or rooftop) solar, microgrids, demand response, energy efficiency, and electric vehicles. How these trends continue to unfold across the nation, and how well the industry is able to work with other stakeholders, will determine the success of this transformation for customers. Ultimately, investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers all share common goals and a commitment to provide safe, reliable, affordable, and increasingly clean energy for all customers.

It is important to note that, while the industry is making significant investments, electricity remains a great value. In 2016, residential electricity's share of total consumer expenditures was only 1.4 percent, the lowest it has been in the last 58 years. This means that for every dollar of customer expenditures, less than a penny and a half went to pay electric bills.[8]

[8] "How Low Can You Go?" daily commentary from Steve Mitnick, *Public Utilities Fortnightly*, January 31, 2017, based on Personal Consumption Expenditures data from the U.S. Bureau of Economic Analysis.

Powering America

Meet Phil Crump, a network security administrator for Blue Ridge Energy.

With increasing cybersecurity threats, Crump and many others within the electric power industry work to protect the energy grid and to safeguard critical infrastructure.

“Serving our members is also about protecting their information and safeguarding our servers and system against security breaches,” Crump says. “Hackers work overtime to disrupt the grid and steal personal identities and financial information. We all work diligently to protect the thousands of members of our community. Really, we view every single one of those members as part of one big Blue Ridge family. And when you look at it that way, we don’t need any extra motivation to safeguard our grid, along with our members’ information.”

Meet Michele Kimich, a meter data analyst at Bryan Texas Utilities (BTU).

Technology is an ever-changing, ever-present beast full of data that is the focus of nearly all global industries. BTU realized the amount of data that new technologies can provide, and created Kimich’s position in 2015 to interpret the information to benefit the utility and its customers.

Kimich has experience taming beasts, given her degree in agricultural business and her first position as an agriculture science teacher. She became interested in analytics when she landed a job at a local electric cooperative, first assisting large commercial accounts and then managing the billing department for nearly 10 years. It was there that she recognized that the real-time data retrieved from individual meters can help customers manage their usage, while allowing electric companies to make informed decisions regarding rates, system loads, and planning for the future.

“The meter data measures the vital signs and determines the health of a utility,” Kimich says. At any given time, she can use the interval data collected from more than 55,000 meters every 15 minutes to measure revenues, study feeder management, and examine peak consumption.

This report provides a foundation of knowledge and data to support policy decisions that create a strong economy and vibrant labor force. The report captures the deep contributions of the electric power industry to our economy and to our workforce—the industry creates and supports high-quality jobs in every state and the District of Columbia—and demonstrates how the industry's ongoing and substantial investments benefit communities by creating jobs, generating tax revenue, and building the smarter energy infrastructure that will power our energy future. Most important, this report reminds us that, behind every wall outlet or light switch, there is a dedicated workforce focused on powering the lives of millions of Americans who rely on electricity for nearly everything they do.

MJB&A
M.J. Bradley & Associates, LLC

Michael J. Bradley
President and Founder
M.J. Bradley & Associates, LLC

EEI
Edison Electric
INSTITUTE

Tom Kuhn
President
Edison Electric Institute

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

Sue Kelly
President and CEO
American Public Power Association

NRECA
America's Electric Cooperatives

Jim Matheson
CEO
National Rural Electric
Cooperative Association

Understanding the electric power industry's value, economic contributions, and changing nature is crucial to policy decisions related to employment and economic growth.

Michael J. Bradley
President and Founder, M.J. Bradley & Associates

Our industry is so vital to America's economy, supporting more than 7 million jobs. Often, jobs in our industry fill a societal gap, helping to break the cycle of poverty in many communities. As our society continues to become more dependent on electricity, we are creating long-term solutions to address the need for a skilled, diverse workforce to meet the future demands of our customers.

Tom Kuhn
President, EEI

The nation's more than 2,000 community-owned, not-for-profit public power utilities are proud to be a part of an industry that provides millions of jobs to hardworking Americans. Community-owned public power utilities provide local jobs that keep dollars in their communities, supporting families and representing a significant piece of our American economy.

Sue Kelly
President and CEO, APPA

Affordable and reliable electricity is the heartbeat of the American economy and is essential to the nation's economic growth. As not-for-profits owned by the members we serve, our broader purpose is to empower local communities to thrive. Co-ops are proud to continue recruiting top-tier talent from local communities as we work to meet tomorrow's energy needs.

Jim Matheson
CEO, NRECA

The electric power industry is a major driver of our economy, directly providing more than 2.7 million good jobs in communities across the nation. The IBEW is working closely with our management partners to maintain the best trained energy workforce in the nation so we as an industry can continue to support a healthy economy and good jobs.

Lonnie R. Stephenson
International President, International Brotherhood of Electrical Workers (IBEW)

The positive economic effects of the electric power industry are felt around the country, supporting middle-class families and their communities. We're proud to partner with the industry through our Power for America program to build one of the safest, most highly trained workforces in the nation.

Mike Langford
President, Utility Workers Union of America (UWUA)

The electric power industry is a key driver of the economy and jobs in America. The industry's infrastructure investments support jobs with strong wages and benefits for millions of Americans, including the men and women of the building trades.

Sean McGarvey
President, North America's Building Trades Unions

Powering America: The Economic and Workforce Contributions of the U.S. Electric Power Industry

Detailed Findings

INTRODUCTION

The electric power industry is responsible for more than 7 million jobs in the United States and employs workers throughout the nation in a wide variety of occupations and professions.

Our analysis finds that the electric power industry directly provides nearly 2.7 million jobs in communities across the United States. This includes jobs that are held by employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers, as well as contractor and supply chain and investment jobs.[9]

The industry's employment impact is even greater when induced jobs are considered. In total, the electric power industry supports more than 7 million jobs. This means about 1 in every 20 jobs (or 5 percent of all jobs) in the United States depends on the electric power industry.

The electric power industry directly contributes $274 billion to the nation's Gross Domestic Product (GDP). In addition, the spending power of the 7 million jobs in the broader workforce ripples through our communities to contribute another $606 billion.[10] The total economic impact of the industry is $880 billion, or about 5 percent of the nation's nearly $18 trillion GDP.

The purpose of this report is to provide a deeper understanding of the electric power industry's impact on jobs and on our nation's economy. The electric power industry is committed to delivering the safe, reliable, affordable, and increasingly clean energy that powers America's economy and quality of life. To do so, the industry relies on a diverse set of energy resources and makes significant investments to make the energy grid smarter, cleaner, and more resilient. The industry continues to be the most capital-intensive economic sector, investing more than $100 billion each year over and above operations and maintenance in each of the past five years.

New and changing sources of electricity supply and demand are driving significant shifts and innovation in the electric power industry. As a result, the industry is poised to have an even larger influence on employment and on economic growth as more aspects of daily life are powered by electricity.

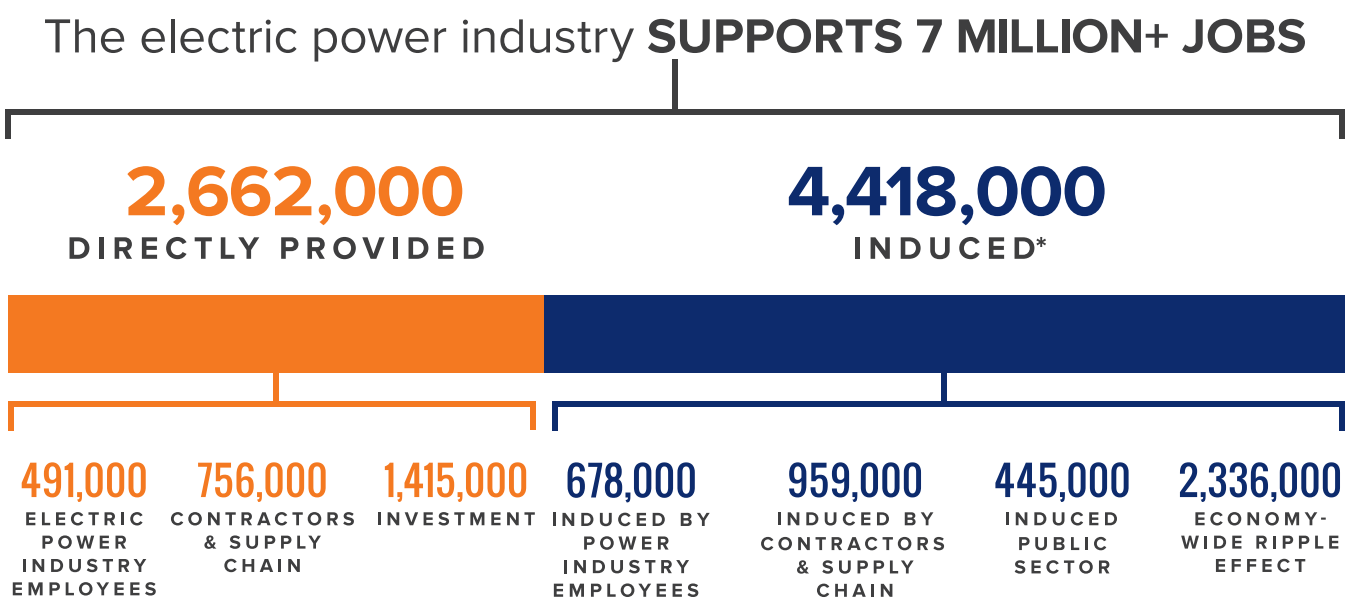
3 FACTS AT A GLANCE

1. The electric power industry supports more than 7 million American jobs—about 5 percent of all U.S. jobs.
2. The electric power industry contributes about 5 percent of total U.S. GDP to the nation's economy.
3. The electric power industry is the most capital-intensive economic sector in the United States, investing more than $100 billion each year to build smarter, cleaner, and more resilient energy infrastructure.

[9] The electric power industry provides about 491,000 jobs for employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers. In addition, the industry's contractors and supply chain provide 756,000 jobs, and the industry's significant annual investments provide more than 1.4 million jobs.

[10] Estimated based on the electric power industry's impact on sales of all U.S. industry sectors and the ratios of those industries' national sales to GDP contributions. Modeled estimates and datasets were provided by Economic Modeling Specialists International (Emsi).

Figure 1. Summary of Jobs Supported by the Electric Power Industry



**Induced jobs are spread throughout the economy and include many positions that are the result of paycheck spending by workers and government spending to support the communities around those workers. (As an example, induced jobs can range from elementary school teachers to medical doctors to real estate professionals, not to mention the many jobs in the service economy.)*

Today, the industry is working to ensure that its workforce has continuous access to training to support the ongoing investment in the energy grid and its advanced and high-tech infrastructure projects. The industry also is committed to workforce diversity and continues to ensure that its workforce reflects the communities that it serves. Working in partnership with the Center for Energy Workforce Development (CEWD), organized labor, and community colleges and universities across the country, the industry has created a number of workforce development programs to meet these goals.

On behalf of the Edison Electric Institute (EEI), the American Public Power Association (APPA), and the National Rural Electric Cooperative Association (NRECA), M.J. Bradley & Associates (MJB&A) worked with Economic Modeling Specialists International (Emsi) to characterize the economic impacts of the electric power industry in the United States. CEWD also provided valuable insight and data to this analysis. This information provides detailed statistics on the size and composition of the electric power industry workforce, as well as the jobs that support the electric power industry throughout the economy. Emsi used publicly available data as input to its proprietary input-output (I-O) model to develop the wider job and economic impact estimates.[11]

ECONOMIC MODELING OF THE JOBS AND CONTRIBUTIONS OF THE ELECTRIC POWER INDUSTRY

In this report, we explore the economic and workforce contributions of the electric power industry in three areas: (1) annual spending on the daily operation of the existing infrastructure, including the wages paid to the highly skilled employees throughout the industry; (2) the ongoing investments in electric power generation, transmission, and distribution systems; and (3) the broader economic contributions of the industry through its supply chain and through the spending of its workers.[12] Quantifying the employment and economic contributions of the electric power industry with any precision, however, is a complex task. This report attempts to provide a multi-dimensional picture of the broad reach of the industry.

[11] See the Appendix for background on Emsi's modeling approach.

[12] For the purposes of this report, we have defined the electric power industry as the investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers that operate electric generating stations, whether those are coal-based or natural gas-based power plants, nuclear power plants, hydropower facilities, or wind or solar energy centers; those that maintain transmission lines; and those that distribute and deliver electricity to homes and businesses.

The jobs discussed in this report include both full-time and part-time jobs. This report does not distinguish precisely between the full-time and part-time positions, as we did not have sufficient data to do so.

Jobs Provided by the Electric Power Industry

Utilizing the economic I-O model developed and operated by Emsi, we estimate that the electric power industry supports more than 7 million jobs. These jobs are split into two primary categories: directly provided jobs and induced jobs. Each is summarized and broken down in more detail in Figure 1.

The Electric Power Industry's Directly Provided Jobs

Electric Power Industry Employee Jobs

Overall, we find that there are about 491,000 workers employed by investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers.[13]

Many of the jobs associated with the industry are well known to the public. These include lineworkers who maintain the energy grid and restore power after storms or other events, and customer service representatives who respond to customer needs. There are also many less familiar jobs and professions across dozens of disciplines. In addition, there are many employees within skilled trades—such as master electricians, heavy equipment operators, wind ops workers, solar technicians, and combustion system mechanics—many of whom are represented by labor organizations that play a critical role in job training and development.

Contractor and Supply Chain Jobs

The industry's supply chain includes skilled contractors who work side-by-side with electric power industry employees. It also includes employees of companies that produce fuel for the industry and advanced manufacturing firms that supply the tools and equipment to operate and maintain the system. **We estimate that the electric power industry's contractors and supply chain provide 756,000 jobs.** This includes jobs associated with the contractors who support the industry and the immediate supply chain to the industry. For example, these workers include those employed by natural gas production companies that provide natural gas to power plants. Additional jobs are provided by the suppliers of the suppliers in the extended supply chain. These include, for example, the manufacturers of equipment such as valves and meters that are used by natural gas production companies. In the case of both immediate and extended supply chain jobs, the number of jobs associated with the supplying industry is apportioned based on sales to the electric power industry. In this way, for example, not all natural gas production jobs are counted as electric power industry supply chain jobs; we count only the fraction of jobs that is supported by the electric power industry's purchases.

Investment Jobs

The significant annual investments by the electric power industry to build smarter energy infrastructure and to continue the transition to even cleaner generation sources are expected to exceed $100 billion annually for the next several years. **We estimate that level of investment provides more than 1.4 million jobs.** While these workforce impacts, including jobs associated with design and construction, traditionally are thought of on a project-by-project basis, we have endeavored to quantify the broad national economic contributions of the overall investments being made by the industry.

Capital investments made by the electric power industry benefit customers and are critical to the day-to-day reliable and secure function of the energy grid and the entire electric power system.

The Electric Power Industry's Induced Jobs

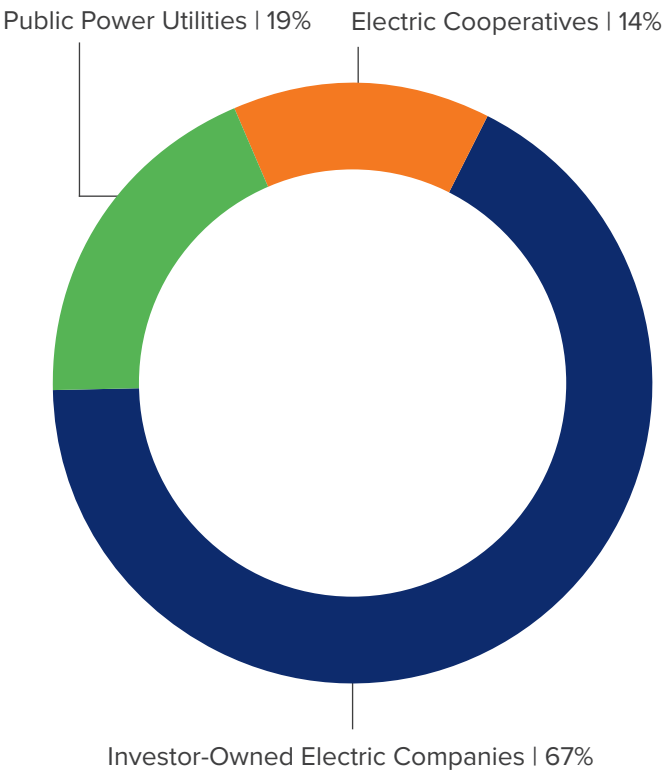
Induced Jobs

All of the jobs supported by the electric power industry—whether those jobs, for example, are electric power industry employee jobs at a power plant, contractor and supply chain jobs at a natural gas production site, or investment jobs at the construction site of a new wind energy center—result in spending that supports additional jobs in the economy. These induced jobs are spread throughout the economy and include many positions that are the result of paycheck spending by workers and government spending to support the communities around those workers. (As an example, induced jobs can range from elementary school teachers to medical doctors to real estate professionals, not to mention the many jobs in the service economy.[14])

[13] The core dataset developed by Emsi focused on employees of investor-owned electric companies and electric cooperatives. For the purposes of this report, Emsi took additional steps to estimate the workforce associated with public power organizations, which include government- and community-owned electric utilities. At the national level, Emsi estimated that jobs held by employees of these organizations accounted for about 22 percent of the industry total. The job numbers herein reflect this increase.

[14] While all of the job estimates in this report include both full-time and part-time jobs, the magnitude of the industry's impact on induced jobs reflects the compensation associated with electric power industry employee jobs, contractor and supply chain jobs, and investment jobs.

Figure 2. Employment by Ownership



Source: Calculated by MJB&A based on Energy Information Administration and Federal Energy Regulatory Commission data.

We estimate that electric power industry employee jobs support 678,000 induced jobs, while contractor and supply chain jobs support another 959,000 induced jobs. Government spending of tax revenue—on schools, policing, transportation, infrastructure, and other services to support the communities where the industry operates and its employees live—results in an additional 445,000 public-sector jobs.

Moving deeper into the economy, economic modeling suggests the electric power industry employee, contractor and supply chain, and investment jobs result in further spending attributable to the industry that supports additional induced jobs. These extended impacts support an estimated additional 2.3 million induced jobs. **In total, we estimate that the electric power industry supports more than 4.4 million induced jobs.**

A More Detailed Analysis of the Nearly 2.7 Million Jobs Directly Provided by the Electric Power Industry

Each day, the dedicated men and women who work in the electric power industry operate power plants, manage customer relations, maintain transmission and distribution systems, and carry out countless other tasks and functions that keep the energy grid running safely and reliably around the clock. These workers are employed by investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers. We refer to the positions these workers hold as electric power industry employee jobs.

Electric power industry workers in the United States are employed by a wide range of organizations. Following the conventions of the North American Industry Classification System (NAICS), and as further detailed in the Appendix, the electric power industry employee jobs represent the workforce employed by the organizations that manage the generation of electricity and organizations that transmit and distribute power.[15]

As noted, we estimate that there are about 491,000 electric power industry jobs provided by investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers. (See Figure 1.) As shown in Figure 2, investor-owned electric companies employ 67 percent of those workers, public power utilities employ 19 percent, and electric cooperatives employ 14 percent.

According to the U.S. Department of Energy's Energy Information Administration, the electric power industry had combined sales of more than $390 billion in 2014.[16] We estimate that these sales contributed about $274 billion, or 1.6 percent, to national GDP. Industry sales are used to compensate employees and to invest in new energy infrastructure, as well as to pay taxes, where applicable. By modeling the sales as they move through the economy, this study estimates the impact of the electric power industry on jobs throughout the U.S. economy.

[15] Many electric distribution companies in the United States are part of larger corporations that own natural gas local distribution companies. This report only considers the economic impact of electric power industry jobs. For the purposes of this report, we have defined the electric power industry as the investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers that operate electric generating stations, whether those are coal-based or natural gas-based power plants, nuclear power plants, hydropower facilities, or wind or solar energy centers; those that maintain transmission lines; and those that distribute and deliver electricity to homes and businesses.

[16] Calculated by MJB&A based on Energy Information Administration Form EIA-861 "Electric power sales, revenue, and energy efficiency." Released October 6, 2016. Available at: https://www.eia.gov/electricity/data/eia861/.

Electric Power Industry Employees Have Good Jobs with Good Pay

The electric power industry requires a highly skilled workforce to build and maintain the energy grid and the electric power system. To attract and retain the necessary skills and talent, median annual wages for direct electric power industry employees are double the national median.[17] In 2015, median annual wages for direct electric power industry workers were $73,000, which does not include retirement plan matching programs, employer contributions to health insurance premiums, or other benefits. Including benefits, the median annual compensation exceeds $100,000.[18]

According to data collected by CEWD, hiring across the electric power industry is increasing, which is expected to largely offset the industry's anticipated personnel retirements. This data further highlights hiring increases, particularly among workers between the ages of 23 and 38. In fact, since 2006, hiring of employees under the age of 37 in the key job categories tracked by CEWD has increased by more than 6 percent.[19]

Electric Power Industry Contractor and Supply Chain jobs

The electric power industry has more than $1 trillion in physical assets and equipment across the country, including power plants, substations, towers, transmission and distribution lines, smart meters, transportation fleets, office facilities, and more. Operating and maintaining this complex system require a strong contractor force, which fulfills many important roles and works side-by-side with electric power industry employees. Workers across the system operate sophisticated equipment that is manufactured by skilled workers employed by advanced technology firms.

The broad range of supply chain jobs includes those jobs associated with the immediate supply chain to the electric power industry and the contractors who support it, as well as the extended supply chain: suppliers of the suppliers. We estimate that the electric power industry's contractors and supply chain comprise about 756,000 jobs. The substantial number of contractor and supply chain jobs underscores the critical role that contractors and their workers play in the industry.

More than half of the industry's contractor and supply chain jobs are the result of purchases by the electric power industry to support operations and employee jobs. For example, these include jobs associated with fuel acquisition (e.g., natural gas producers, coal miners, etc.) that are attributable to the electric power industry, as well as jobs associated with regular maintenance that are not included in the electric power industry employee jobs estimate (e.g., contractors retained to clear vegetation around power lines, manufacturers of replacement parts, etc.). In this sense, some supply chain jobs may involve similar or identical job functions as certain employee jobs, but the workers are employed by a company not captured with the government reporting for the electric power industry.

Many industries are part of the electric power industry supply chain, but only some of the jobs in those industries can be attributed to the electric power industry. For example, more than two-thirds of the natural gas produced in the United States is used to heat homes and as an input to industrial processes. In these cases, the economic model does not classify those jobs as suppliers to the electric power industry.

Other contractor and supply chain jobs are the result of purchases by companies to support contractor and supply chain jobs. For example, these include companies that supply equipment to coal mining companies and natural gas producers. They also include jobs associated with developing the equipment that contractors use to maintain properties around power plants and power lines. The supply chain also includes many professional services, such as consulting and accounting, real estate management, and building services (such as janitorial and other maintenance services).

Investment Jobs

The electric power industry's investments are enhancing our nation's electric generation, transmission, and distribution infrastructure and technology. These investments also expand and change economic impacts in communities across the country.

The owners and operators of generation, transmission, and distribution infrastructure invested approximately $120 billion in 2014 and in 2015. Industry capital investments exceeded

[17] U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2015. Electric power industry data are available at https://www.bls.gov/oes/current/naics4_221100.htm, general data at https://www.bls.gov/oes/current/oes_nat.htm#00-0000.

[18] Salary information pertains to the approximately 491,000 employees of investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers.

[19] Center for Energy Workforce Development. Gaps in the Energy Workforce Pipeline: 2015 CEWD Survey Results. November 2015.

$135 billion in 2016. The industry expects capital investments to exceed $115 billion annually for the next several years.[20]

The significant and diverse investments by the electric power industry require a diverse and specialized workforce. These investments create opportunities at project sites and in corporate offices for workers who provide services in finance, engineering, procurement, project management, construction oversight, and other project support services. They also create opportunities for skilled craft construction workers who work onsite to build or install new infrastructure. Jobs associated with the design and construction of new advanced technologies—such as wind, solar, and distribution equipment —are high-paying jobs.

Using the modeling tools developed by Emsi, we estimate that the broad economic impact of the electric power industry's $120 billion capital investment in 2014 (the model year) supported more than 1.4 million jobs.[21] (See Figure 1.) The composition of these jobs varies from year to year, but we expect that the industry will sustain a similarly high level of investment throughout the country for the next several years as the industry builds smarter energy infrastructure and deploys new, cleaner generation technologies.

An Analysis of the More Than 4.4 Million Induced Jobs Supported by the Electric Power Industry

Adding together the electric power industry employee, contractor and supply chain, and investment jobs, we find that the electric power industry directly provides nearly 2.7 million jobs. This is an impressive figure, but it only begins to quantify the total economic impact of the industry across the country.

Using its economic model, Emsi estimated the jobs that result as spending moves from electric power industry employee, contractor and supply chain, and investment jobs into the broader economy. Economists typically refer to these transactions as "induced effects" or "induced jobs," thus capturing the broad impacts of the industry.

Estimated induced jobs are largely the result of two kinds of spending:

- **Paycheck spending:** As workers spend their paychecks, additional employment opportunities are created. For example, when a power plant operator receives a paycheck, he or she will spend some portion of those dollars on goods and services, including housing, medical care, food, and entertainment. This spending supports a portion of the jobs at various institutions, for example, nursing jobs at a hospital or part-time jobs at a coffee shop.

- **Government spending:** Every part of the economy is supported on some level by government spending. The model quantifies the impact of government spending in communities as a result of taxes paid by the industry and by workers. Spending by government supports a range of jobs, including teachers at schools and first responders at police and fire stations.

What Types of Employee Jobs Does the Electric Power Industry Provide?

As the energy grid evolves to better provide and support new technologies and services, the electric power industry increasingly requires innovative skills and knowledge from employees with experience applying advanced technology and data analytics. To attract and retain a highly skilled workforce for the future, the electric power industry has created a range of workforce development initiatives in partnership with educational institutions and organized labor. As explained later in the report, many of these initiatives are focused on developing an increasingly diverse workforce. Hiring across all positions in the industry is expected to rise in the coming years to fill gaps and respond to evolving needs in the industry.

Many of the jobs in the electric power industry can be categorized in one of four key occupations that perform the myriad of specialized tasks within the industry:

- Engineers
- Lineworkers
- Plant and field operators
- Technicians[22]

[20] Estimates are based on capital expenditure projections provided by EEI, APPA, and NRECA. EEI estimates capital expenditures (excluding investments associated with natural gas companies) by investor-owned electric companies were $84 billion in 2014, $91 billion in 2015, and $96 billion in 2016. APPA estimates capital expenditures of $20 billion to $25 billion annually based on an analysis of sales and generation. NRECA estimates capital expenditures averaged $13 billion between 2010 and 2014. Based on recent trends, EEI estimates an additional $1.5 billion in annual capital expenditures by independent power producers.

[21] As described in the Appendix, Emsi developed this estimate using its Input-Output model, assuming the capital expenditures were part of the sales included in the model.

[22] MJB&A worked with CEWD to identify these occupations and the associated jobs.

Economic Impact Studies Versus Surveys/Census Methods

A key difference between this report and other recent energy workforce-related reports is the approach used to estimate the job impact numbers. Two methods commonly used are census-style approaches and economic impact modeling approaches. Under a census approach, total job estimates are developed using data self-reported by the targeted industry. A census is a count of all workers said to be related in one way or another to a given industry at any given time. It does not classify how workers are employed or where jobs are located along the supply chain. It also does not estimate an industry's broader economic impact.

This report is based on an economic impact study, which explores the downstream impacts of a job in a specific industry. To model these impacts, the jobs being examined (i.e., the direct jobs) must be identified and classified carefully. The economic and employment contributions of these jobs then are modeled using information that captures the interrelationships of industries, including an industry's reported supply chain and the purchases from that supply chain. The industry's broader economic impact (induced jobs) then is estimated based on spending generated by electric power industry employee, contractor and supply chain, and investment jobs. The initial classification of direct jobs is key to ensuring there is no double counting of downstream impacts. Because census reports are a raw count of jobs without classification, they do not show an industry's downstream impact and cannot be used to generate one.

As discussed in the Appendix, this report uses official, government-collected data as a starting point for its economic impact analysis. The electric power industry jobs reported to the U.S. Bureau of Labor Statistics (BLS) form the basis for modeled investment, supply chain, and induced jobs.

According to CEWD's 2015 survey of the energy workforce, these four key occupations make up 44 percent of total energy industry employees.[23] Additionally, CEWD identified engineers and technicians as the roles with the highest percentage of workers over 53 years of age, and concluded that these two job categories have the potential for significant retirements in the coming years.

In response, the electric power industry is expected to have a large demand for more highly skilled workers, particularly engineers and technicians, and is preparing by developing training programs to maintain a workforce with strong technical capabilities. Although they are highly skilled, many of these positions do not require a four-year college degree. Lineworkers, plant and field operators, and technicians can enter the workforce after completing two-year training programs, or they can learn the skills they need through apprenticeship programs, often with the support of organized labor.

Engineers, lineworkers, plant and field operators, and technicians form the core of the electric power industry's workforce and are responsible for building and maintaining the complex system. The tasks that these skilled workers perform are multifaceted and broad, ranging from installing new digital smart grid technology in residential neighborhoods to refueling nuclear power plants. These jobs have an outsized impact on the economy and provide high-paying, lifetime careers to many Americans.

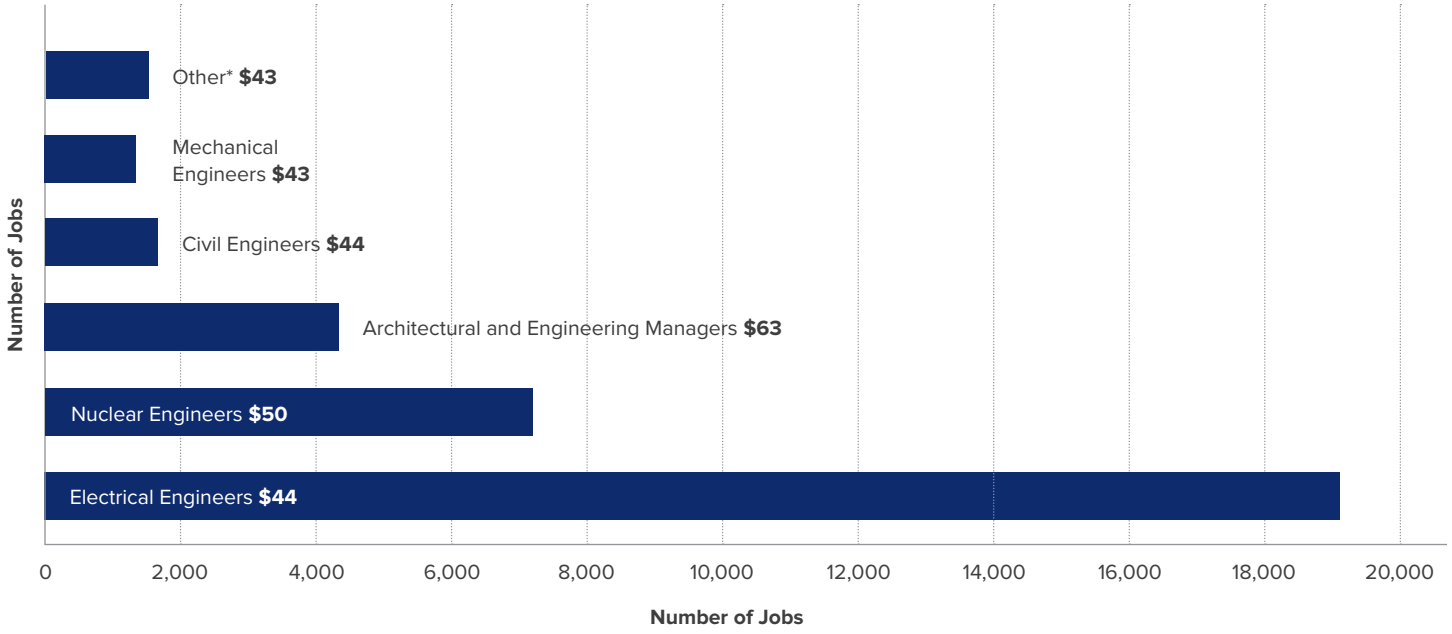
We review each of these key occupations on the next few pages.[24] Due to data limitations, we focus on job counts reported for investor-owned electric companies and electric cooperatives. For the purposes of this study, we assumed that public power utilities and independent power producers are structured similarly to investor-owned electric companies and electric cooperatives. In order to fully account for these key jobs, we have included jobs associated with the natural gas distribution segment in the totals.[25]

[23] Center for Energy Workforce Development. Gaps in the Energy Workforce Pipeline: 2015 CEWD Survey Results. November 2015.

[24] The median hourly wage data for the following job categories are based on the same U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2015, as was cited earlier. Electric power industry data are available at https://www.bls.gov/oes/current/naics4_221100.htm.

[25] A number of companies in the electric power industry also operate natural gas distribution business units. In the discussion of the key occupations, we include jobs associated with natural gas distribution, as well as electric power generation, transmission, and distribution. Natural gas distribution was not included in the economic modeling.

Figure 3. Electric Power Industry Engineering Jobs and Median Hourly Wages



**Other engineer categories include environmental, health and safety, and chemical engineers. The hourly wage displayed for the "Other" category is a weighted average of the category medians.*

Engineers

More than 35,000 engineers work for electric and natural gas distribution companies. While certain types of engineers, such as civil and electrical engineers, also work in other industries, occupations such as nuclear power engineers are largely unique to the electric power industry. According to CEWD's 2015 Energy Workforce Demand report, the number of engineering jobs is projected to grow by 3.6 percent between 2014 and 2024. These jobs are highly compensated, with most median salaries higher than $40 per hour. Figure 3 shows the distribution of engineers across the electric power industry and the median hourly wage for these jobs, which ranges from $40 per hour for environmental engineers to $63 per hour for architectural and engineering managers.

Lineworkers

Lineworkers are the jobs most often associated with the electric power industry and are its most visible profession. The role of the lineworker may seem straightforward: installing and repairing the power lines that crisscross America's neighborhoods and deliver electricity when and where it is needed. However, the day-to-day tasks involved in this career are complex and challenging, ranging from restoring power in extremely challenging storm conditions, to utilizing new sources of data to identify the cause of an outage, to safely conducting electric repairs and installations while hanging 50 feet or more above the ground. Across the United States, more than 74,000 lineworkers, line mechanics, and supervisors work day and night in all conditions to keep electricity flowing safely and reliably to American homes and businesses.

According to CEWD, of the four key occupations, lineworker jobs will experience the greatest growth between 2014 and 2024, adding more than 3,500 jobs. CEWD 2015 survey data show that younger workers entering the workforce are filling lineworker positions. As of 2014, more than half of these workers were under 42 years old, and 25 percent were under 32 years old.[26] Figure 4 emphasizes the high-paying nature of these jobs, with both categories paying a median wage of more than $30 per hour.

[26] Center for Energy Workforce Development. Gaps in the Energy Workforce Pipeline: 2015 CEWD Survey Results. November 2015.

Power Plant and Field Operators

Similar to lineworkers, plant and field operator positions are unique to the electric and natural gas generation industries. These workers, of whom there are nearly 45,000, run the power plants that provide the nation's electricity and the compressor stations that ensure natural gas is available to power plants and to customers. Information on the number of operator jobs and their compensation is found in Figure 5.

Technicians

Technicians consist of the wide range of skilled employees working in the electric power industry. These include, but are not limited to, the electricians, welders, pipefitters, machinists, and power dispatchers who keep the energy grid running safely and reliably. Technicians may work with engineers, lineworkers, and operators on a daily basis, but they are not included in any of those job categories. Information on the number of technicians and their compensation is found in Figure 6.

The Center For Energy Workforce Development: Recruiting and Training the Workforce of the Future

The electric power industry has partnered with community colleges, organized labor, and government agencies to create a range of workforce development and outreach programs that offer opportunities for individuals within local communities to gain the skills, training, and knowledge they need to pursue successful careers in the electric power industry.[27]

In March 2006, industry stakeholders recognized the need to develop a coordinated approach to recruiting and training the energy industry workforce and launched CEWD. CEWD is a non-profit consortium of electric, natural gas, and nuclear energy companies and their associations (the Edison Electric Institute, American Public Power Association, National Rural Electric Cooperative Association, American Gas Association, and Nuclear Energy Institute).

Figure 4. Electric Power Industry Lineworker Jobs and Median Hourly Wages

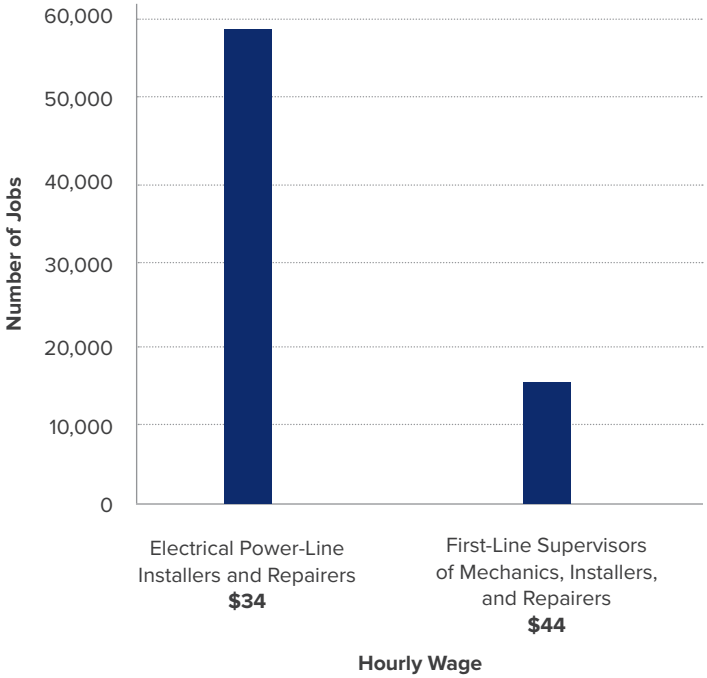
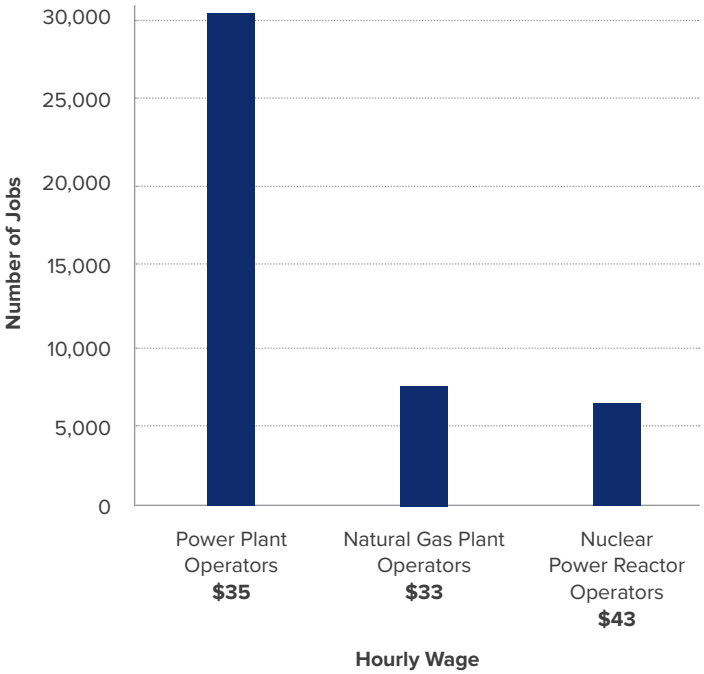
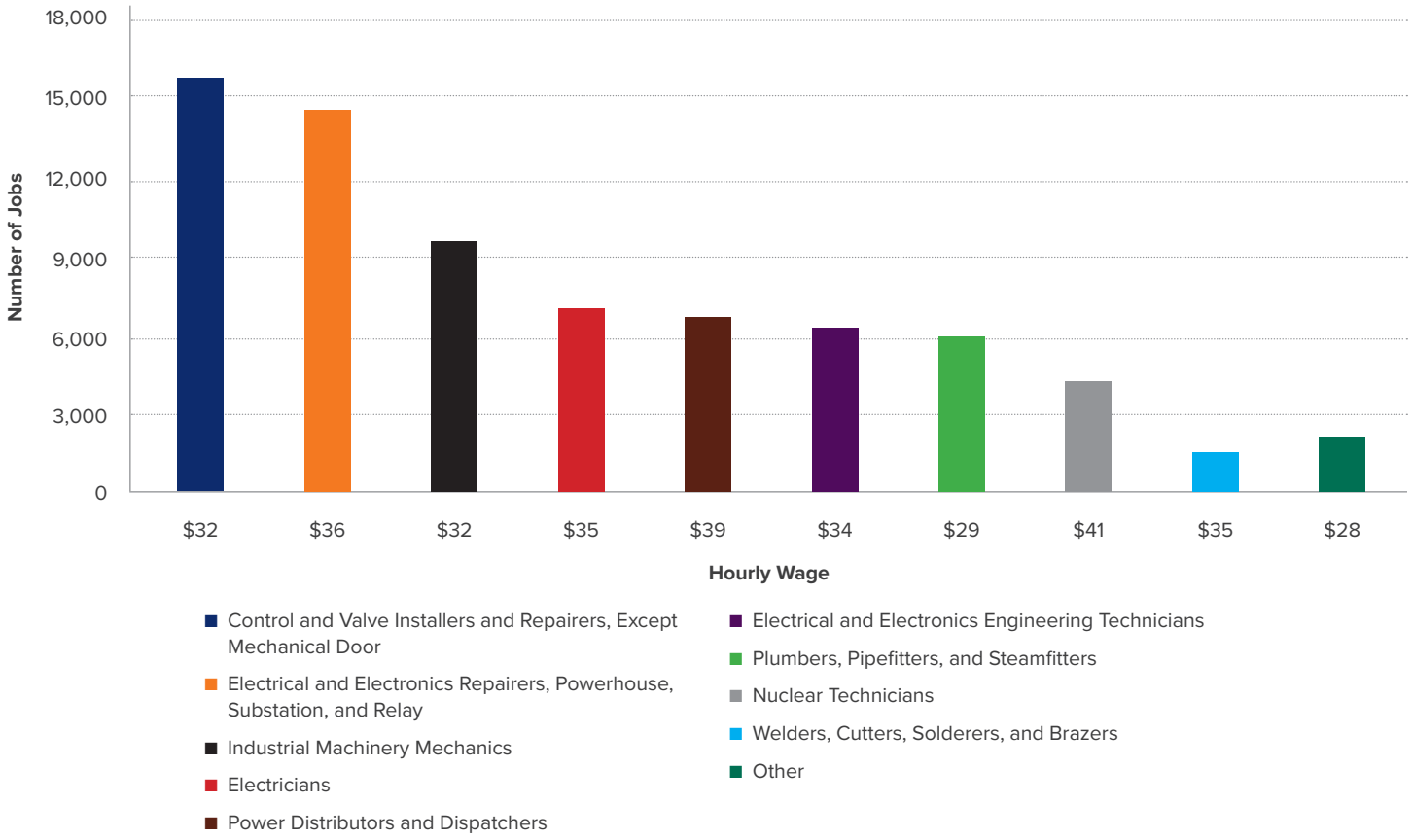


Figure 5. Electric Power Industry Power Plant and Field Operator Jobs and Median Hourly Wages



[27] Center for Energy Workforce Development. Gaps in the Energy Workforce Pipeline: 2015 CEWD Survey Results. November 2015.

Figure 6. Electric Sector Technician Jobs and Median Hourly Wages



**Other technician categories include pipelayers, machinists, and millwrights. The hourly wage displayed for the "Other" category is a weighted average of the category medians.*

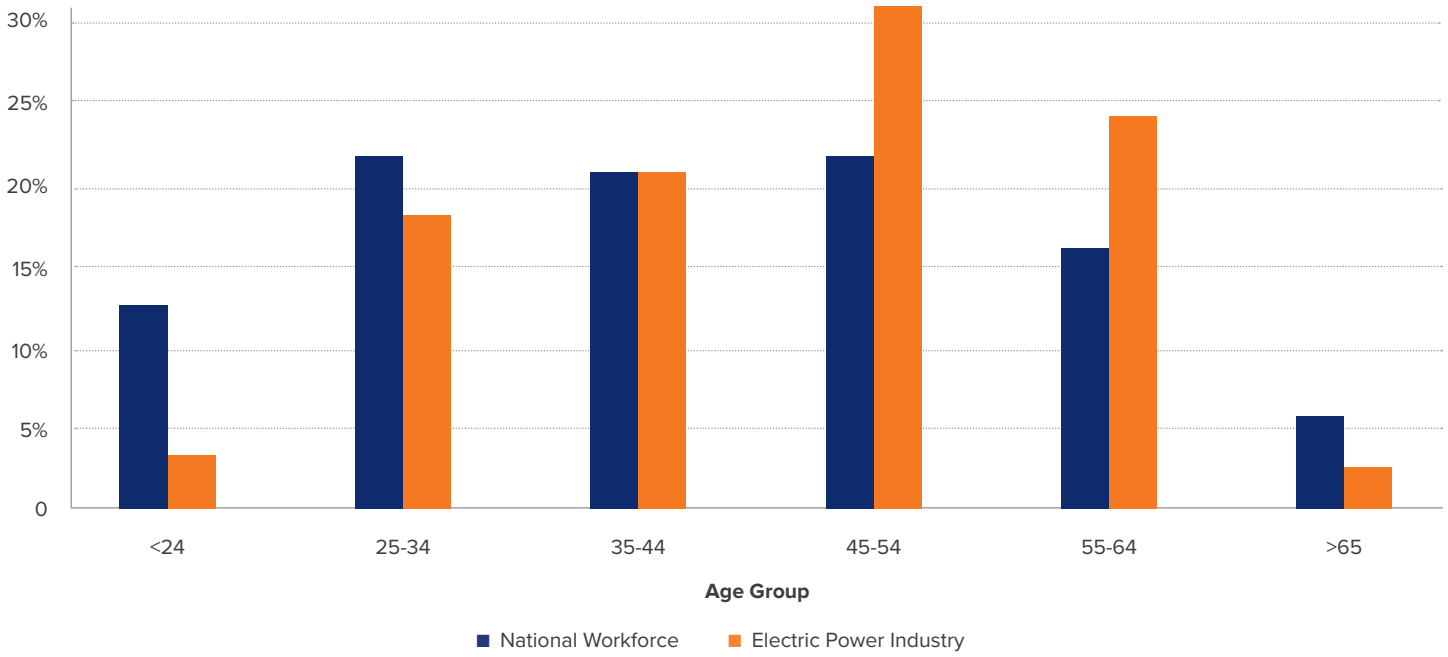
CEWD initially was created to help energy companies develop solutions to issues around an aging workforce and a potential skills shortage in the industry. It was the first partnership among companies, their associations, contractors, and labor unions to focus on the need to build a skilled workforce pipeline that will meet future industry needs.

As shown in Figure 7, the electric power industry workforce continues to have a greater percentage of older workers than the total national workforce, with employees older than 45 representing 58 percent of the electric power industry workforce compared to 45 percent nationally. However, based on its surveys, CEWD has found that the energy workforce is becoming younger. In its 2015 survey of the industry, CEWD found that the number of older workers in the key jobs tracked by CEWD has declined. Between 2012 and 2014, the number of employees with the potential to retire in the next one to 10 years declined by 7.4 percentage points, with retirement forecasts trending downward for the first time since CEWD started surveying the industry.

As the industry has implemented solutions to address concerns about an aging workforce, CEWD has extended its focus to develop approaches to close the skills gap in mission-critical jobs. No other industry has an organization like CEWD, where companies openly collaborate and share processes, technology, and results to build a trained and competitive workforce.

Since its inception, CEWD has built partnerships with multiple federal agencies and national organizations to advance energy education, career awareness, and support for critical energy jobs. A prime example is the Utility Industry Workforce Initiative that partners four federal government agencies (the Departments of Defense, Energy, Labor, and Veterans Affairs) along with organized labor and the national associations that

Figure 7. Age of the Electric Power Industry Workforce Compared to the National Workforce



are members of CEWD specifically to address workforce issues in the industry, beginning with veterans.

The federal government also has supported the development of programs to train energy industry workers. For example, the Department of Defense SkillBridge initiative provides support for programs that train service members transitioning out of the military. Southern Company's Georgia Power has developed a Transmission Line and Substation Construction Training Program that fits within the SkillBridge initiative, providing information and support, pre-employment tests, interviews, and training at Fort Stewart in eastern Georgia for apprentice lineworker jobs at Georgia Power.

Through the Troops to Energy Jobs program, CEWD and the industry have created a roadmap for veterans to enter energy careers and for companies to support the transition, retention, and professional development of military veterans working in the energy industry. Since 2010, participating energy companies have seen a steady increase in veteran hires. Overall, respondents to CEWD's 2015 survey indicated military hiring had increased from 6 percent of new employees in 2010 to slightly more than 10 percent at the end of 2014.

In total, the industry reports that veterans make up 8.1 percent of the electric power industry employee workforce. The trends in hiring and the industry's focus on military hiring and retention suggest that the number will continue to grow.[28]

At the state level, CEWD has created State Energy Workforce Consortia that represent 30 states and embody partnerships with state agencies, educational institutions, and energy companies. The consortia work to educate students from elementary schools through universities and to provide energy career opportunities for transitioning adults, women, and low-income young adults. For example, the Virginia Energy Workforce Consortium has collaborated with the Virginia, Maryland & Delaware Association of Electric Cooperatives and Southside Virginia Community College to develop a lineworker training program. The program was developed after gathering information on workforce demand in Virginia and after identifying a need for a program that would prepare workers to assume entry-level positions and provide them with the skills necessary to join the apprenticeship process most companies already had in place. The program, which launched in spring 2016, will provide local companies with an in-state source of trained workers.

[28] Center for Energy Workforce Development. Gaps in the Energy Workforce Pipeline: 2015 CEWD Survey Results. November 2015.

In 2010, the Bill and Melinda Gates Foundation awarded CEWD a grant to utilize CEWD's existing state energy workforce consortia structure to implement the Get Into Energy Career Pathways Model supporting the Gates Foundation's goal to double the number of low-income young adults earning a postsecondary degree or certificate that has value in the marketplace. The Pathways Model provides a roadmap to skilled technician positions in the energy industry with pathways to higher-level jobs in a variety of work settings.

Building on the success of the Pathways Model, an educational services firm called TCI Solutions developed an approach to developing a local and diverse workforce called the Legacy I^3 Model. In 2016, Xcel Energy launched a Legacy program in Minnesota. The program targeted diverse students at high schools in Minneapolis and St. Paul to encourage them to pursue positions at Xcel. Xcel's program builds on a pilot launched by Arizona Public Service in 2015 as part of the company's commitment to build a diverse talent pipeline.

CEWD has established partnerships with the International Brotherhood of Electrical Workers (IBEW) and the Utility Workers Union of America (UWUA) to advance constructive policies and to build labor-management collaborations. In addition, the IBEW has developed partnerships with several companies to develop regional training centers that will provide training to prospective workers and will update training for existing employees. The training facilities, located throughout the country, feature both classrooms and outdoor training areas that can be used to simulate work environments.[29]

To better reflect the diversity of the communities in which it operates, the electric power industry is working with CEWD and with other organizations to increase the representation of women in the workforce, with an emphasis on introducing women to opportunities for careers in the skilled trades. At the same time, companies, government agencies, and energy industry organizations have launched programs that provide job training for underserved communities. Such initiatives focus on building interest in the industry and providing individuals with skills that will help them to establish successful energy careers. These opportunities also may extend to the supply chain of the industry through a range of business diversity initiatives.

Conclusion

Electricity is the backbone of our economy and is crucial to our national security. Electricity powers our homes, offices, and industries; enables communications, entertainment, and medical services; runs various forms of transportation; and keeps us all connected 24/7. Today, our high-tech society demands electricity to power or charge nearly every new product or technology that comes to market.

As demonstrated through this study, the electric power industry's economic reach spreads throughout the entire American value chain. In total, the electric power industry supports more than 7 million American jobs—one out of every 20 U.S. jobs.

In addition to providing the foundation for all economic activity, the electric power industry also contributes about 5 percent of total U.S. GDP to the overall economy. And, it is the most capital-intensive industry in the United States, investing more than $100 billion each year, on average, over and above basic operations and maintenance spending.

The value of electricity and of the electric power industry cannot be overstated. A strong workforce is essential to providing the safe, reliable, affordable, and increasingly clean energy we so often take for granted. The men and women who work in the industry are important leaders and contributors in their communities in every corner of the country.

This report is designed to help policymakers, customers, and other businesses understand the importance and complexity of this vital American success story. And, as we look to the future, we are excited about the changes the electric power industry is leading. We are confident that the resources the industry is investing to expand its training pipeline and to recruit the next generation of workers will enable the industry to continue to deliver America's energy future.

[29] For additional information, see: http://www.nuitf.net/.

Appendix: Overview of the Data Collected and Modeling Completed in Support of the Electric Power Industry Jobs Report

Economic Modeling Specialists International (Emsi) used its proprietary Multi-Regional Social Accounting Matrix (or the Emsi model) to estimate the total economic contributions of the electric power industry to the U.S. economy. The Emsi model represents the flow of money in an economy, expanding upon a more traditional input-output (I-O) approach to economic modeling. The model performs the same tasks as a traditional I-O tool, but provides a more complete picture of the economy. In addition to reporting jobs, earnings, and sales multipliers, the Emsi model provides details on the demographic and occupational components of jobs (16 detailed demographics and their spending, and about 750 career categories). The model includes more than 1,000 industry, government, household, and investment sectors.

Following is a high-level list of the sectors represented by the national matrix and the relationships among them:

- **Industry Accounts:** The activity of domestic industries
- **Owner-Occupied Dwellings:** Expenditures by people who own and occupy their own residences
- **Labor Accounts:** The earnings and expenditures of workers in certain careers
- **Capital Account:** Capital income creation and allocation of that income to resident demographic profits
- **Government Capital Account:** The depreciation of government capital and the expenditure of funds for capital replacement and maintenance
- **Tax Accounts:** Purchases of government services from taxes on production and imports
- **Investment Accounts:** Captures the source and spending of funds for current investments in the region
- **Trade Balance Account:** The account added to the matrix to handle the international trade imbalance or difference between imports and exports
- **Subsidies Account:** Moneys paid to industries from the government
- **External Account:** The exports of all sectors from the region

Focus of Electric Power Industry Modeling Effort

Any review of the workforce and economic contributions of the electric power industry starts with individuals who are employed by the industry to operate power plants, manage customer relations, maintain the transmission and distribution systems, and carry out countless other tasks and functions that keep the energy grid running safely and reliably around the clock. In this report, we refer to these jobs as electric power industry employee jobs. Electric power industry employee jobs across the economic sectors that make up the electric power industry were provided by Emsi based on its I-O Model and publicly available information.

With input from the Edison Electric Institute (EEI), American Public Power Association (APPA), and National Rural Electric Cooperative Association (NRECA), Emsi and MJB&A identified 10 industries related to the electric power industry by industrial classification code in the North American Industry Classification System (NAICS) for study. Table 1 lists the identified industries by NAICS code and provides a brief description.[30]

For each NAICS code, Emsi compiled jobs and earnings data using information collected and published by the U.S. Bureau of Labor Statistics (BLS), and electric sector sales information using data from the U.S. Bureau of Economic Analysis' (BEA's) *Make and Use Tables and National Income and Product Accounts*. Using its model, Emsi developed statistics on employment, earnings, output (or sales), and value added (i.e., gross regional product, by industry) by industry sector. This includes the jobs associated with the supply chain, as well as jobs that are induced by the sector, such as hospitals or restaurants in communities where individuals are employed by the electric power industry.

Electric power industry workers in the United States are employed by investor-owned electric companies, public power utilities, electric cooperatives, and independent power producers. The core dataset developed by Emsi focused on employees of investor-owned electric companies and electric cooperatives.

For the purposes of this report, Emsi took additional steps to estimate the workforce associated with public power utilities, which include 2,000 government- and community-

[30] Many U.S. electric distribution companies are part of larger corporations that own natural gas local distribution companies. This report only considers the economic impact of electric power industry jobs (NAICS codes beginning with 2211).

owned utilities. Within the databases used by Emsi to develop the initial jobs estimates, these utilities are classified as government-related jobs. As a result, Emsi developed a methodology for estimating and reporting public power jobs using ownership data extracted from BLS Quarterly Census of Employment and Wages (QCEW).

To develop an estimate of the job impacts of the electric power industry's long-term capital investments, Emsi and MJB&A worked with EEI, APPA, and NRECA to estimate annual capital expenditures. EEI estimated capital expenditures (excluding investments associated with natural gas companies) by investor-owned electric companies were $84 billion in 2014, $91 billion in 2015, and $96 billion in 2016. APPA estimated capital expenditures of $20 billion to $25 billion annually based on an analysis of sales and generation. NRECA estimated capital expenditures averaged $13 billion between 2010 and 2014. Based on recent trends, EEI estimated an additional $1.5 billion in annual capital expenditures by independent power producers.

Using this information, Emsi estimated electric power industry capital expenditures of $120 billion in 2014. To estimate the jobs associated with this expenditure, Emsi conducted an independent run of its model with the capital expenditures recorded as additional sales within the model. Based on this independent run, Emsi was able to isolate the impact of the capital expenditures. Within the model, that impact was captured previously as part of induced jobs. Emsi's methodology did not change the total number of jobs within the core run of the model but provided data to attribute jobs to capital expenditures.

Table 1. Electric Power Industry Sectors Included in Analysis

NAICS	Name	Description
221111	Hydroelectric Power Generation	These facilities use water power to drive a turbine and produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221112	Fossil Fuel Electric Power Generation	These facilities use fossil fuels, such as coal, oil, or natural gas, in internal combustion or combustion turbine conventional steam process to produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221113	Nuclear Electric Power Generation	These facilities use nuclear power to produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221114	Solar Electric Power Generation	These facilities use energy from the sun to produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221115	Wind Electric Power Generation	These facilities use wind power to drive a turbine and produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221116	Geothermal Electric Power Generation	These facilities use heat derived from the Earth to produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221117	Biomass Electric Power Generation	These facilities use biomass (e.g., wood, waste, alcohol fuels) to produce electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221118	Other Electric Power Generation	These facilities convert other forms of energy, such as tidal power, into electric energy. The electric energy produced is provided to electric power transmission systems or to electric power distribution systems.
221121	Electric Bulk Power Transmission and Control	This comprises the operation of electric power transmission systems and/or controlling (i.e., regulating voltage) the transmission of electricity from the generating source to distribution centers or other electric utilities. The transmission system includes lines and transformer stations.
221122	Electric Power Distribution	This comprises electric power establishments primarily engaged in either (1) operating electric power distribution systems (i.e., consisting of lines, poles, meters, and wiring) or (2) operating as electric power brokers or agents that arrange the sale of electricity via power distribution systems operated by others.

About M.J. Bradley & Associates

M.J. Bradley & Associates, LLC (MJB&A), founded in 1994, is a strategic consulting firm focused on energy and environmental issues. The firm includes a multi-disciplinary team of experts with backgrounds in economics, law, engineering, and policy. The company works with private companies, public agencies, and non-profit organizations to understand and evaluate environmental regulations and policy, facilitate multi-stakeholder initiatives, shape business strategies, and deploy clean energy technologies.

About The Edison Electric Institute

EEI is the association that represents all U.S. investor-owned electric companies. EEI's members provide electricity for 220 million Americans, and operate in all 50 states and the District of Columbia. In addition to its U.S. members, EEI has more than 60 international electric companies as International Members, and hundreds of industry suppliers and related organizations as Associate Members.

About The American Public Power Association

The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. It represents public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. The association advocates and advises on electricity policy, technology, trends, training, and operations. Its members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power.

About The National Rural Electric Cooperative Association

The National Rural Electric Cooperative Association is the national service organization representing the nation's more than 900 private, not-for-profit, consumer-owned electric cooperatives, which serve 42 million people in 47 states.

V. A. 7.
Monthly JEA Financial Review & Statements

Return to Agenda

V. A. 7.
10/17/2017

JEA Monthly Financial Summary

as of September 30, 2017

Board of Directors

October 17, 2017

Key Financial Metrics

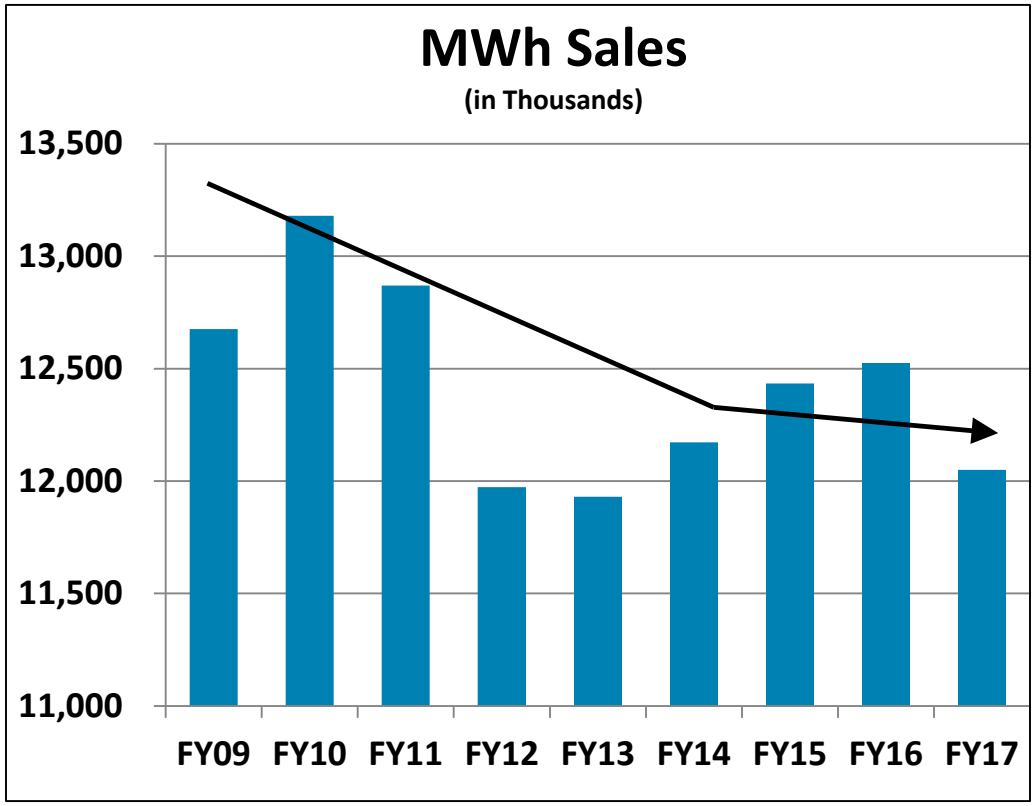
Year End Financial Metrics

Electric System	FY2017	FY2016	Target	Result
Debt Service Coverage	2.5x	2.9x	≥ 2.2x	✓
Days Liquidity	337	377	150 to 250 days[1]	✓
Days Cash on Hand	*235*	*270*		✓
Debt to Asset %	68%[4]	65%	52.1%[2]	✓

Water and Sewer System	FY2017	FY2016	Target	Result
Debt Service Coverage	3.0x	3.3x	≥ 1.8x	✓
Days Liquidity	596	632	150 to 250 days[1]	✓
Days Cash on Hand	*496*	*528*		✓
Debt to Asset %	50%	53%	49%[3]	✓

[1] Moody's Aa benchmark: 150 to 250 days
[2] Long-term target is 52.1%: per Moody's Sector In-Depth Report "Public Power Medians – Sound metrics signal stability as carbon challenges loom", Sept. 2017
[3] Long-term target is 49%: calculated peer group from Moody's 214 Aa rated public water-sewer utilities, Dec. 2016
[4] Electric System Debt/Asset % for FY2017 includes SJRPP impairment loss due to decommissioning of the plant

Electric System: MWh Sales



Month	FY16	FY17	%
Oct	952,515	951,425	(0.1%)
Nov	923,705	863,238	(6.5%)
Dec	922,956	905,219	(1.9%)
Jan	1,049,897	932,807	(11.2%)
Feb	894,563	759,141	(15.1%)
Mar	893,954	914,242	2.3%
Apr	900,013	933,563	3.7%
May	1,089,555	1,084,832	(0.4%)
Jun	1,231,251	1,094,475	(11.1%)
Jul	1,336,835	1,298,608	(2.9%)
Aug	1,254,240	1,260,217	0.5%
Sep	1,111,769	1,052,365	(5.3%)
Total	**12,561,253**	**12,050,133**	**(4.1%)**

Unit Sales Driver: FY17 MWh reduction due to moderate weather and decrease in FPU demand of 155,047 MWh.

Total System	(4.1%)
Residential	(4.1%)
Comm./Industrial	(2.6%)
Interruptible	(1.9%)
Wholesale (FPU)	(50.8%)

YTD Degree Days		
30-yr. Avg.	FY16	FY17
4,014	4,117	3,737

YTD Customer Accounts		
FY16	FY17	%
455,373	462,013	1.5%

Electric System: Financial Results and Cost Metrics

($ in thousands)

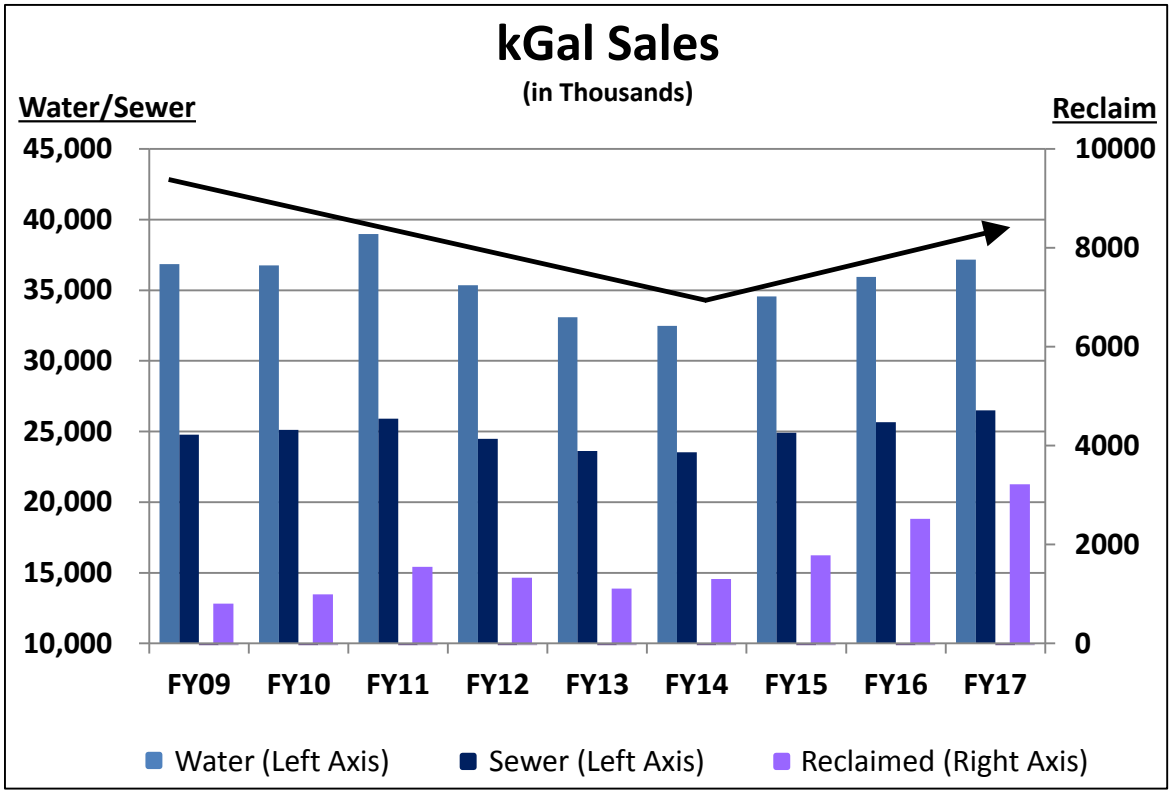
Revenues	FY17 Actual	FY16 Actual	FY17 Budget	FY17 vs FY16 ($)	Variance (%)
Fuel Revenue	$ 394,189[1]	$ 426,653[2]	$ 449,776	$ (32,464)	-7.6%[1]
Base Revenue	750,329[1]	750,038	735,204	291	0.0%
Other Revenue	45,937	37,904	41,787	8,033	21.2%
Total Revenues	**$ 1,190,455**	**$ 1,214,595**	**$ 1,226,767**	**$ (24,140)**	**-2.0%**
		$(36M)			
Select Expenses					
Fuel Expense	$ 442,588	$ 397,280	$ 411,903	$ (45,308)	-11.4%
Fuel Fund Transfers	(48,400)	29,373	37,705	77,773	
O & M Expense	199,470	192,527	226,180	(6,943)	-3.6%
Non-fuel Purchased Power	76,260	87,426	83,394	11,166	12.8%
Net Revenues	**$ 517,074**	**$ 496,092**	**$ 454,939**	**$ 20,982**	**4.2%**
		$62M			
Capital Expenditures	$ 134,782	$ 150,926	$ 153,200[3]	$ 16,144	10.7%
Debt Service	$ 204,477[4]	$ 171,506	$ 179,654	$ (32,971)	-19.2%

Electric Costs / MWh	Non-Fuel
Target	$ 53.94
Actual	52.50
Difference	$ 1.44

Fuel Fund *($ in millions)*	
Beginning Balance	$ 180
Surplus/(Deficit)	(48)
Ending Balance	$ 132

[1] Includes rate change in December 2016
[2] Net of $57 million fuel credit and fuel rate reduction
[3] Council approved limit for capital expenditures in FY17 is $170 million
[4] Includes additional $40 million related to advanced debt refunding approved by Board in November 2016

Water and Sewer System: kGal Sales



Month	FY16	FY17	%
Oct	3,120	3,129	0.3%
Nov	2,641	3,068	16.2%
Dec	2,758	2,923	6.0%
Jan	2,527	2,768	9.6%
Feb	2,479	2,624	5.9%
Mar	2,825	3,168	12.1%
Apr	2,914	3,476	19.3%
May	3,523	3,736	6.1%
Jun	3,290	2,833	(13.9%)
Jul	3,736	3,480	(6.9%)
Aug	3,451	3,043	(11.8%)
Sep	3,094	2,998	(3.1%)
Total	**36,358**	**37,245**	**2.4%**

Unit Sales Driver: FY17 rainfall up 42 inches; rain days level. Warm and dry conditions through Spring were mitigated by a wet Summer.
Irrigation for FY17 up 5% versus FY16.

YTD Customer Accounts			
	FY16	FY17	%
Water	337,217	344,445	2.1%
Sewer	260,937	267,381	2.5%
Reclaimed	8,361	10,283	23.0%

YTD Rainfall			
	30-Yr. Avg.	FY16	FY17
Inches	52.4	31	73
Days	114	98	98

Total System	2.4%
Residential	3.2%
Comm./Industrial	0.4%
Irrigation	4.9%

Water and Sewer System: Financial Results and Cost Metrics

($ in thousands)

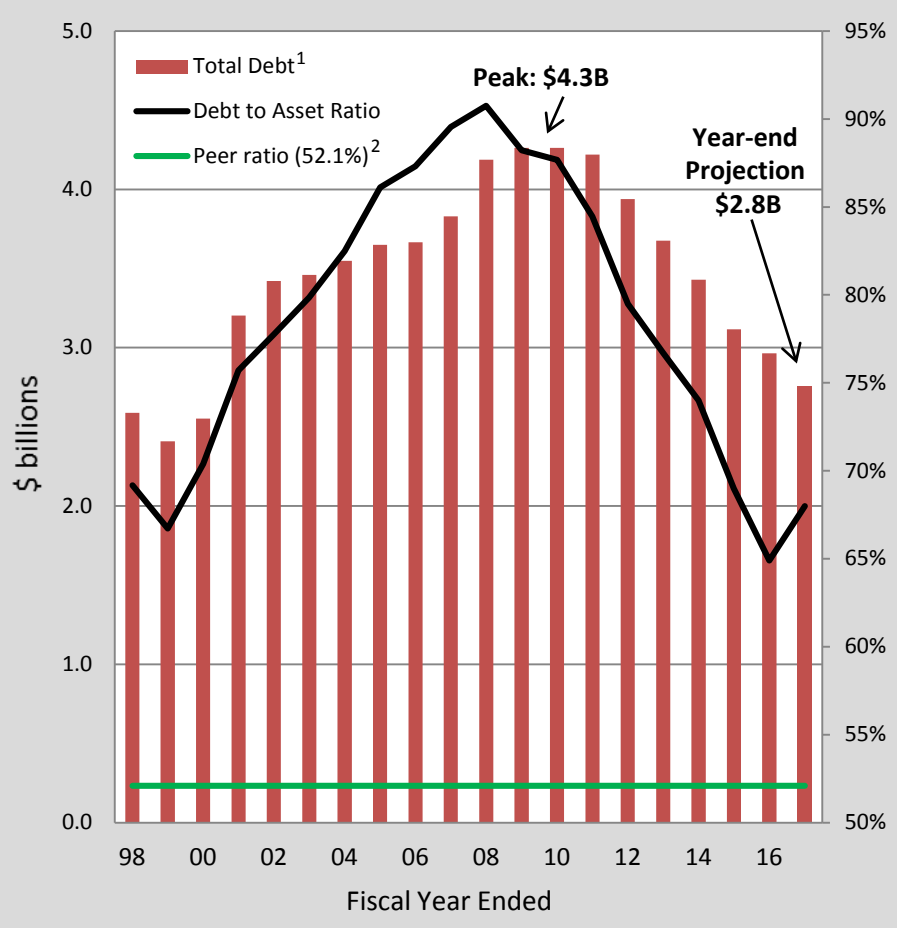
Revenues	FY17 Actual	FY16 Actual	FY17 Budget	FY17 vs FY16 ($)	Variance (%)
Water & Sewer Revenues	$ 424,594	$ 409,889	$ 394,430	$ 14,705	3.6%
Other Revenue	43,203	40,070	33,792	3,133	7.8%
Total Revenues	**$ 467,797**	**$ 449,959**	**$ 428,222**	**$ 17,838**	**4.0%**
		$40M			
Select Expenses					
O & M Expense	$ 139,447	$ 130,296	$ 144,149	$ (9,151)	-7.0%
Net Revenues	**$ 337,469**	**$ 313,130**	**$ 280,753**	**$ 24,339**	**7.8%**
		$57M			
Capital Expenditures	$ 187,593	$ 147,363	$ 205,000[1]	$ (40,230)	-27.3%
Debt Service	$ 112,791	$ 95,418	$ 118,375	$ (17,373)	-18.2%

Cost / Kgal	Water	Sewer
Target	$ 4.75	$ 10.27
Actual	4.57	9.20
Difference	$ 0.18	$ 1.07

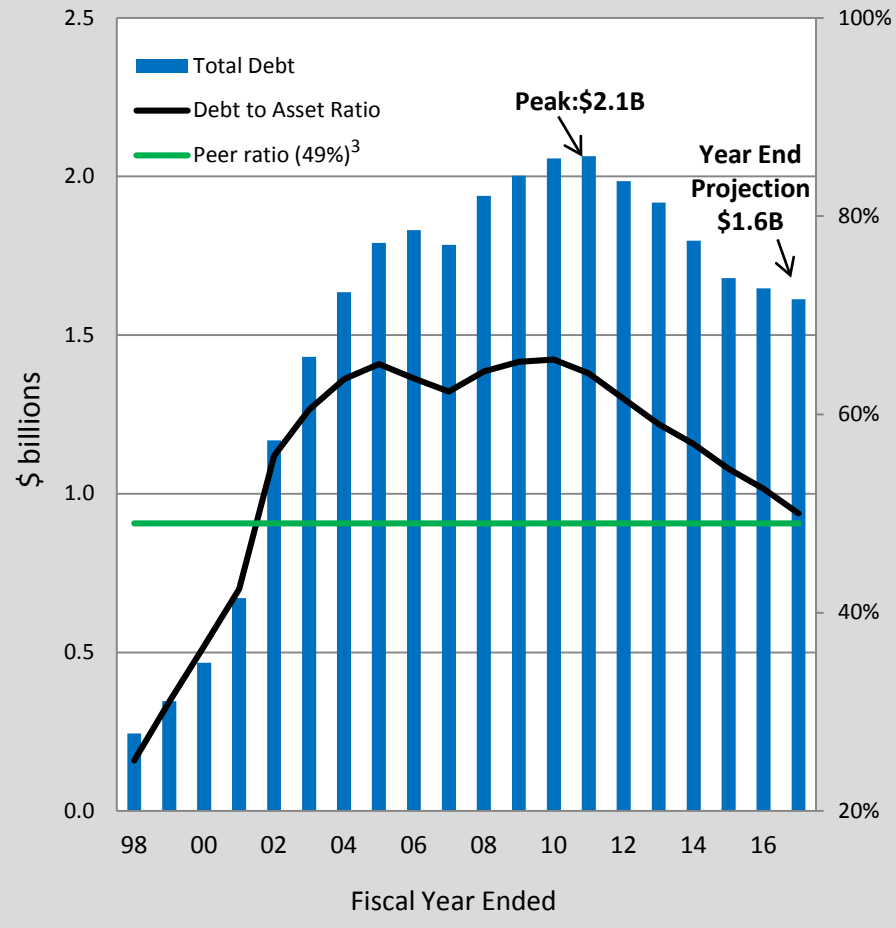
[1] Council approved limit for capital expenditures in FY17 is $225.5 million

Debt and Debt to Asset Ratios

Electric System

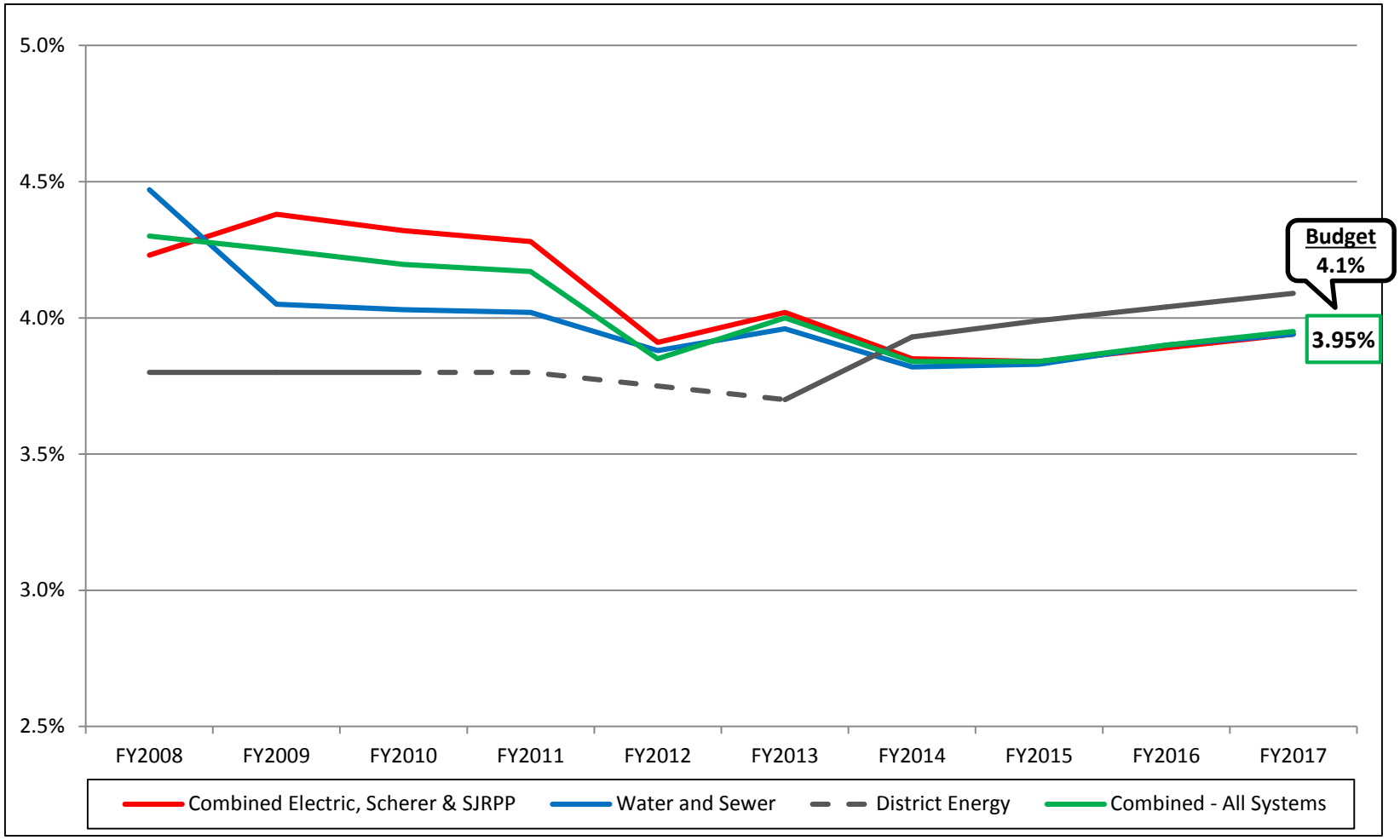


Water and Sewer System



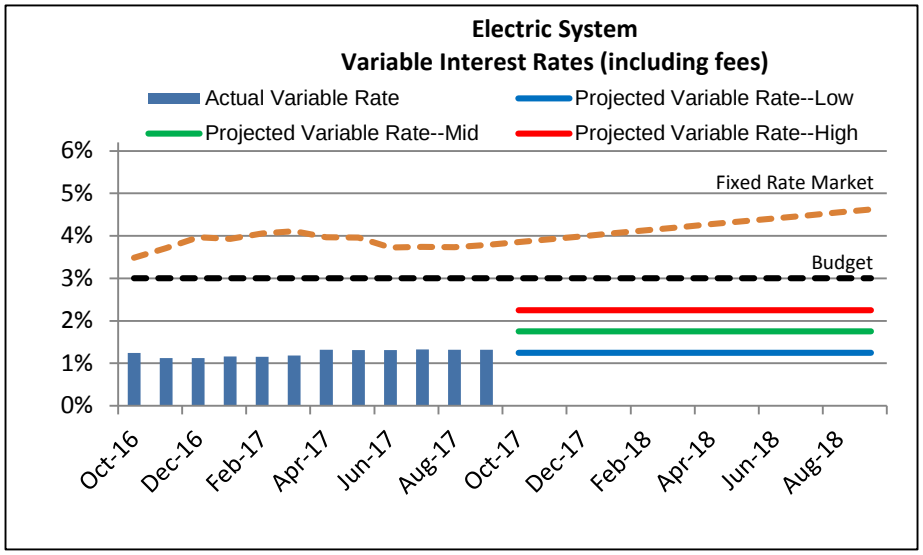
[1] Includes JEA, Scherer and SJRPP
[2] Per Moody's Sector In-Depth Report "Public Power Medians – Sound metrics signal stability as carbon challenges loom", Sept. 2017
[3] As calculated from Moody's Municipal Financial Ratio Analysis database of 209 Aa rated public water-sewer utilities, Jan. 10, 2017
[4] Electric System Debt/Asset % for FY2017 for the Electric System includes SJRPP impairment loss due to decommissioning of the plant

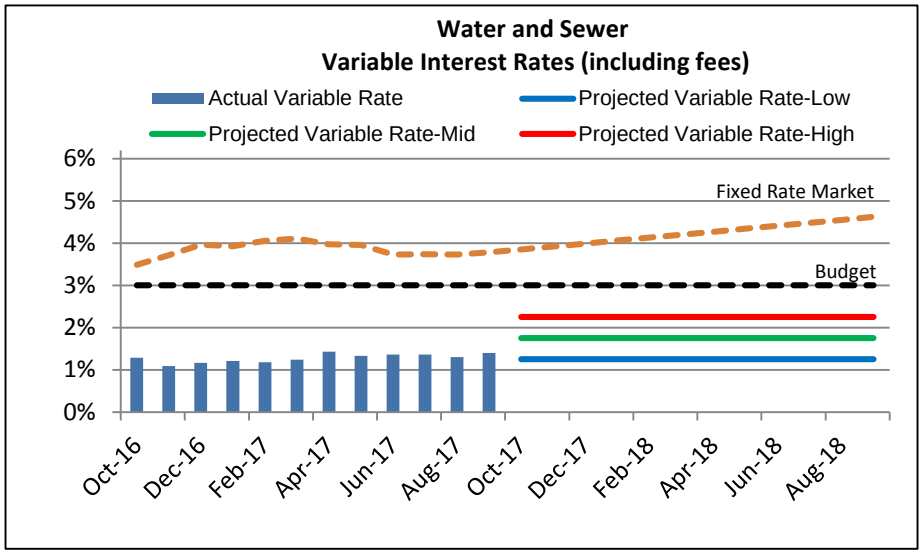
Combined Debt Outstanding: Weighted Average Interest Rates



- Fiscal year end interest rates are net of BABs subsidy, original issue premiums / discounts and includes variable debt liquidity / remarketing fees and interest rate swap payments.
- – – – During FY2008 – FY2013 DES was funded with variable rate debt at an average of 1 percent.

Variable Rate Debt Risk Analysis





Total variable rate debt of $882 with $527 swapped to fixed rate

Liquidity Facilities and Direct Purchase Bonds (DPBs)			
Bank	**Moody's/S&P/Fitch**	**$ (in millions)**	**%**
Wells Fargo Bank N.A. (100% DPBs)	Aa2/AA-/AA	$221	25
JP Morgan Chase Bank N.A.	Aa3/A+/AA-	199	24
Royal Bank of Canada	A1/AA-/AA	193	23
US Bank, N.A.	A1/AA-/AA	148	18
Sumitomo	A1/A/A	52	6
State Street Bank	Aa3/AA-/AA	31	4
Total		$844	

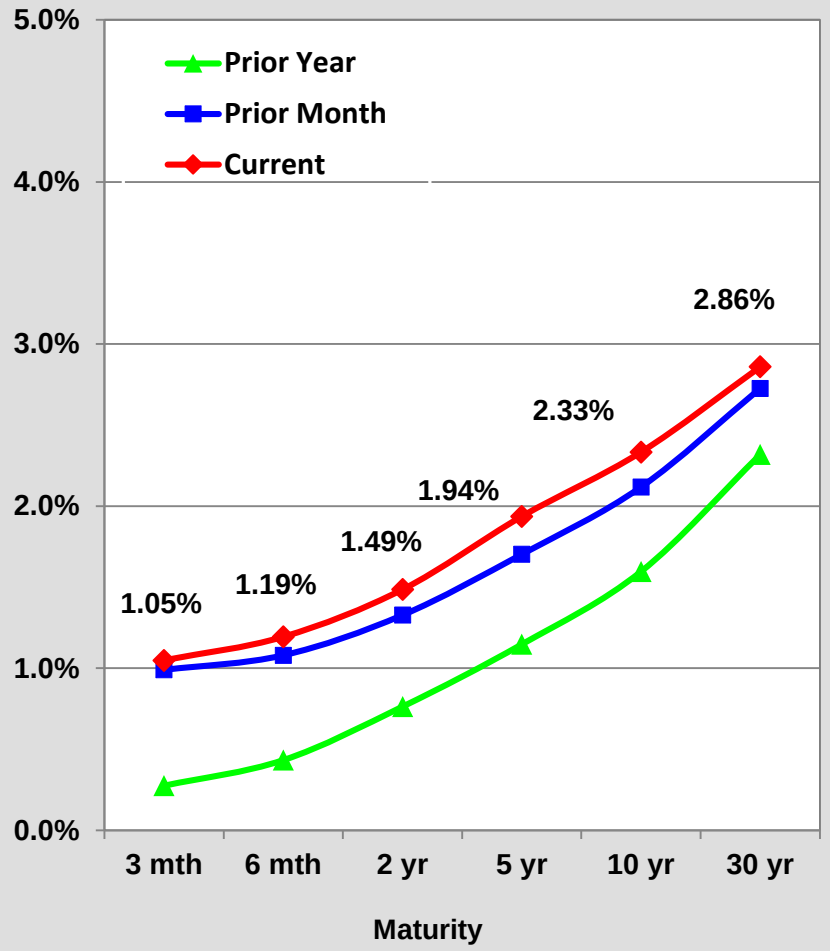
Swap Providers			
Bank	**Moody's/S&P/Fitch**	**$ (in millions)**	**%**
Morgan Stanley Capital Services	A3/BBB+/A	$180	34
Goldman Sachs Mitsui Marine Derivative Products	Aa2/AA-/NR	137	26
JP Morgan Chase Bank N.A.	Aa3/A+/AA-	125	24
Merrill Lynch	Baa1/BBB+/A	85	16
Total		$527	

Items of Interest

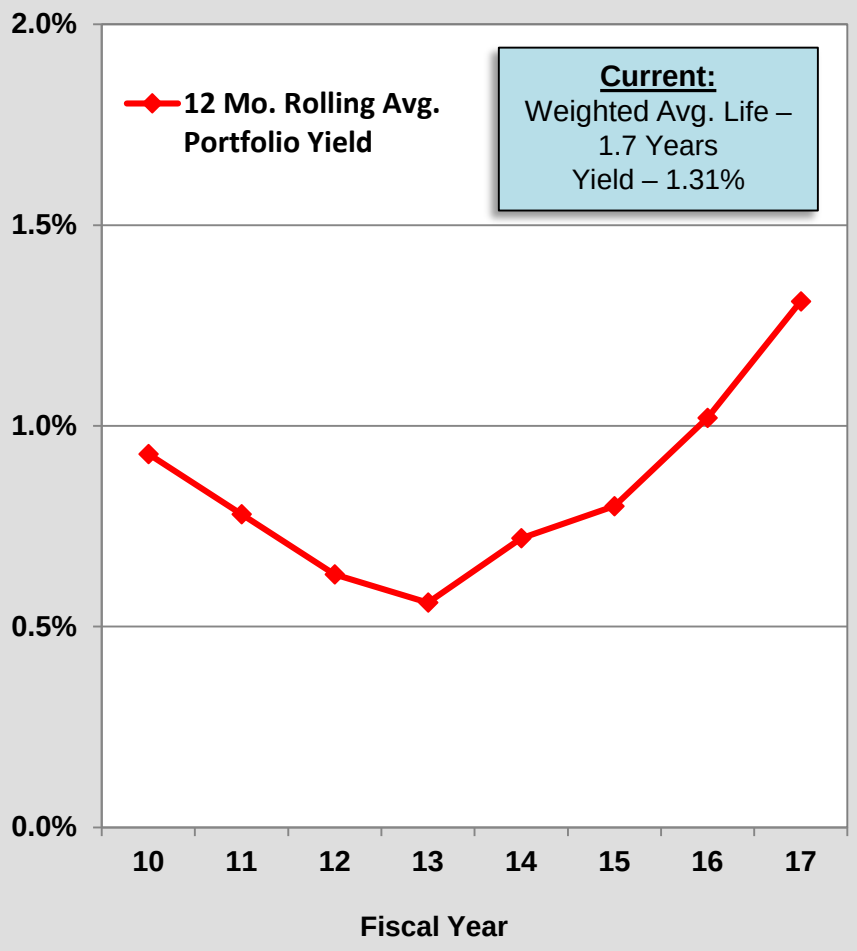
- Variable debt as a percentage of total debt:
  - Unhedged variable at 7% for Electric and 10% for Water and Sewer.
  - Hedged variable at 15% for Electric and 7% for Water and Sewer.
- Liquidity facilities / direct purchase bonds are with highly rated providers.
- No change in swap provider credit quality.
- JP Morgan liquidity facilities renewed in April 2017.
- US Bank liquidity facility renewed in Oct 2017.
- 2018 liquidity facility renewals include: Wells Fargo Bank, Royal Bank of Canada, State Street Bank, Sumitomo and remaining US Bank.
- Variable rate reserve to mitigate risk of higher rates – $44 million.
- Used $18 million of variable rate reserve on 2017 debt defeasances.

Combined Investments Outstanding

U. S. Treasury Yield Curve



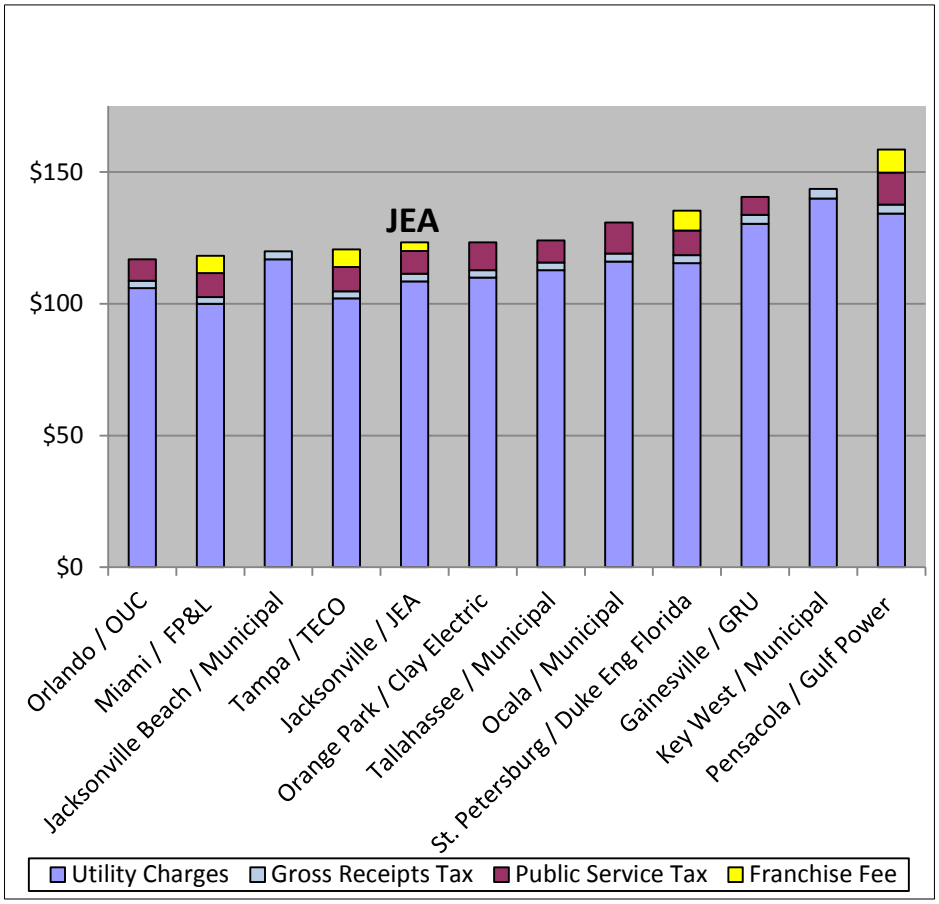
Investment Portfolio Yield



Florida Utilities Monthly Bill Comparison

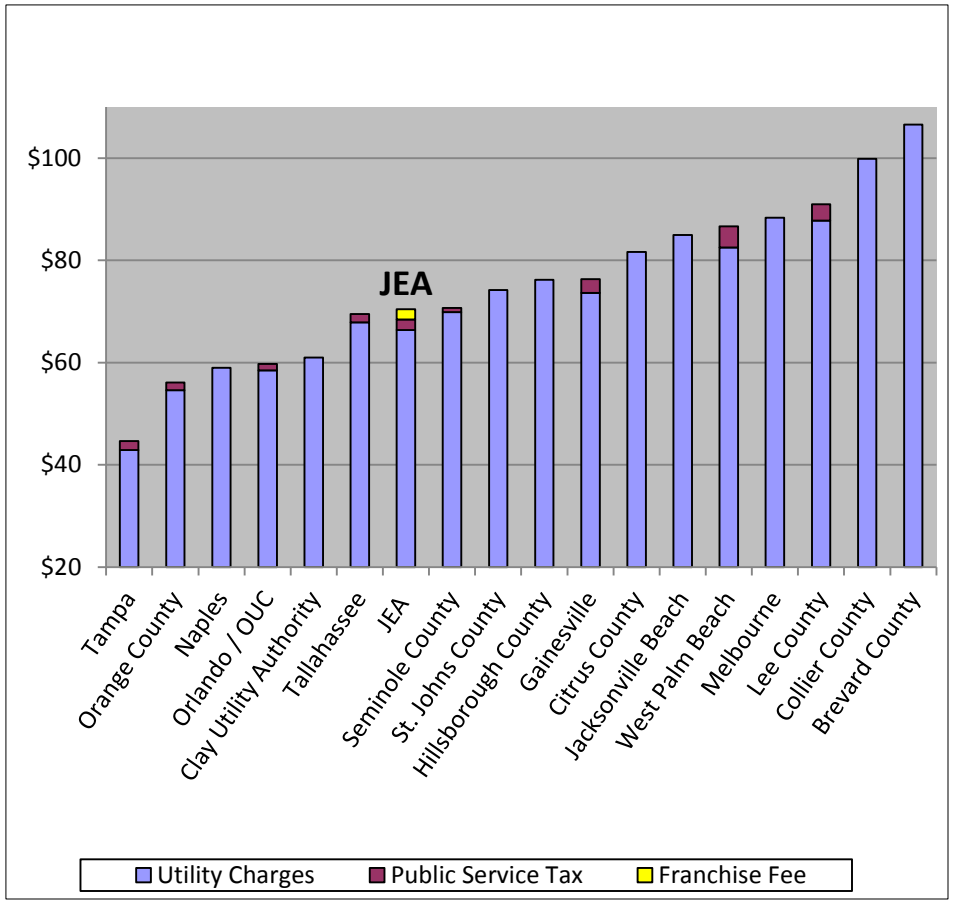
Monthly Residential Electric Bills

Consumption @ 1,000 kWh



Monthly Residential Water Bills

5/8" meter and 6 k/gals of Consumption



V. A. 7.

The Monthly JEA Financial Statements will be provided at the October 17, 2017 JEA Board Meeting.

V. A. 8.
Monthly JEA Operations Report

Return to Agenda

V. A. 8.
10/17/2017

Board of Directors Meeting
October 17, 2017

JEA Safety
(September 30, 2017)

FY2016

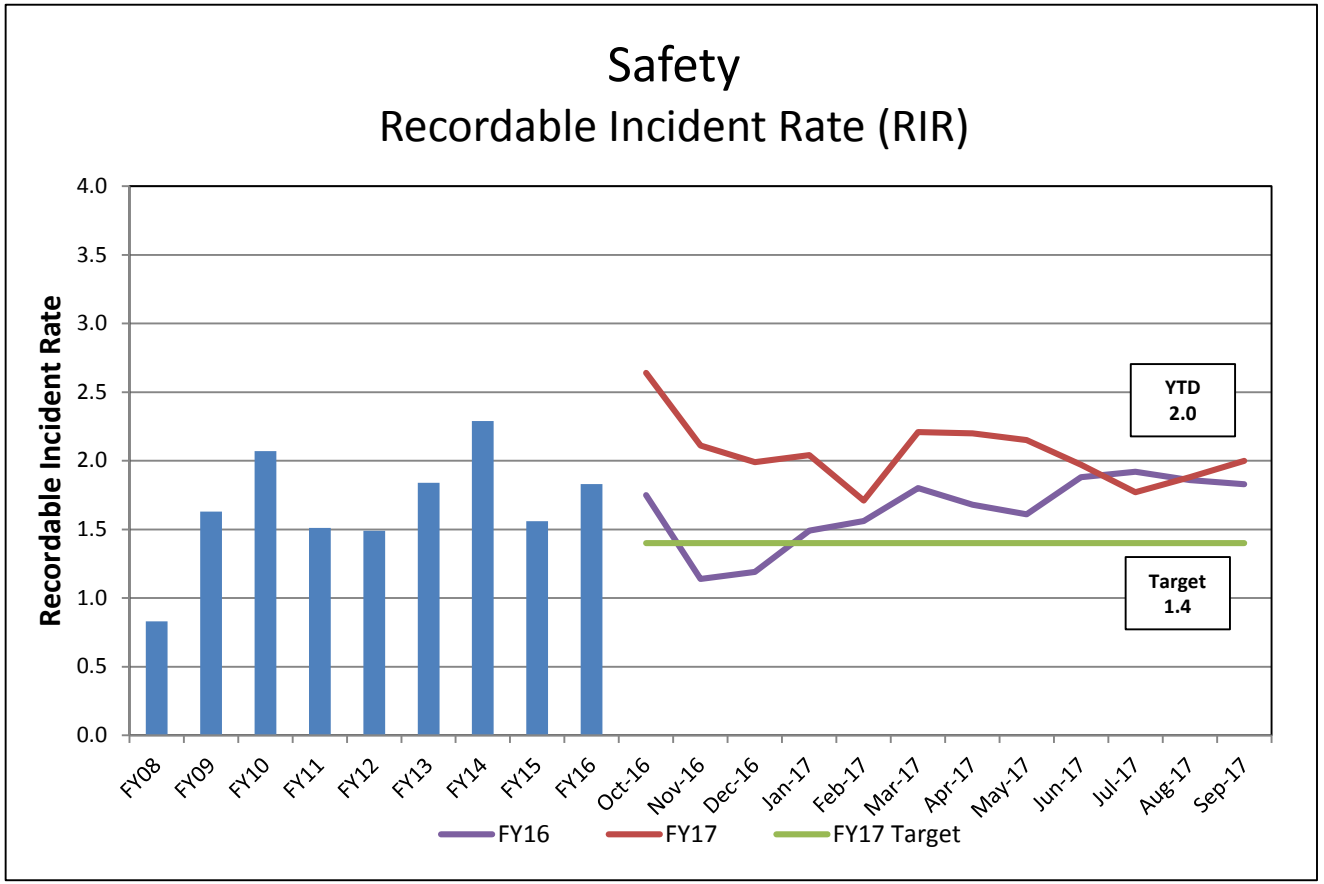
- RIR = 1.82
- # of Recordables = 38
- September YTD Recordables = 38

FY2017

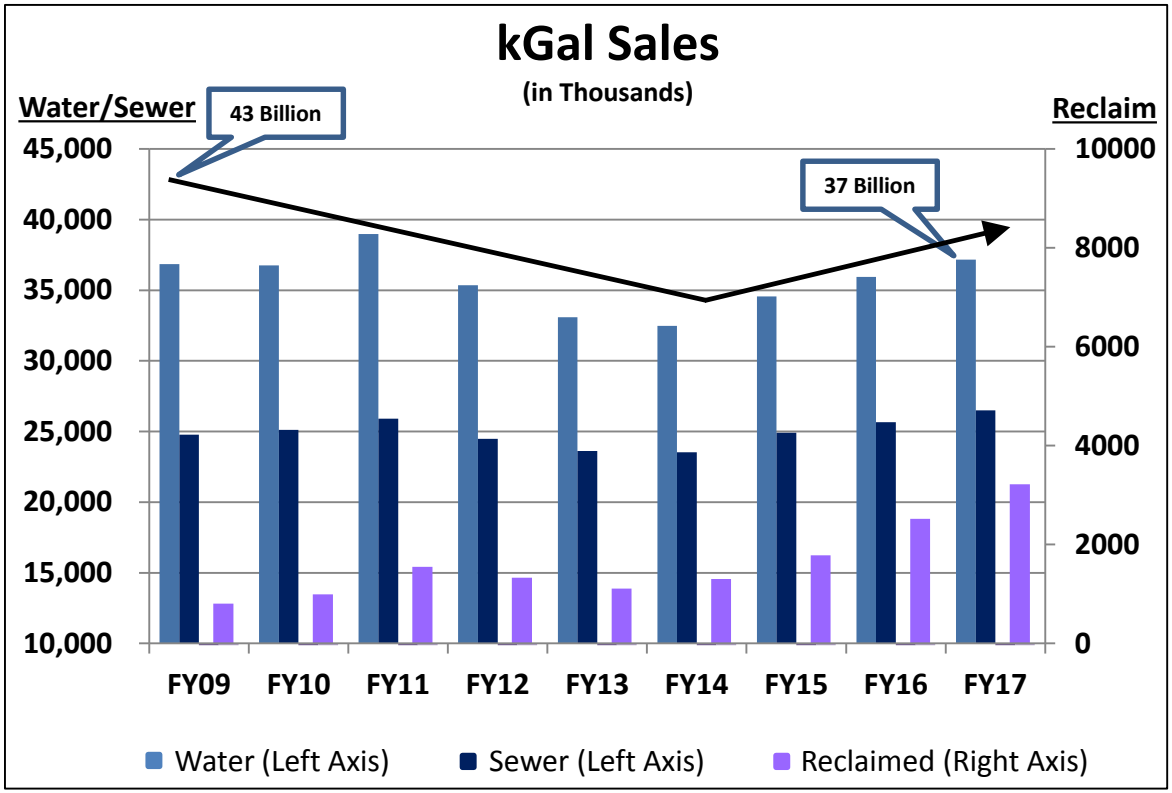
- September Recordables = 5
- September YTD Recordables = 43
- 9 (29%) was lost time
  - Electric Systems = 21
  - Water/WW Systems = 13
  - Compliance = 1
  - Customer Relationships = 4
  - Finance = 4
- Continuing to "Plan for Zero"
- Increased focus on:
  - Complacency
  - Hand/Finger
  - 0-5 Year Employees
  - PPE Use
  - Strains, Sprains, Slip/Trip/Fall
  - Repeat Occurrences

Industry Benchmark*
Average Municipal Utility RIR is 6.3
Average LPPC RIR is 3.7

Units	FY2017	FY2017 Target	FY2016	FY2015
RIR	2.0	1.4	1.82	1.56



Water and Sewer System: kGal Sales



Month	FY16	FY17	%
Oct	3,120	3,129	0.3%
Nov	2,641	3,068	16.2%
Dec	2,758	2,923	6.0%
Jan	2,527	2,768	9.6%
Feb	2,479	2,624	5.9%
Mar	2,825	3,168	12.1%
Apr	2,914	3,476	19.3%
May	3,523	3,736	6.1%
Jun	3,290	2,833	(13.9%)
Jul	3,736	3,480	(6.9%)
Aug	3,451	3,043	(11.8%)
Sep	3,094	2,998	(3.1%)
Total	**36,358**	**37,245**	**2.4%**

Unit Sales Driver: FY17 rainfall up 42 inches; rain days level.
Warm and dry conditions through Spring were mitigated by a wet Summer.
Irrigation for FY17 up 5% versus FY16.

YTD Customer Accounts			
	FY16	FY17	%
Water	337,217	344,445	2.1%
Sewer	260,937	267,381	2.5%
Reclaimed	8,361	10,283	23.0%

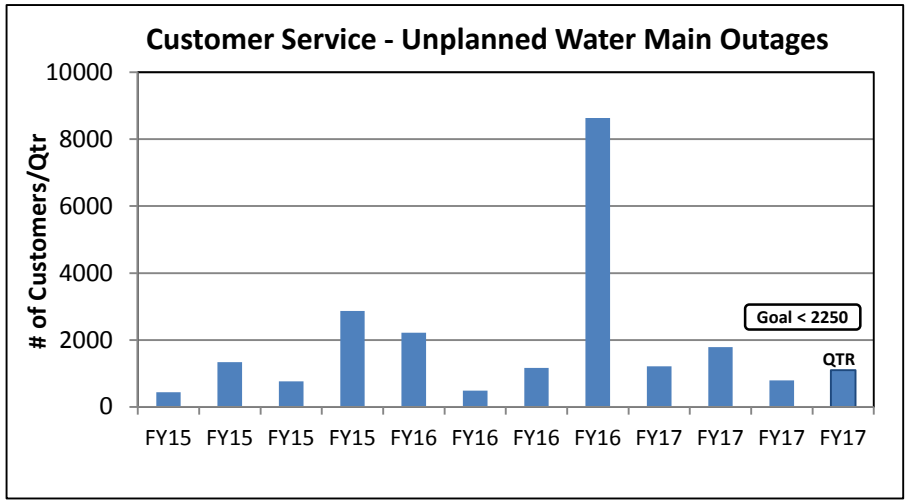
YTD Rainfall			
	30-Yr. Avg.	FY16	FY17
Inches	52.4	31	73
Days	114	98	98

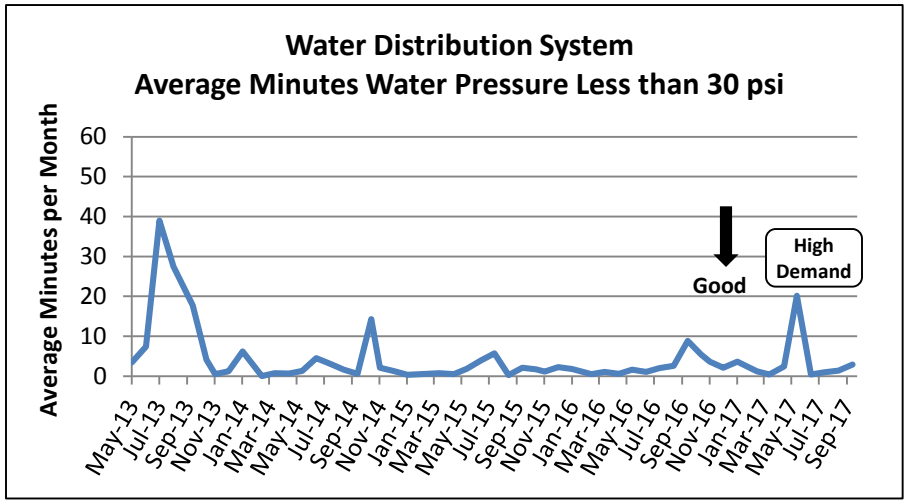
Total System	2.4%
Residential	3.2%
Comm./Industrial	0.4%
Irrigation	4.9%

Customer Reliability

Water and Wastewater System

Water Grid Performance	Metric	FY2017	FY2017 Target	FY2016	FY2015
Water Main Outages	# of Customers per Year	4,893	9,000	12,735	5,629

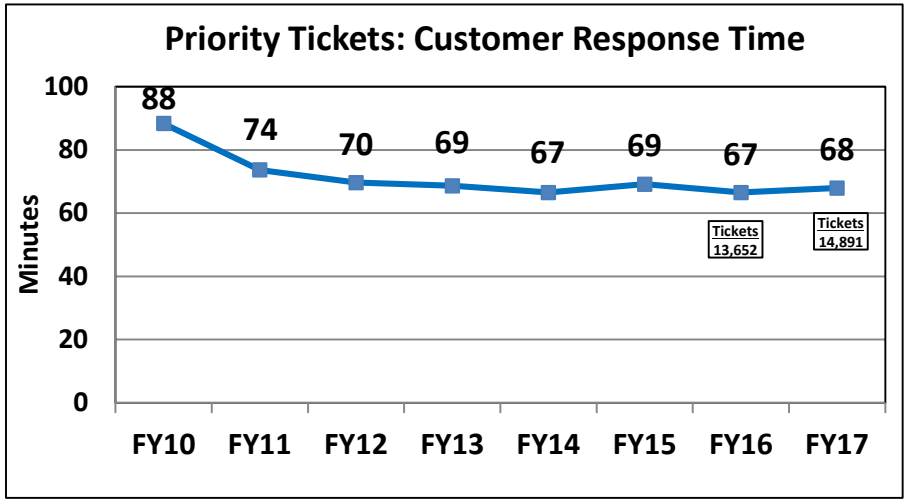




Unplanned Water Outages
# of Customers Affected by Unplanned Outages has increased due to 3rd Party Damages

Water Pressure (minutes per month < 30 psi)
Measured by 115 pressure monitoring stations in the distribution system. Pressure must be greater than 20 psi, and is expected to be greater than 50 psi.

Customer Response Time
Average time from a customer call to the ticket completion or transfer to a field crew for a more extensive repair

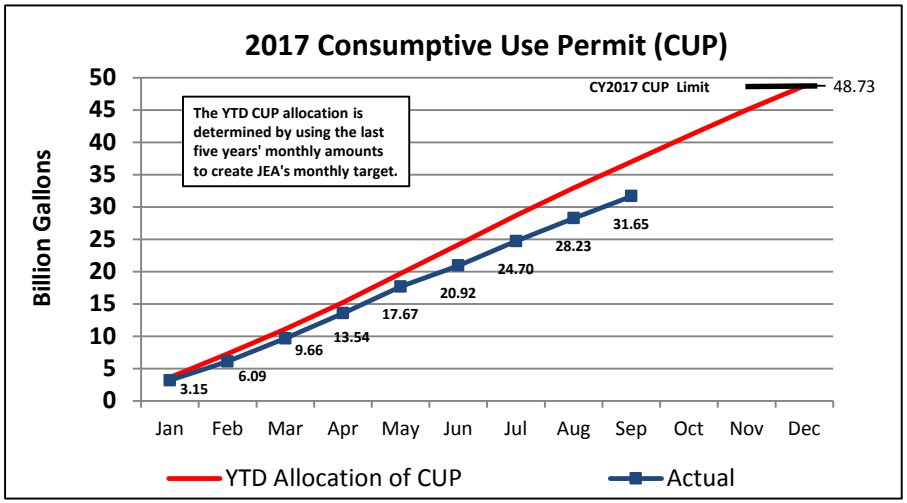


*Aligned with the PSC Rule for Electric Reliability Reporting, the Operational Metrics will exclude the impact of all service interruptions associated with a storm named by the National Hurricane Center.

Environmental Compliance

Water System – Consumptive Use Permit (CUP)

Compliance	Metric – CY Basis	FY2017	2017 Target	2016	2015
Water	CUP Limits (MGD)	116	133 limit	112 (131 limit)	107 (131 limit)
South Grid	Wellfield Allocation (MGD)	47.85	< 50.23 limit	52.95 (<50.23 limit)	47.50 (<50.23 limit)
Reclaim	Usage (MGD)	20	15	16	13



CUP Condition 44: South Grid Wellfield Allocation Limits

Critical Wellfields	Actuals 2013	2014	2015	2016	CYTD 2017	Post Sep -14 Limit
Deerwood III	6.96	7.01	6.67	7.88	7.27	7.00
Ridenour	5.97	6.39	6.66	7.64	7.03	6.85
Oakridge	8.78	6.23	4.99	5.79	5.70	5.65
Greenland		--- 1.53	4.27	4.16	3.49	4.53
Brierwood	5.58	4.53	2.84	3.36	2.75	3.02
Subtotal	**27.29**	**25.69**	**25.43**	**28.83**	**26.25**	**27.05**
Other Wellfields	**22.21**	**20.92**	**22.07**	**24.12**	**21.60**	**23.18**
Total South Grid	**49.50**	**46.61**	**47.50**	**52.95**	**47.85**	**50.23**
Total System MGD	**100**	**104**	**107**	**112**	**116**	**133**

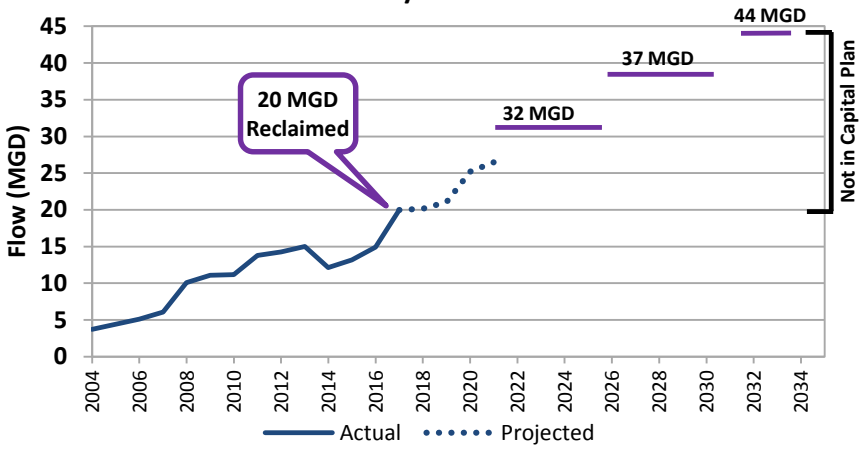
St. Johns River Water Management District CUP

Condition 12: YTD average daily flow is 12% below CY limit of 133 MGD

Condition 44: South Grid Wellfields were 4.7% below the base limit in FY16, yet have annual operational flexibility of 20% above allocation limits.

Conditions 37/38: Use of reclaimed water *"to the maximum extent technologically, economically, and environmentally feasible".* The annual CUP limit continues to increase beginning in FY21 if 32 MGD is achieved.

CUP Conditions 37/38: Reclaimed Water Use

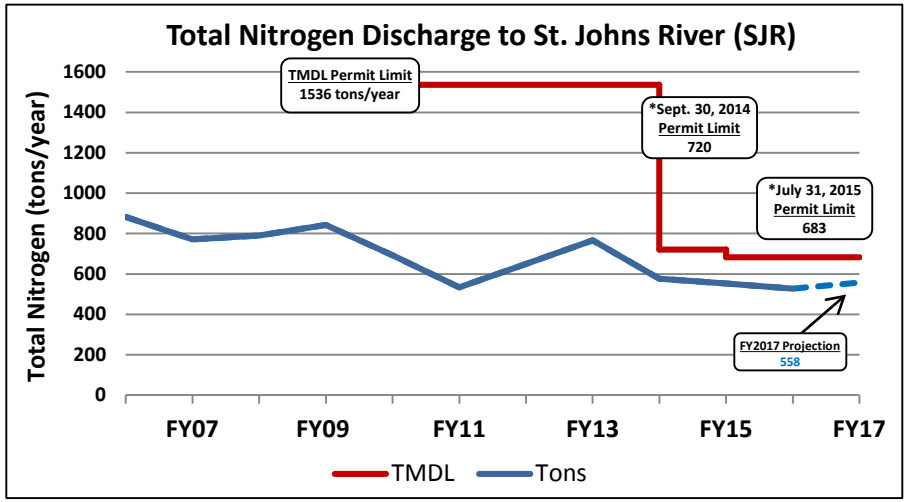


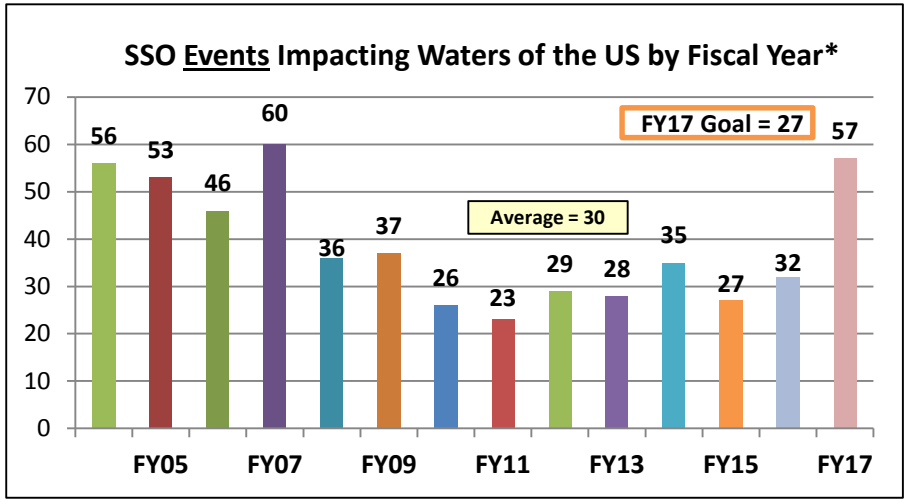
MGD – Million Gallons Per Day

Environmental Compliance

Wastewater System

Compliance	Metric	FY2017	FY2017 Target	FY2016	FY2015
Sewer	Nitrogen (N) Tons – FY basis	558	550	527 (TMDL of 683*)	553 (TMDL of 683*)



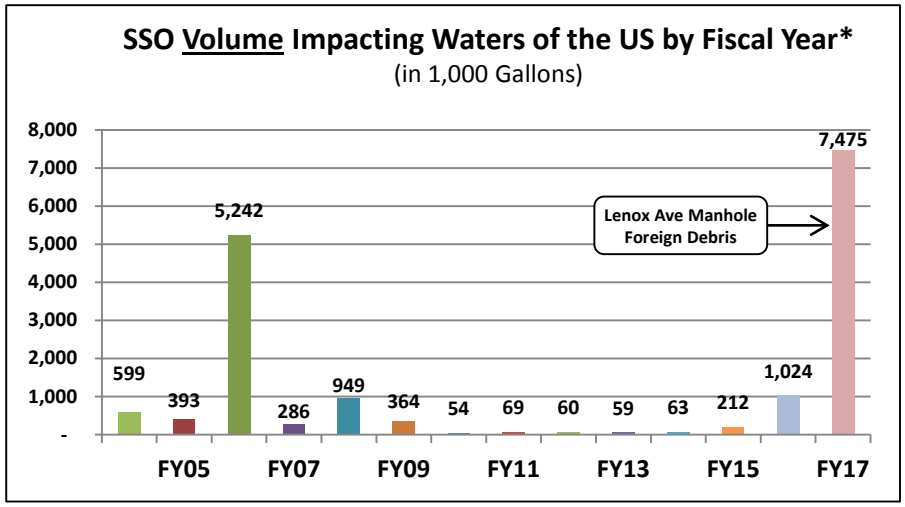


Nitrogen Discharge to St. Johns River

Florida Department of Environmental Protection (FDEP) has reduced the Total Maximum Daily Load (TMDL) to 683 tons with Water Quality Trading Credits allocated to the COJ

Sanitary Sewer Overflows (SSOs to US Waters)

FY08 - FY16 SSO's averaged 30 per year. Fifty-seven (57) SSO's year-to-date impacting US Waters excluding events occurring during Hurricane Matthew.



*Aligned with the PSC Rule for Electric Reliability Reporting, the Operational Metrics will exclude the impact of all service interruptions associated with a storm named by the National Hurricane Center.

Water and Sewer System: Financial Results and Cost Metrics

($ in thousands)

Revenues	FY17 Actual	FY16 Actual	FY17 Budget	FY17 vs FY16 ($)	Variance (%)
Water & Sewer Revenues	$ 424,594	$ 409,889	$ 394,430	$ 14,705	3.6%
Other Revenue	43,203	40,070	33,792	3,133	7.8%
Total Revenues	**$ 467,797** ①	**$ 449,959**	**$ 428,222**	**$ 17,838**	**4.0%**
		$40M			
Select Expenses					
O & M Expense	$ 139,447 ②	$ 130,296	$ 144,149	$ (9,151)	-7.0%
Net Revenues	**$ 337,469**	**$ 313,130**	**$ 280,753**	**$ 24,339**	**7.8%**
		$57M			
Capital Expenditures	$ 187,593 ③	$ 147,363	$ 205,000[1]	$ (40,230)	-27.3%
Debt Service	$ 112,791	$ 95,418	$ 118,375	$ (17,373)	-18.2%

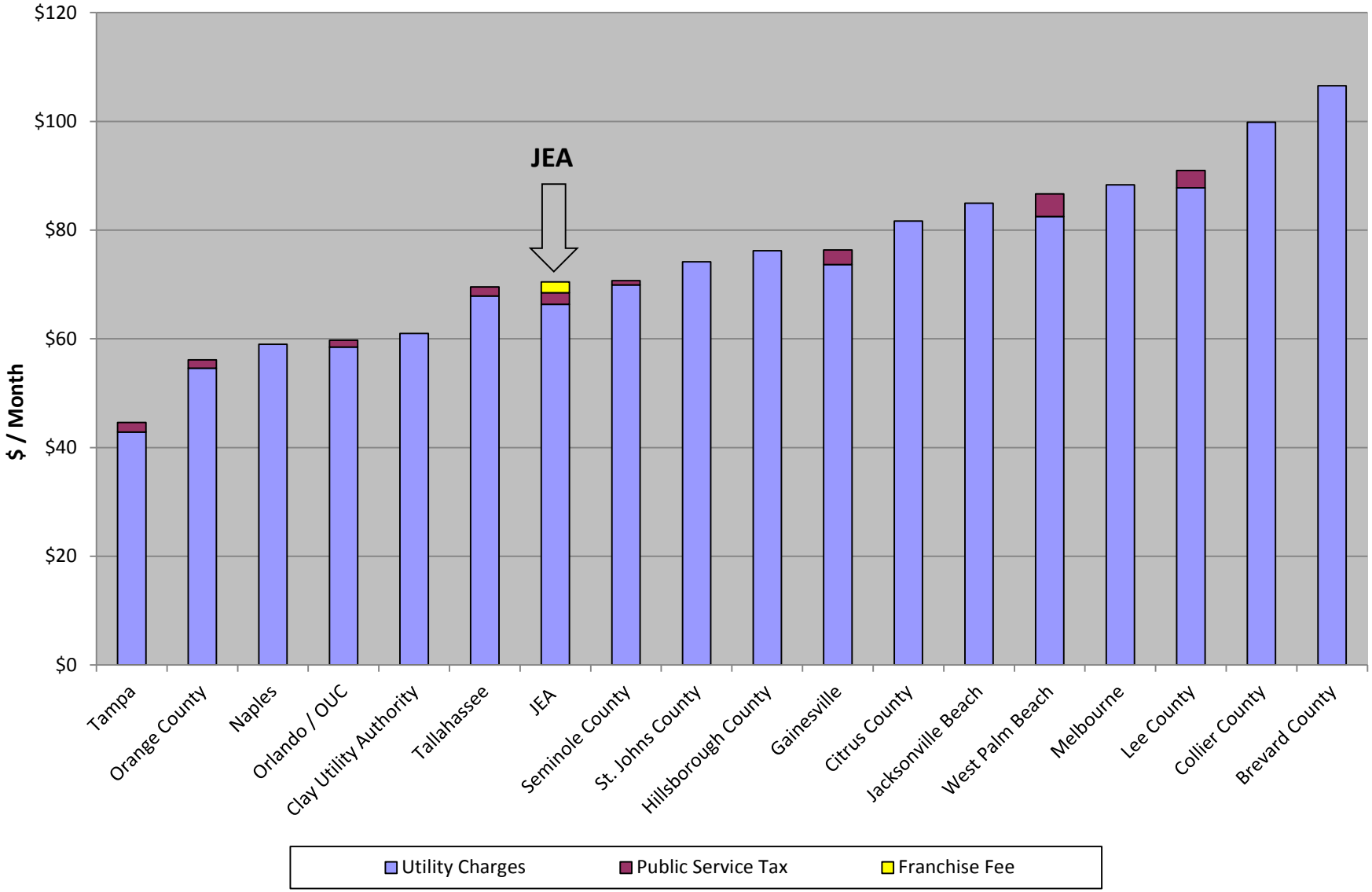
Cost / Kgal	Water	Sewer
Target	$ 4.75	$ 10.27
Forecast	4.57	9.20
Difference	$ 0.18	$ 1.07

Metrics	FY17 Actual
Coverage:	3.0x
Days Liquidity/Cash:	596 / 496
Debt/Asset:	50% (3% lower)
Total Debt:	$1.6B ($40M lower)

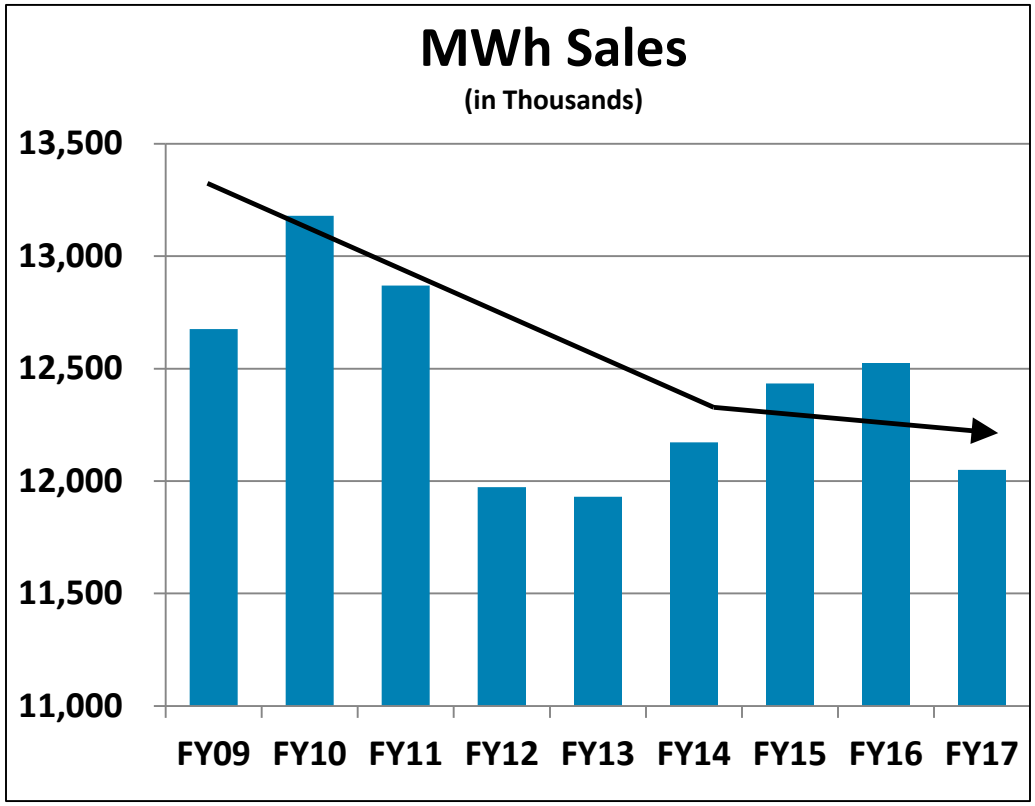
[1] Council approved limit for capital expenditures in FY17 is $225.5 million

Water & Sewer Rates in Florida

Residential Service with a 5/8" meter and 6 kgals of Consumption
Residential Rates as of October 2017



Electric System: MWh Sales



Month	FY16	FY17	%
Oct	952,515	951,425	(0.1%)
Nov	923,705	863,238	(6.5%)
Dec	922,956	905,219	(1.9%)
Jan	1,049,897	932,807	(11.2%)
Feb	894,563	759,141	(15.1%)
Mar	893,954	914,242	2.3%
Apr	900,013	933,563	3.7%
May	1,089,555	1,084,832	(0.4%)
Jun	1,231,251	1,094,475	(11.1%)
Jul	1,336,835	1,298,608	(2.9%)
Aug	1,254,240	1,260,217	0.5%
Sep	1,111,769	1,052,365	(5.3%)
Total	**12,561,253**	**12,050,133**	**(4.1%)**

Unit Sales Driver: FY17 MWh reduction due to moderate weather and decrease in FPU demand of 155,047 MWh.

Total System	(4.1%)
Residential	(4.1%)
Comm./Industrial	(2.6%)
Interruptible	(1.9%)
Wholesale (FPU)	(50.8%)

YTD Degree Days		
30-yr. Avg.	FY16	FY17
4,014	4,117	3,737

YTD Customer Accounts		
FY16	FY17	%
455,373	462,013	1.5%

FY 2017 Performing Objectives

Electric Systems Reliability Metrics

T&D Grid Performance	Metric	FY2017 YTD	FY2017 Target	FY2016	FY2015
Customer Outage Frequency	# of Outages per Year	1.55	1.8	1.4	1.8
Electric Outage Duration	# of Minutes out per Year	99.5	80	71	99
Transmission Line Faults	# of Faults per 100 miles	2.0	2.5	0.7	2.8
$CEMI_5$	% Customers > 5 outages per yr	1.96	1.5	1.4	2.1

Electric Service Reliability

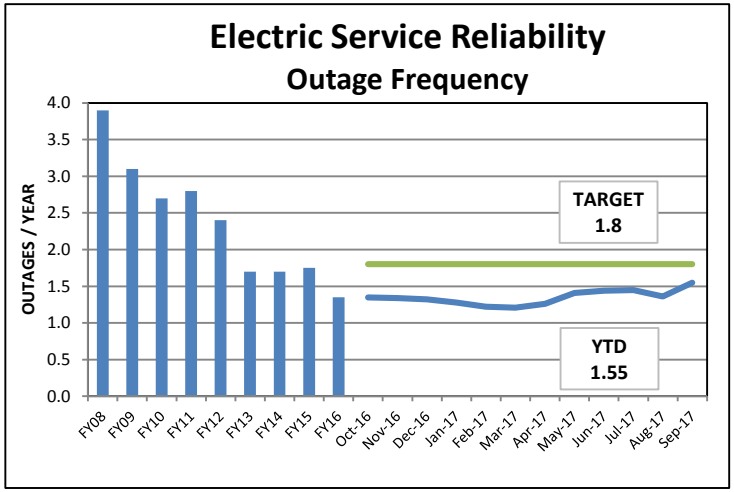
- Outage frequency and duration have been reduced significantly over the last 8 years; running flat this year and near the FY2017 targets.
- The typical JEA customer sees 1.55 outages per year and a total outage duration of about 99.5 minutes
- Improvement trend over past four years for $CEMI_5$. 9,297 (1.96 %) of our customers have experienced more than 5 outages in the past 12 months

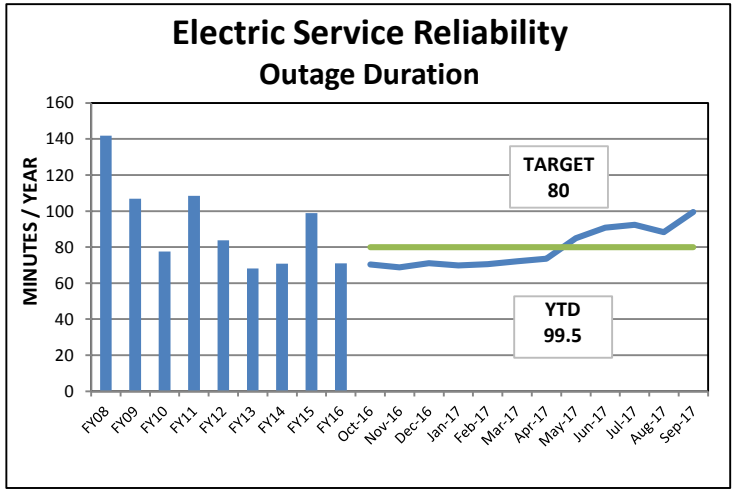
Transmission Line Reliability

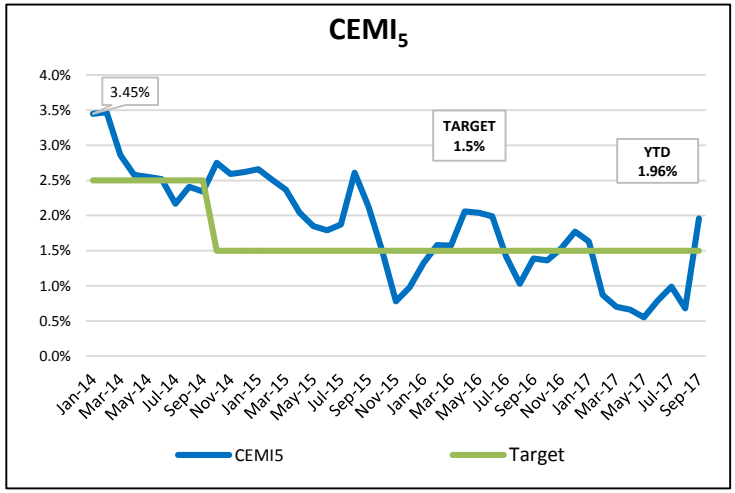
- Overall downward trend over the last eight years
- FY17 (2.0) better than target.

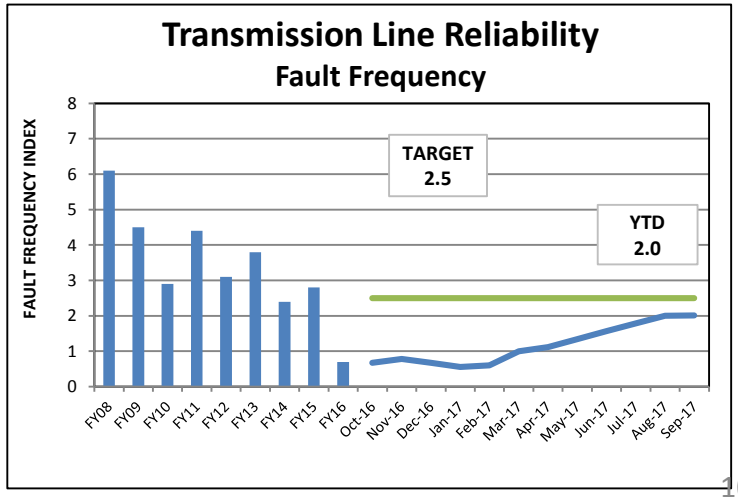
Other Operational Metrics

- Continue showing favorable trends over time





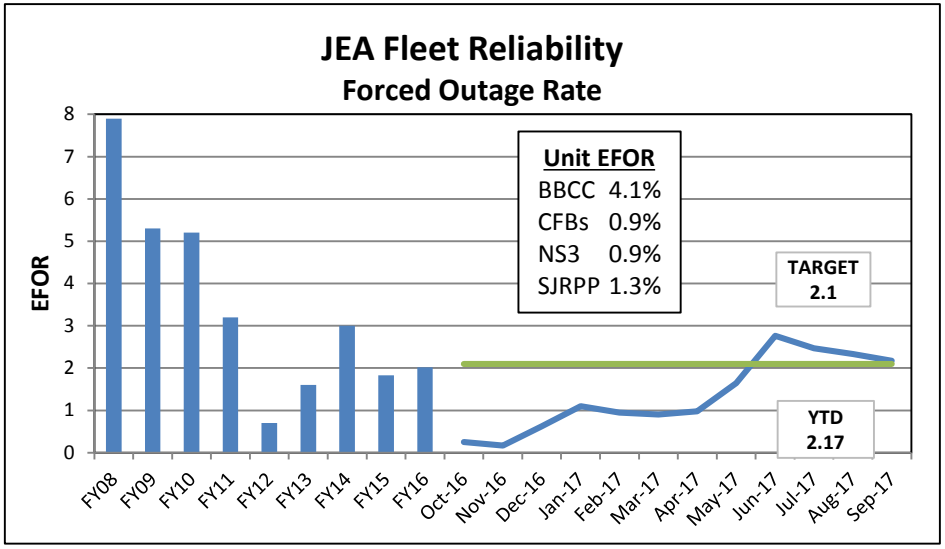


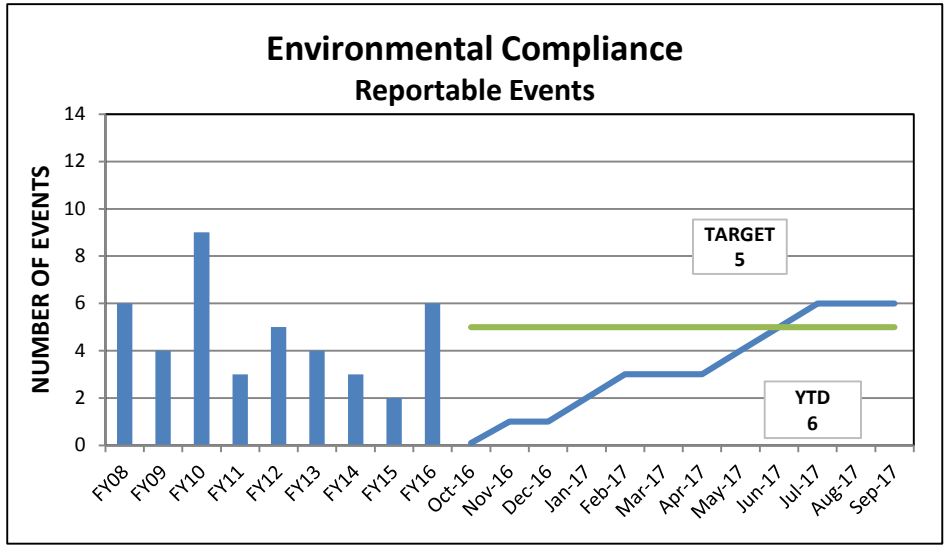


JEA FY 2017 Performing Objectives

Electric Systems Reliability Metrics

Generating Plant Performance	Metric	FY2017 YTD	FY2017 Target	FY2016	FY2015
Generation Fleet Reliability	Forced Outages Rate	2.17	2.1	2.0	1.8
Environmental Compliance	Permit Exceedances	6	5	6	2





Generating Fleet Reliability

- The JEA fleet Forced Outage Rate is in line with prior 6-year performance though ended slightly above the FY2017 target.
- Successful outages completed this FY on steam units at Northside, SJRPP, along with the Combined Cycle Unit at Brandy Branch.
- High unit reliability contributes to lower fuel and non-fuel expenses.

Environmental Compliance

- Excellent environmental performance in prior years. No air permit exceedances occurred in FY16 or FY17.
- We experienced 6 reportable events at Northside during FY2017.
- JEA remains actively engaged in and preparing for all new and emerging environmental regulations.

Electric System: Financial Results and Cost Metrics

($ in thousands)

Revenues	FY17 Actual	FY16 Actual	FY17 Budget	FY17 vs FY16 ($)	Variance (%)
Fuel Revenue	$ 394,189[1]	$ 426,653[2]	$ 449,776	$ (32,464)	-7.6%[1]
Base Revenue	750,329[1]	750,038	735,204	291	0.0%
Other Revenue	45,937	37,904	41,787	8,033	21.2%
Total Revenues	**$ 1,190,455**	**$ 1,214,595**	**$ 1,226,767**	**$ (24,140)**	**-2.0%**
		$(36M)			
Select Expenses					
Fuel Expense	$ 442,588	$ 397,280	$ 411,903	$ (45,308)	-11.4%
Fuel Fund Transfers	(48,400)	29,373	37,705	77,773	
O & M Expense	199,470	192,527	226,180	(6,943)	-3.6%
Non-fuel Purchased Power	76,260	87,426	83,394	11,166	12.8%
Net Revenues	**$ 517,074**	**$ 496,092**	**$ 454,939**	**$ 20,982**	**4.2%**
		$62M			
Capital Expenditures	$ 134,782	$ 150,926	$ 153,200[3]	$ 16,144	10.7%
Debt Service	$ 204,477[4]	$ 171,506	$ 179,654	$ (32,971)	-19.2%

Electric Costs / MWh	Non-Fuel
Target	$ 53.94
Actual	52.50
Difference	$ 1.44

Fuel Fund *($ in millions)*	
Beginning Balance	$ 180
Surplus/(Deficit)	(48)
Ending Balance	$ 132

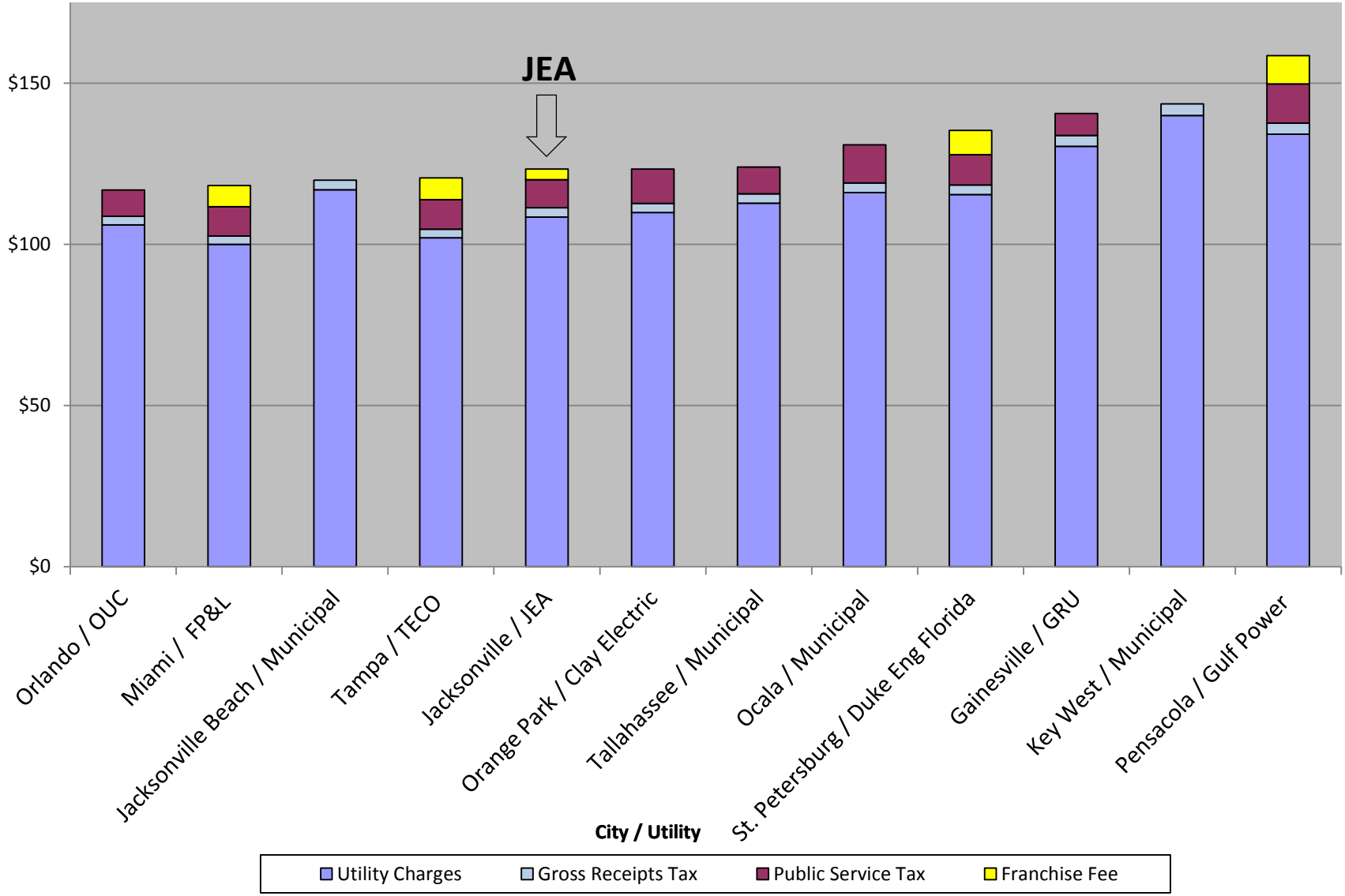
Financial Metrics	FY17 Actual
Coverage:	2.5x
Days Liquidity/Cash:	337 / 235
Debt/Asset:	68% (3% higher)
Total Debt:	$2.8B ($209M lower)

[1] Includes rate change in December 2016
[2] Net of $57 million fuel credit and fuel rate reduction
[3] Council approved limit for capital expenditures in FY17 is $170 million
[4] Includes additional $40 million related to advanced debt refunding approved by Board in November 2016
[5] Electric System Debt/Asset % for FY2017 includes SJRPP impairment loss due to decommissioning of the plant

Florida Utilities Monthly Residential Electric Bill Comparison

(Consumption @ 1,000 kWh)

Residential Rates as of October 2017



Customer Experience

Date: October 2017

FY18 Customer Satisfaction Goal

Achieve 1st Quartile Ranking for JD Power Customer Satisfaction Index for both Residential and Business Studies

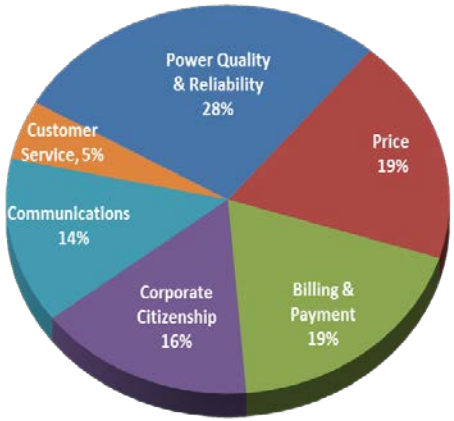
Residential (R)

FY16		FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
2Q	703	1Q	747	1Q	753							1Q	753

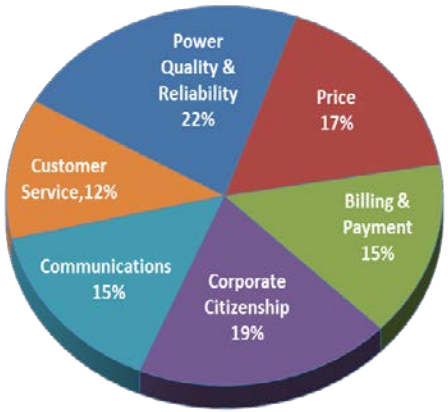
Business (B)

FY16		FY17		Wave 1		Wave 2		FY18	
1Q	754	1Q	780	1Q	787			1Q	787

Residential



Business



FY18 Residential # of companies ranked: 139
FY18 Business # of companies ranked: 86

1Q= 1st quartile 2Q= 2nd quartile 3Q = 3rd quartile 4Q = 4th quartile

Achieve 1st Quartile Ranking on All Drivers

Be Easy to Do Business With

Customer Service

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	800	1Q	824							1Q	824
B	1Q	829	3Q	790							3Q	790

Power Quality & Reliability

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	792	2Q	781							2Q	781
B	1Q	816	1Q	823							1Q	823

Empower Customers to Make Informed Decisions

Billing & Payment

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	807	1Q	807							1Q	807
B	2Q	803	1Q	830							1Q	830

Communication

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	712	1Q	716							1Q	716
B	1Q	757	1Q	766							1Q	766

Price

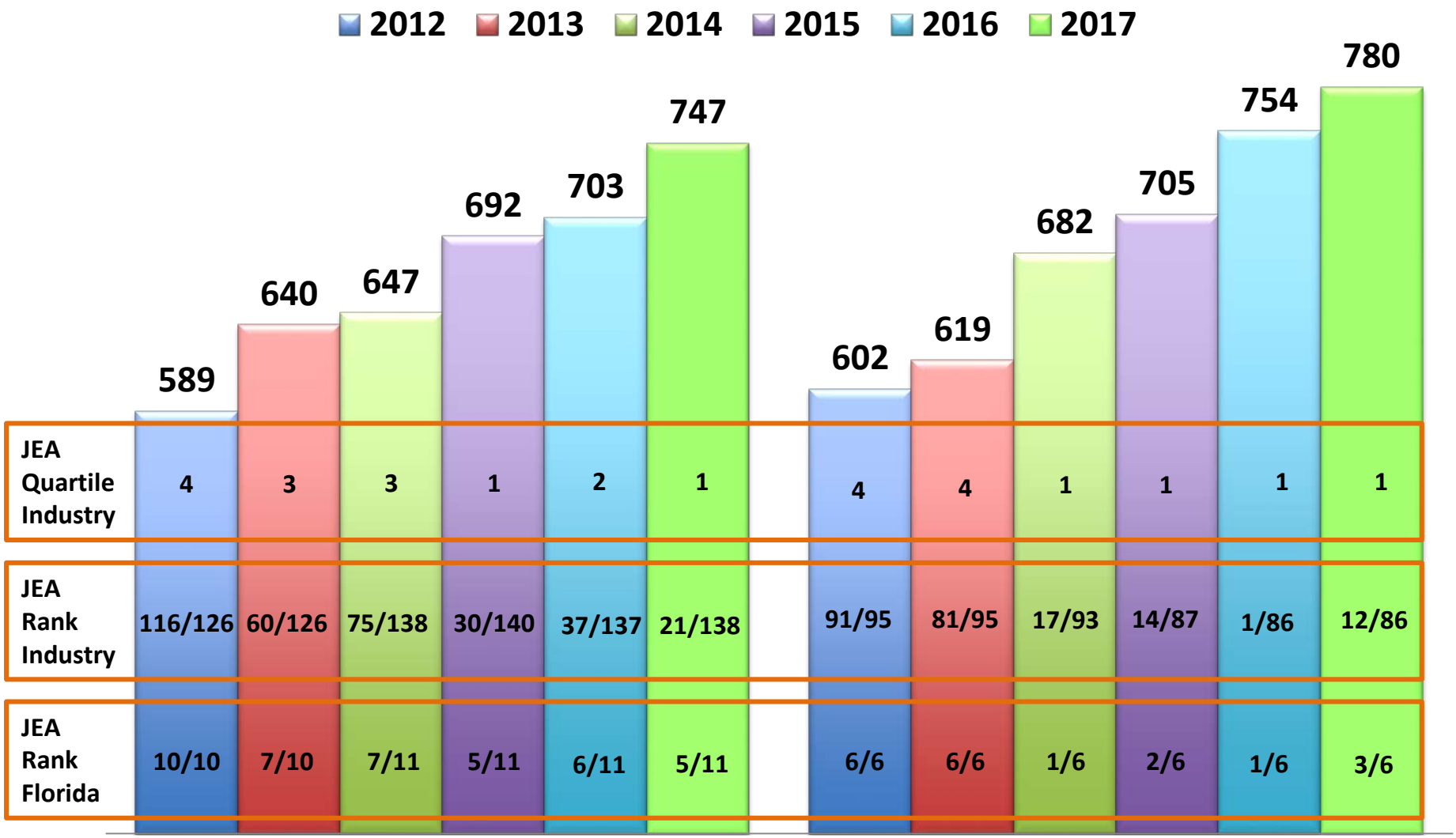
	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	2Q	679	1Q	708							1Q	708
B	1Q	735	2Q	730							2Q	730

Demonstrate Community Responsibility

Corporate Citizenship

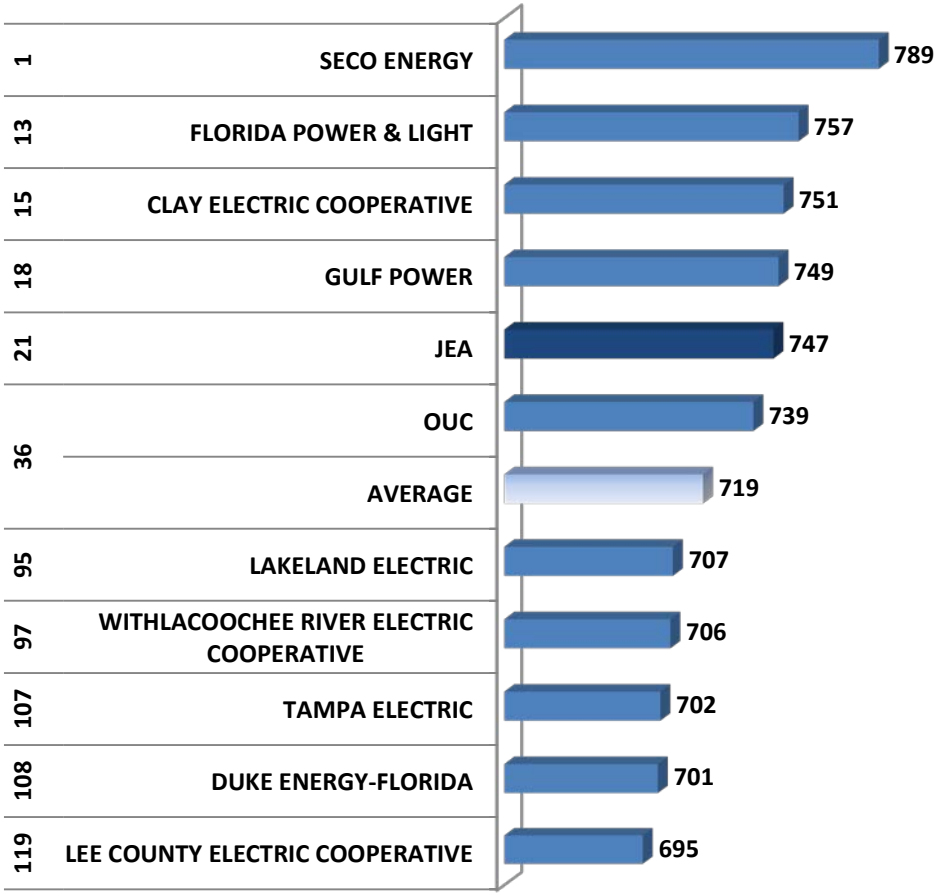
	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	685	1Q	700							1Q	700
B	1Q	748	1Q	762							1Q	762

Customer Satisfaction Index Scores

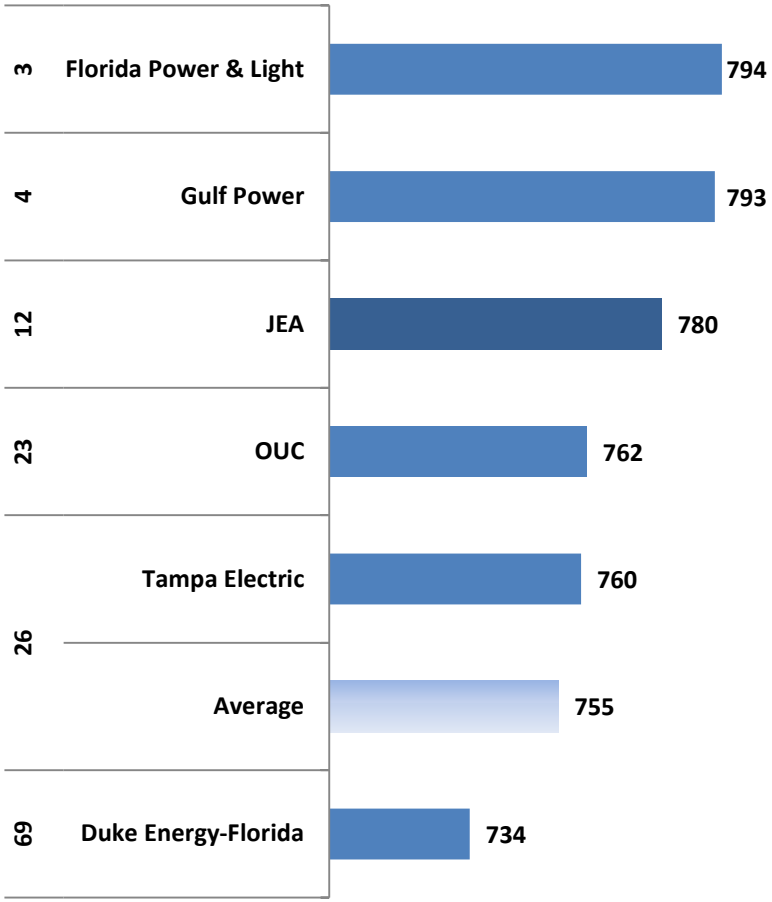


Customer Satisfaction Index Scores – Florida Utilities

Residential FY17



Business CY16/ FY17

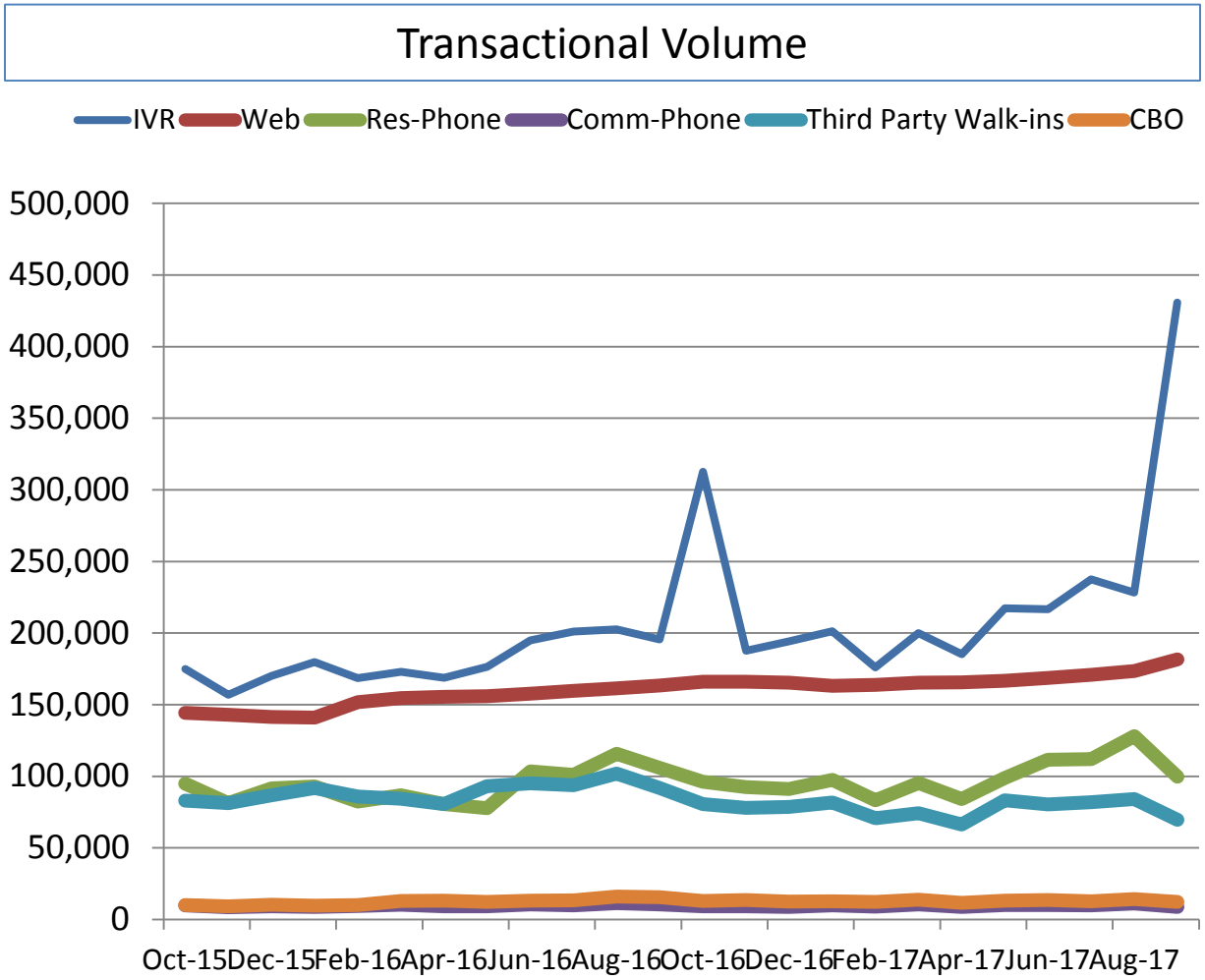


Easy to do Business With

Providing multiple contact channels allows the customer to interact with JEA in a way that's easiest for them.

Customer Satisfaction Rating: 8s-10s by Channel - JDP

	JEA FY16	JEA FY17	Industry FY17
Phone - CCC	57.0%	76.6%	69.0%
IVR	79.6%	74.7%	69.1%
Web	64.6%	76.2%	69.5%



Easy to do Business With

Accurately addressing a customer's needs the first time produces a positive customer experience

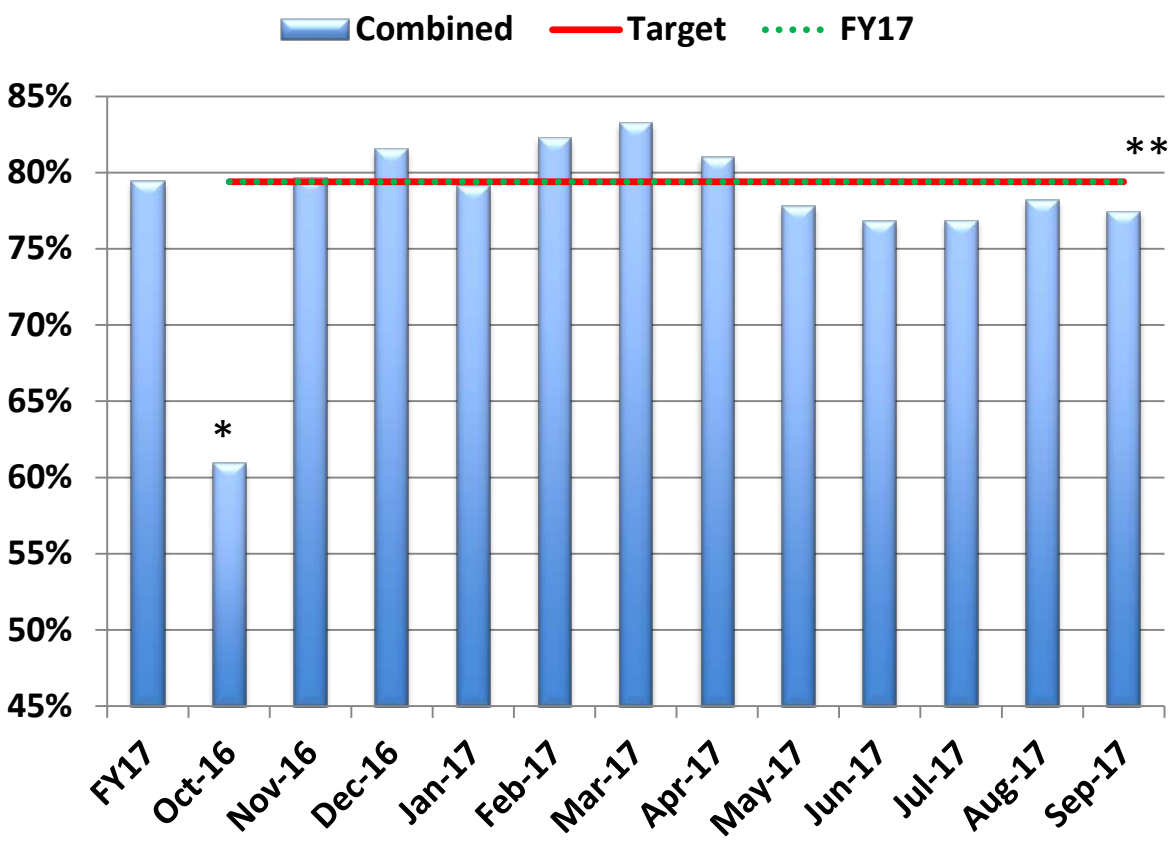
FY2017 Transactional Study

Residential CC	79.1%
Branches	80.3%
Commercial CC	80.2%
IVR	78.4%
jea.com	80.5%
Overall	79.4%

JD Power FCR

	JEA FY16	JEA FY17	Industry FY17
Res CC/IVR	74.8%	70.3%	71.9%
Jea.com	77.7%	72.6%	73.3%
Bus CC/IVR	71.4%	82.1%	71.3%

First Contact Resolution
Branches, Call Centers, and jea.com



- October/16 decline result of Hurricane Mathew
- FY17 Actuals on Target at 79.4%

Easy to do Business With

Customers are more satisfied when receiving additional information when reporting an outage and when given updates when power is restored

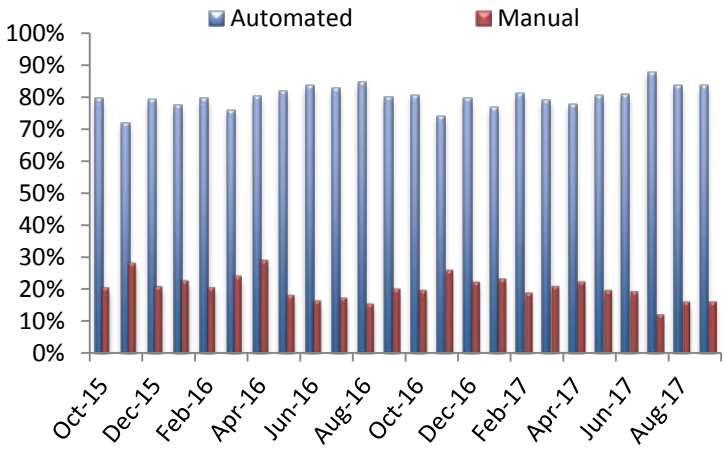
JD Power "Keeping you informed about outage"

Score	JEA FY16	JEA FY17	Ind FY17
8 – 10	37.9%	55.3%	46.4%
< 5	20.0%	14.0%	16.0%

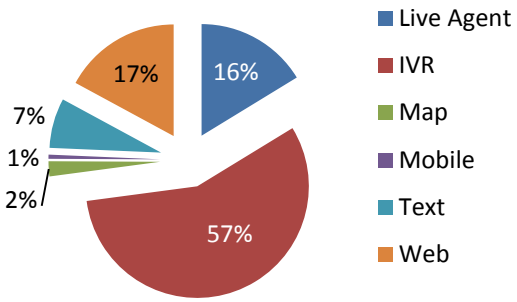
 # Outage Information Points

	FY16	FY17
JEA	2.3	2.6
Industry	2.1	2.3

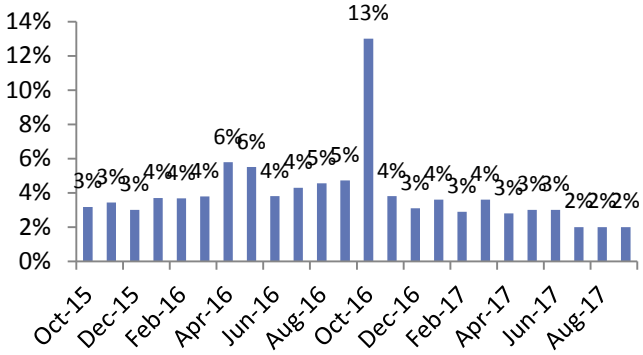
Outage Reporting



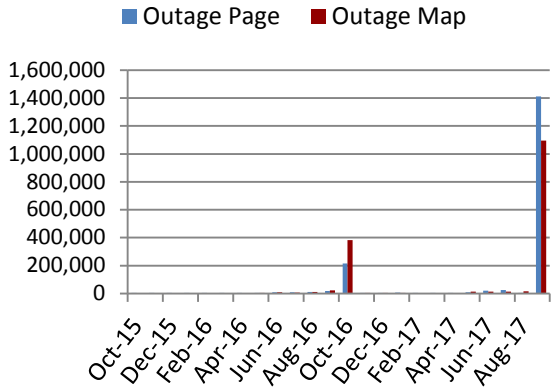
Outage Reporting by Channel



% Customers Receiving Outage Updates



jea.com Outage Page Volume



Empowering Customers to Make Informed Decisions

Customer Solution Participation	FY17 Goal*	FY17
e-Billing Participation	93,882	94,579
Levelized Bill Participation	22,092	21,050
AutoPay Participation	40,513	39,011
JEA MyWay Participation	18,018	17,883

Our Power of Thanks Giveaway began Oct. 1st !

Every customer enrolled in JEA MyBudget, AutoPay or eBill by 11/30 will be entered to win their choice of a Jacksonville Jaguars ticket package or a $500 Amazon gift card.

It's our way of showing how much we appreciate our JEA customers!

	FY17	Industry Benchmark*
e-Bill	22.7%	18.5%
Budget Bill	5.0%	9.0%
Auto Pay	9.4%	13.0%
*2015 IOU Benchmark Average		

*FY17 goals modified to reflect shift in resource priorities.

Empowering Customers to Make Informed Decisions

Communicating with customers is a key driver of satisfaction and impacts all drivers.

JDP Frequency of Received Communication

FY17

Not enough	6%
Just right	88%
Too much	6%

JDP Comm Awareness

Residential

FY13	48.8%
FY14	51.9%
FY15	54.6%
FY16	54.4%
FY17	58.2%

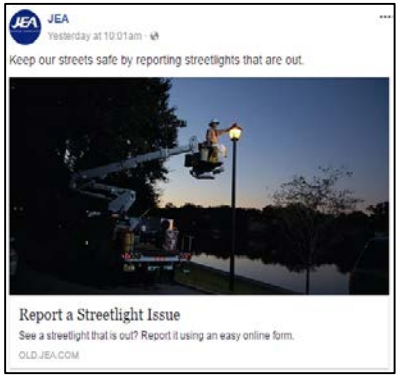
Commercial

FY13	53.4%
FY14	55.7%
FY15	68.7%
FY16	55.4%
FY17 YTD	64.2%

Communication Channels FY17

Volume: 301,571,397

- **e-Com** (jea.com, email, social) 69,119,149
- **Paid Media** (Radio, TV, Print) 217,732,559
- **Community Engagement** (Events, Workshops) 671,914
- **Other Communication** (Bill Inserts, Brochures, 14,074,775



Corporate Citizenship

Empowering Customers to Make Informed Decisions

JEA Ambassadors are engaging customers throughout our community in a greatly expanded way.

FY17 Activities:

- Speakers Bureau—108
- Facility Tours—70
- Community Events—131
- Educational Partnership Activities—36

JEA Employee Volunteer Participation

JEA Ambassadors participated in the 2017 Fall Home & Patio Show where they engaged customers while providing conservation and energy efficient information.

Giving back to our community through volunteering is foundational as a community-owned utility

FY17 Total Volunteers—872

September— 82 Volunteers

- Salvation Army Food Pantry – September 7
- Feeding NE Florida Food Bank – September 7
- Salvation Army Food Pantry – September 15
- Salvation Army Food Pantry – September 21
- Museum of Science and History – September 22
- Feeding NE Florida Food Bank – September 22
- Jacksonville Dragon Boat Festival – September 23
- Special Olympics Bowling Competition – September 23
- Salvation Army Food Pantry – September 28
- Salvation Army Food Pantry – September 29
- Catty Shack – September 30

August — Volunteer Events

- Friday Mornings in Jax Parks – August 4
- Back to School Give-Away – August 12
- Special Olympics – August 12 and 19
- City Rescue Mission – August 15
- Aging True – August 17
- The Salvation Army – August 18
- Tech Coast Conference – August 23
- Feeding NE Florida Food Bank – August 25

JEA

JEA Ambassador Program

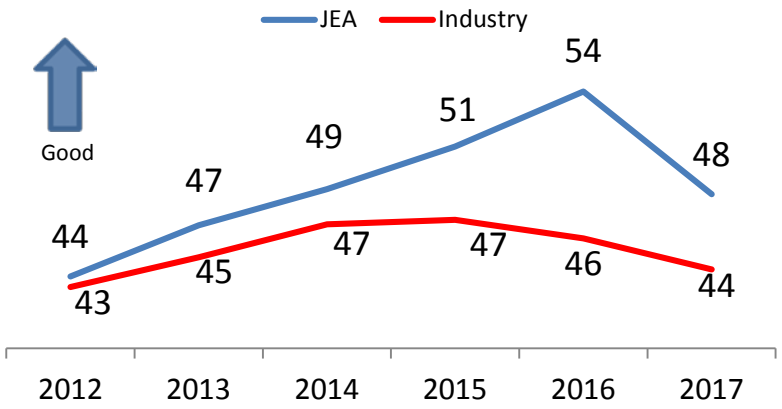
Demonstrating Community Responsibility

DSM Programs & Participation	FY17 Goal	FY17
Tracker Participation (Entering Site)	110,000	114,993
Invest Smart	395	620
Shop Smart	77,678	103,576
Neighborhood Energy Efficiency	1,262	1,250
Electric Vehicle Rebates	75	75

Customer Solutions Highlights for September

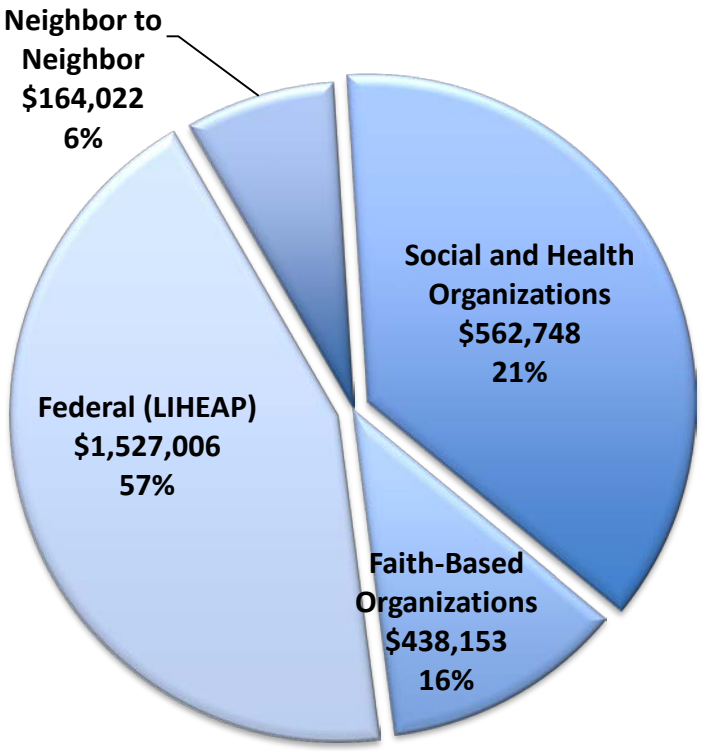
- JEA participated in National Drive Electric week sponsored by JEA, TPO, Intuition Ale, and others to promote Electric Vehicle awareness. The event was held in the parking area across from Intuition Ale at the Sports Complex with a good crowd turnout.
- October will focus on National Energy Month, with several special days such as National Energy Efficiency Day, National Weatherization Day, and ENERGY STAR events.

Familiarity with Utility Energy Efficiency or Conservation Programs (%)

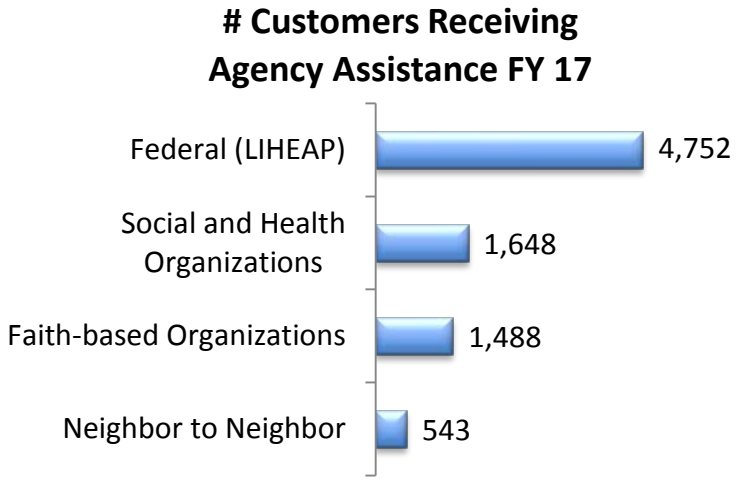


Corporate Citizenship: Customer Assistance Funding

Demonstrating Community Responsibility



23 agencies provided **596** utility payments on behalf of JEA customers in **September 2017** totaling **$ 189,484**



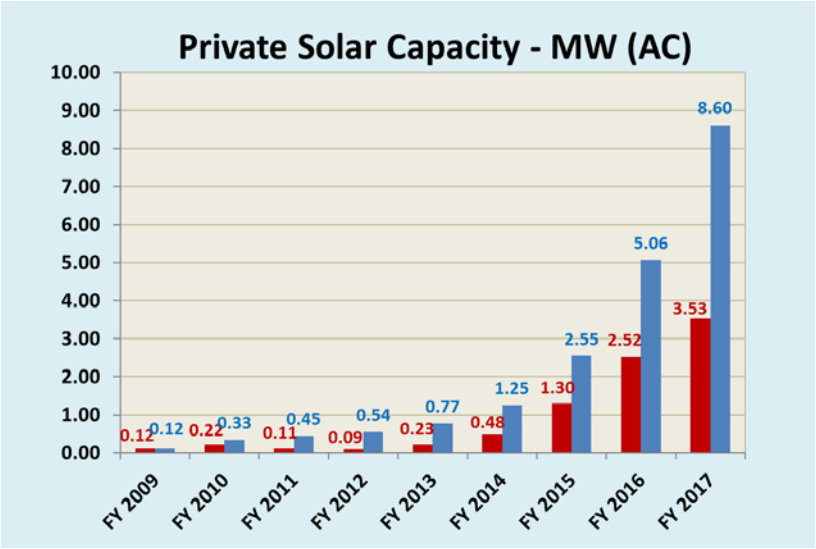
Agency & Federal Customer Assistance
FY 17
$2,691,928

Number of Customers Receiving Agency & Federal Utility Assistance
FY 17
8,431

Private Solar Program Status (Net-Metered Solar)

10MW Policy Limit for Private Solar To Be Reached by January

- The installation rate of private solar on the JEA system is growing.
- Private solar capacity added in September was 0.14 MW, FY 2017 was 3.53 MW.
- Total aggregate capacity is 8.60 MW. At the current adoption rate the 10 MW cap may be reached by January.
- The annualized expense for the current 8.60 MW of installed private solar is $794,000 annually
- The table below reflects the current and future expense levels associated with private solar:



	Current MW	10 MW Policy Limit	Each Future MW
Energy	$417,000	$500,000	$50,000
Capacity	$291,000	$330,000	$33,000
Taxes & Fees	$86,000	$98,000	$9,800
Total	$794,000	$928,000	$92,800
20-yr NPV	$10,370,588	$12,100,000	$1,210,000

V. A. 9.

J. D. Power Wave 1 Business Customer Satisfaction Results

Return to Agenda

Building Community

AGENDA ITEM SUMMARY

October 6, 2017

SUBJECT:	**J.D. POWER WAVE 1 BUSINESS CUSTOMER SATISFACTION RESULTS**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: Provide the JEA Board of Directors with an update on the most recent results for Wave 1 for Business Customer Satisfaction.

Significance: Demonstrates areas for improvement to achieve our FY18 goals related to J.D. Power Business Customer Satisfaction.

Effect: Customer Experience Team will use the feedback from Wave 1 to improve in areas noted in the results.

Cost or Benefit: Benefit is to identify areas for improvement and create a plan to address these areas so that we can achieve our FY18 Commitment to Actions (CTAs).

Recommended Board action: No action required. The J.D. Power Wave 1 Business Customer Satisfaction Results Report is for informational purposes only.

For additional information, contact: Kerri Stewart, 665-4283

Submitted by: PEM/MHD/KS

Return to Agenda

JD Power Business Survey
FY18 Wave 1 Results
1st Half of 2017

Update on Drivers
Important Trends

J.D. Power Customer Satisfaction Studies FY18

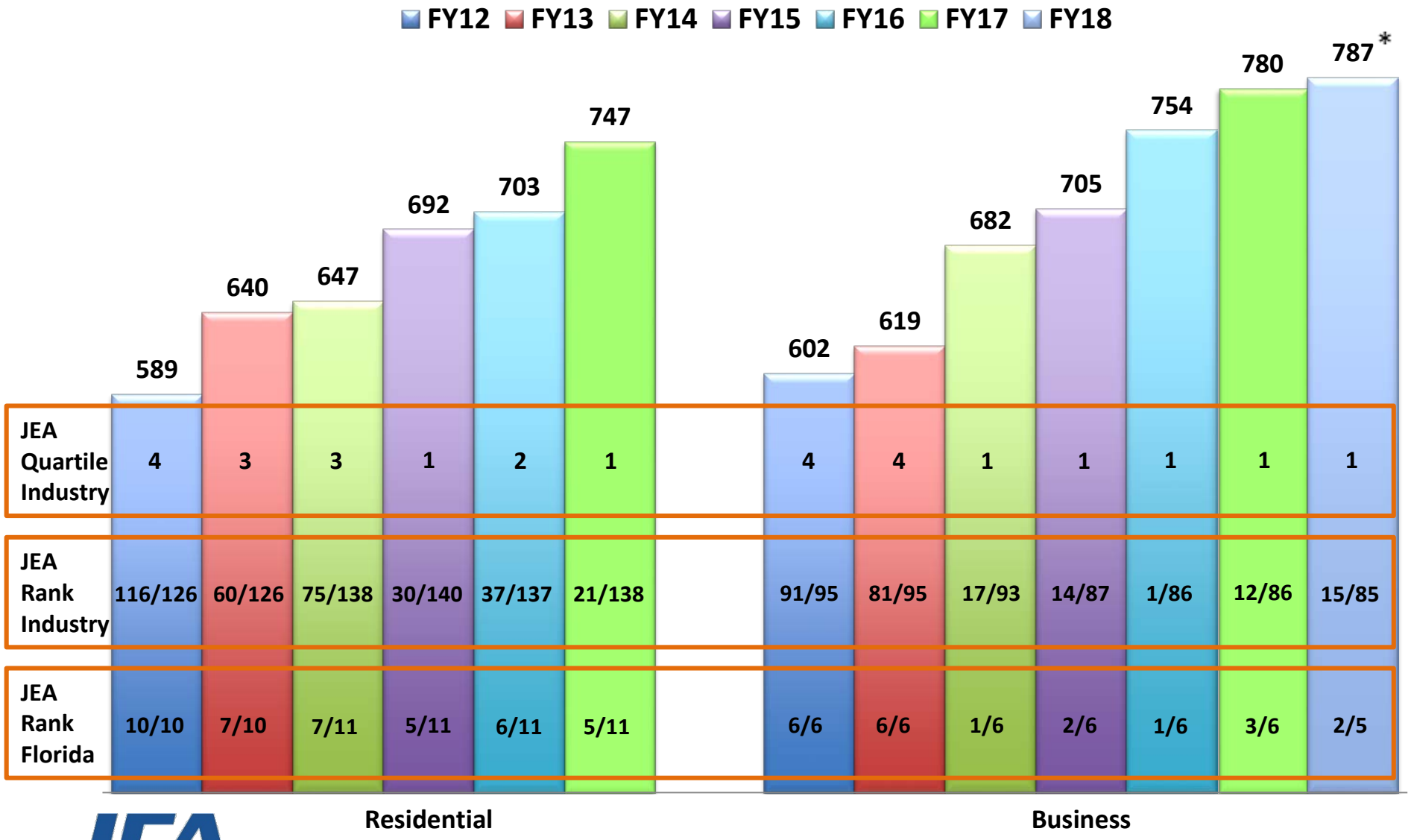
Residential

- Now 138 electric companies
  - Twelve companies added to Midsize
    Now 100,000 – 499,999 customers
  - Large : 500K or more customers
  - 4 regional areas: E, MW, S, W
- 4 fielding periods
  - Jul/Aug 2017 & Oct/Nov 2017
  - Jan/Feb 2018 & Apr/May 2018
- Online Survey
  - Over 140 questions & approx. 100,000 responses
  - JEA sample size is approximately 800 annually
- Official score is reported each year in July

Business

- Targets 99 electric companies
  - 25,000+ Business customers
    With average monthly bill of at least $250
  - Large: more than 85,000 customers
  - Midsize: 25,000 to 84,999 customers
  - 4 regional areas: E, MW, S, W
- 2 fielding periods
  - Feb to Jun 2017 & Jul to Oct 2017
- Online Survey
  - Over 140 questions & over 25,000 responses
  - JEA sample size is approximately 200 annually
- Official score is reported each year in January

Customer Satisfaction Index Scores



* Business is Wave 1 only

FY18 Customer Satisfaction Goal

Achieve 1st Quartile Ranking for JD Power Customer Satisfaction Index for both Residential and Business Studies

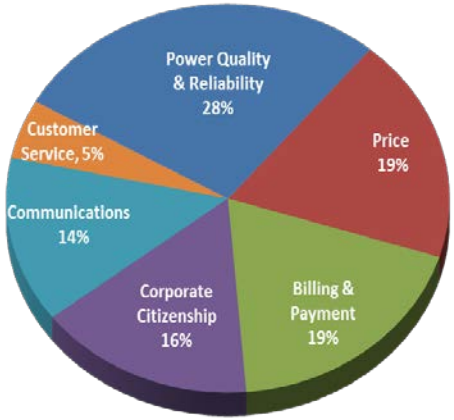
Residential (R)

FY16		FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
2Q	703	1Q	747										

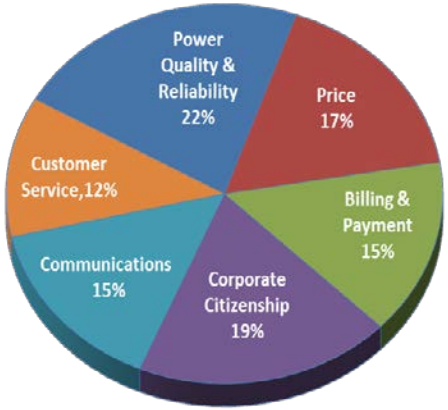
Business (B)

FY16		FY17		Wave 1		Wave 2		FY18	
1Q	754	1Q	780	1Q	787			1Q	787

Residential



Business



FY18 Residential # of companies ranked: 138
FY18 Business # of companies ranked: 86

1Q= 1st quartile 2Q= 2nd quartile 3Q = 3rd quartile 4Q = 4th quartile

Achieve 1st Quartile Ranking on All Drivers

Be Easy to Do Business With

Customer Service

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	800										
B	1Q	829	3Q	790							3Q	790

Power Quality & Reliability

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	792										
B	1Q	816	1Q	823							1Q	823

Empower Customers to Make Informed Decisions

Billing & Payment

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	807										
B	2Q	803	1Q	830							1Q	830

Communication

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	712										
B	1Q	757	1Q	766							1Q	766

Price

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	2Q	679										
B	1Q	735	2Q	730							2Q	730

Demonstrate Community Responsibility

Corporate Citizenship

	FY17		Wave 1		Wave 2		Wave 3		Wave 4		FY18	
R	1Q	685										
B	1Q	748	1Q	762							1Q	762

JD Power Business FY18 Wave 1

Top Quartile (1st)	Mean	Rank	2nd Quartile	Mean	Rank	3rd Quartile	Mean	Rank	Bottom Quartile (4th)	Mean	Rank
Alabama Power	827	1	Met-Ed	780	21	PSE&G	765	43	The Illuminating Company	743	64
Idaho Power	824	2	Duke Energy-Florida	780	21	Entergy Arkansas	765	43	Alliant Energy	742	65
Portland General Electric	820	3	APS	780	21	Austin Energy	765	43	NV Energy	741	66
Public Service Co. of Oklahoma	819	4	Indianapolis Power & Light	779	24	CPS Energy	763	46	Pacific Power	741	66
Entergy Texas	818	5	Omaha Public Power District	779	24	Consumers Energy	760	47	PECO	740	68
SMUD	807	6	Indiana Michigan Power	777	26	MLGW	759	48	NYSEG	738	69
Seattle City Light	804	7	South Carolina Electric & Gas	777	26	Duke Energy-Midwest	757	49	Pepco	738	69
DTE Energy	801	8	Con Edison	776	28	Southern California Edison	757	49	West Penn Power	736	71
Duquesne Light	798	9	MidAmerican Energy	776	28	Tampa Electric	756	51	Louisville Gas & Electric	736	71
BGE	797	10	Kentucky Utilities	776	28	Pacific Gas and Electric	756	51	Penelec	735	73
Florida Power & Light	796	11	WPS	774	31	AEP Ohio	755	53	Dayton Power & Light	734	74
Georgia Power	796	11	Ameren Missouri	772	32	Entergy Louisiana	755	53	Southwestern Electric Power	734	74
Entergy Mississippi	794	13	Duke Energy-Carolinas	771	33	Puget Sound Energy	755	53	San Diego Gas & Electric	730	76
SRP	794	13	Ohio Edison	770	34	L. A. Dept. of Water & Power	753	56	Eversource Energy	728	77
Gulf Power	787	15	NorthWestern Energy	770	34	Appalachian Power	751	57	Central Maine Power	725	78
JEA	787	15	Duke Energy-Progress	769	36	Jersey Central Power & Light	751	57	Avista	722	79
PPL Electric Utilities	785	17	Xcel Energy - Midwest	768	37	Ameren Illinois	751	57	NIPSCO	720	80
Dominion Virginia Power	785	17	Westar Energy	768	37	KCP&L	751	57	Mon Power	717	81
We Energies	783	19	OG&E	768	37	National Grid	748	61	PNM	707	82
Xcel Energy - West	783	19	Atlantic City Electric	767	40	Delmarva Power	745	62	PSEG Long Island	706	83

JEA Business FY18 Wave 1 Results

Power Quality and Reliability
823 (+7)

Price
730 (-5)

Billing and Payment
830 (+27)

Overall CSI
787 (+7)

15 National rank out of 85 brands

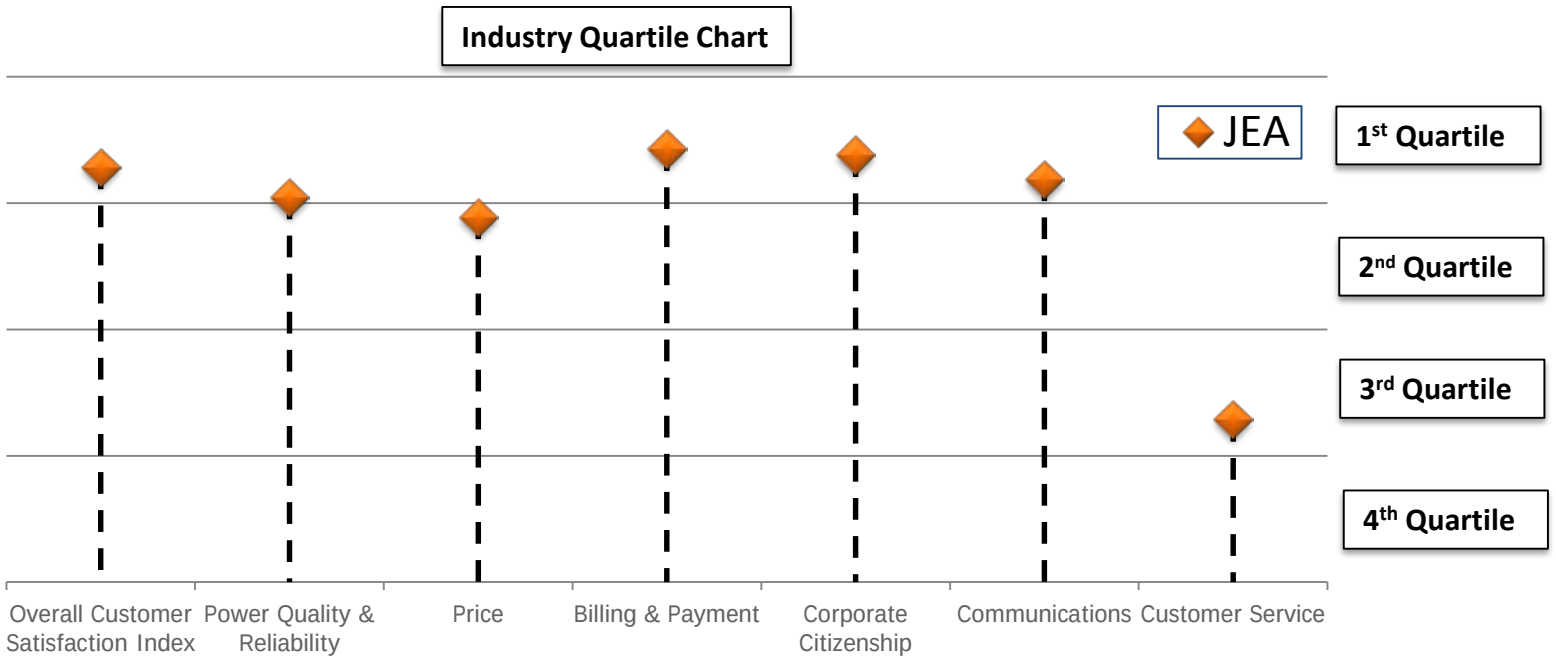
Corporate Citizenship
762 (+14)

Communications
766 (+9)

Customer Service
790 (-39)

Industry OSAT
765

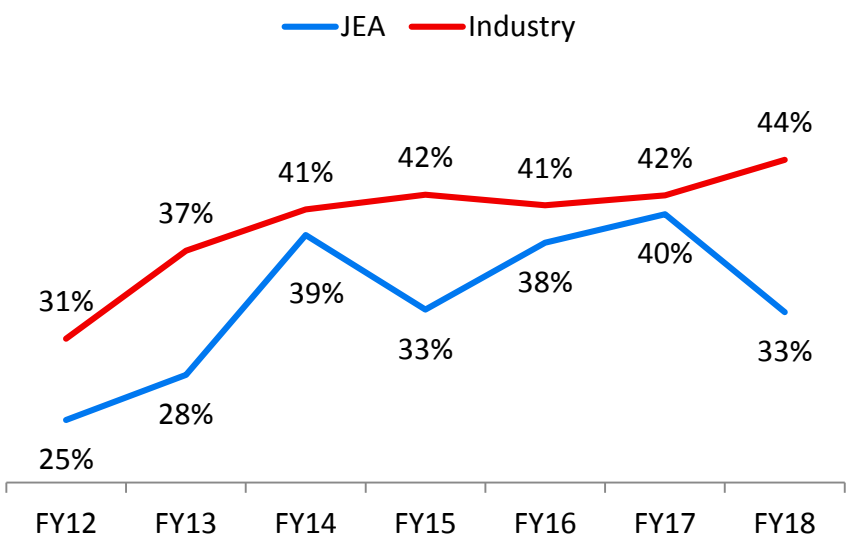
South Midsize OSAT
770



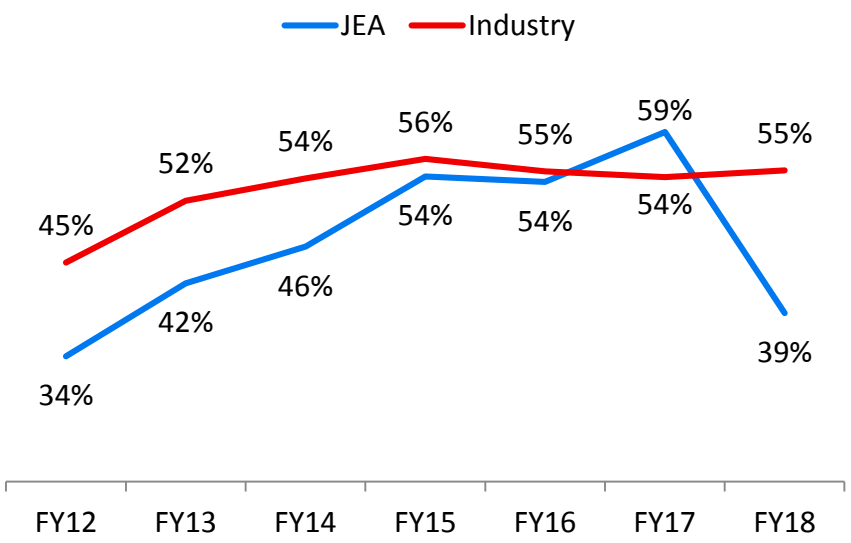
Note: Quartiles and Rank are based on National; factor changes based on full prior year.

PQ&R: Brief & Lengthy Outages

No brief interruptions of 5 minutes or less (last 6 months)

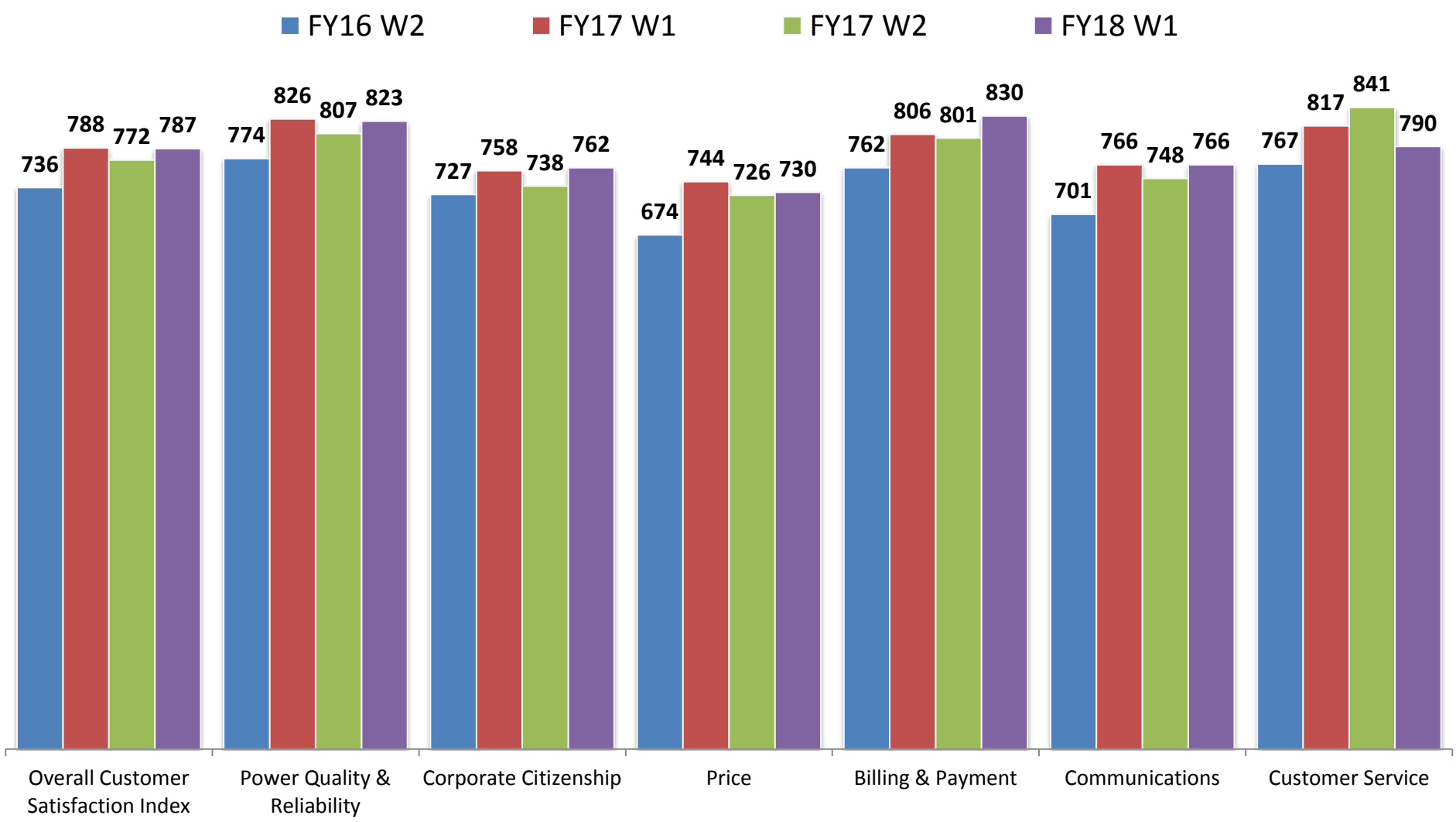


No lengthy outages of more than 5 minutes (last 6 months)

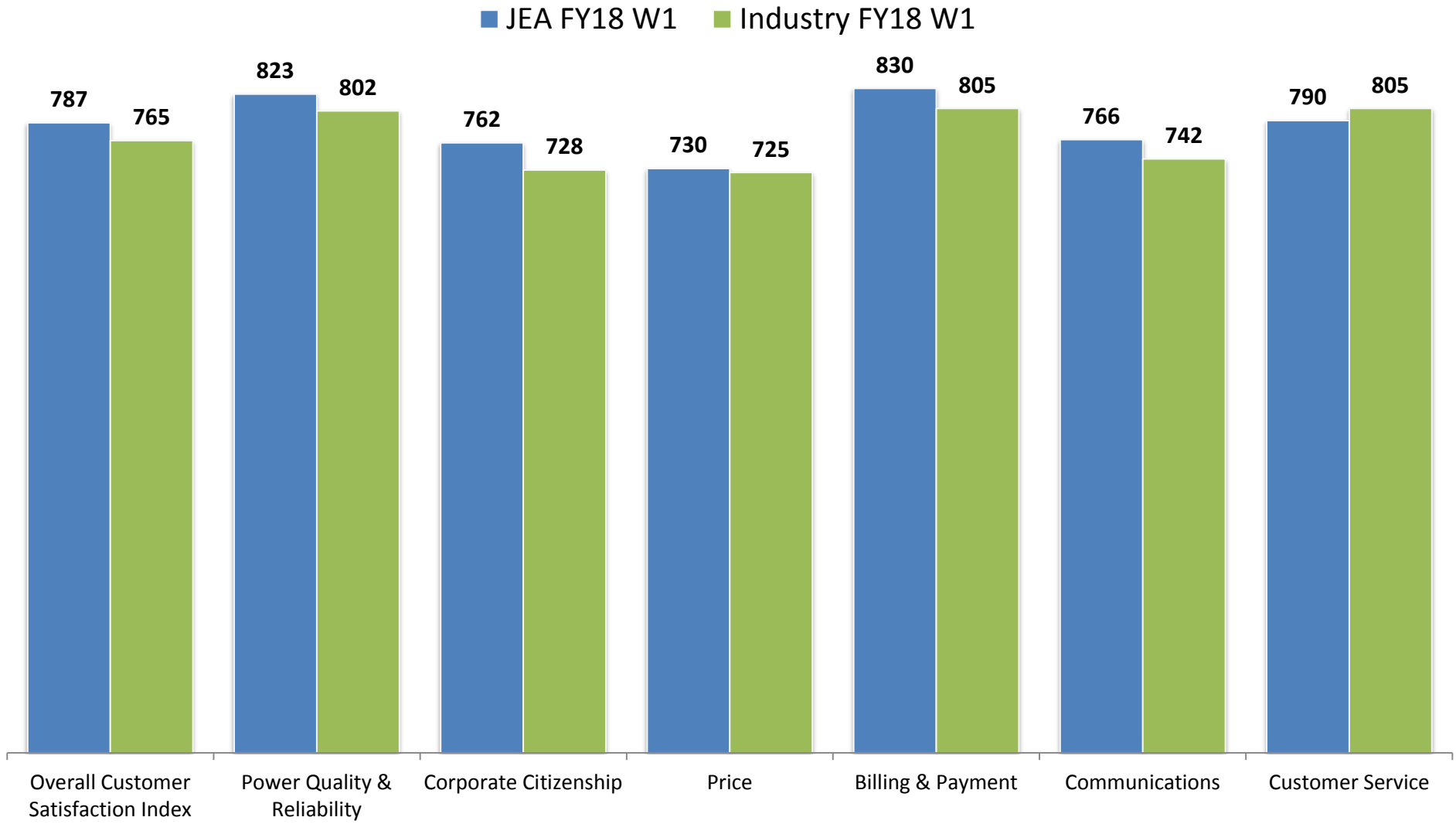


We have made progress with increasing the number of customers with no brief or lengthy outages in the last few years. The FY18 data points could be due to Hurricane Matthew.

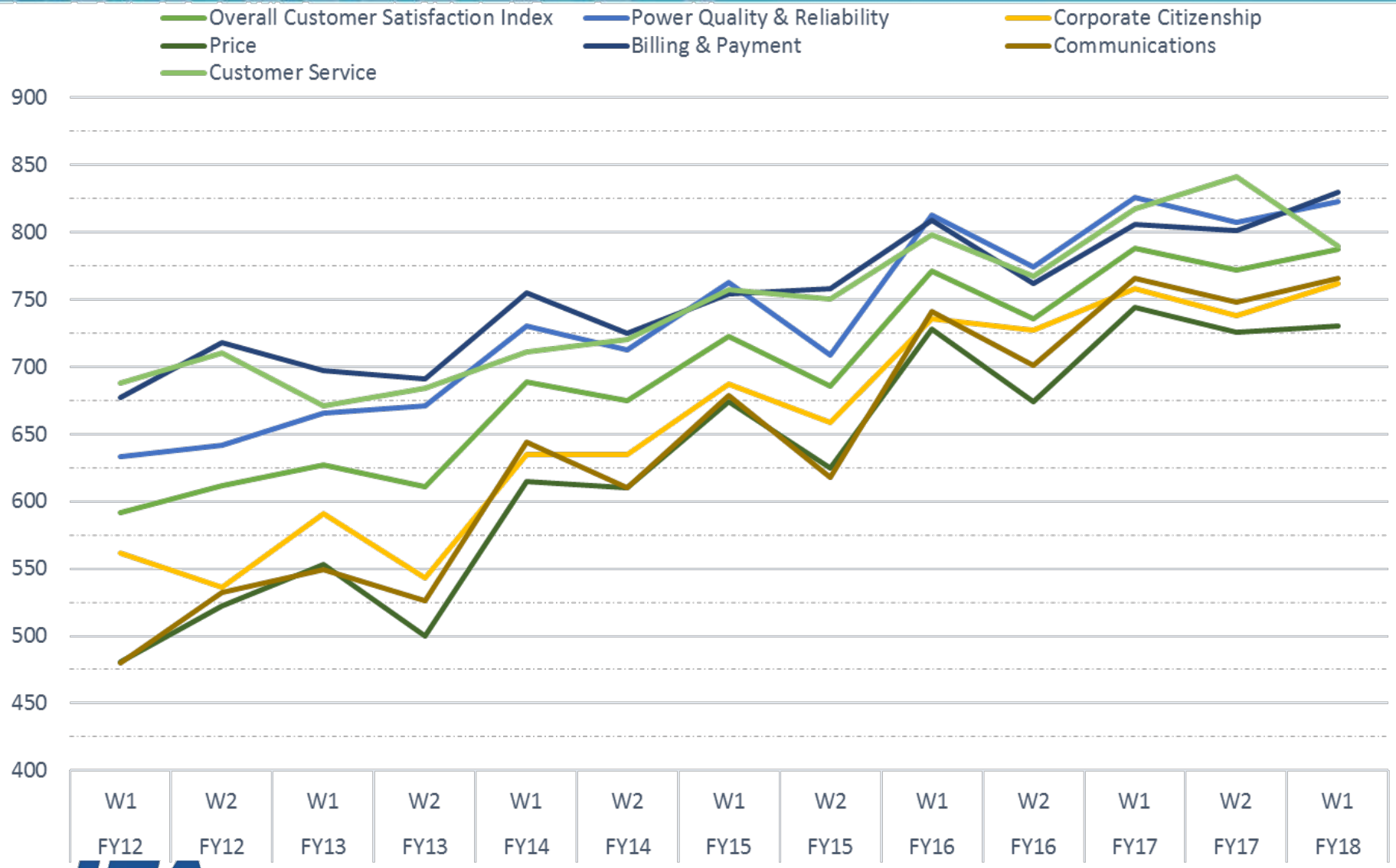
Overall CSI and Factor Performance



Overall CSI and Factor Performance



Overall CSI and Factor Performance



Questions?

V. A. 10.
Monthly FY17 Communications & Engagement Calendar and Plan Update

JEA Community Engagement Calendar - September - November 2017

(Events highlighted in blue are either JEA corporate or partner events)

	A	B	C	D	E	F
1	**Date**	**Event/Activity**	**Location**	**Time**	**Type**	**Opportunity for Public to Attend or Participate**
2	**Sep-17**					
3	9/2/2017	Q&A with JEA	WOKV	11am	Ambassador Speaker	Yes
4	9/9/2017	Q&A with JEA	WOKV	11am	Ambassador Speaker	Yes
5	9/16/2017	Q&A with JEA	WOKV	11am - 9pm	Ambassador Speaker	Yes
6	9/19/2017	Sherwood Forest Neighborhood Assoc.	Legends Center	6pm	Ambassador Speaker	Yes
7	9/20/2017	Osher Lifelong Learning	Buckman Wastewater Tour	10am	Ambassador Facility Tour	No
8	9/21/2017	FL Assoc. of Mortgage Professionals	Sheraton Hotel	12pm	Ambassador Speaker	No
9	9/21/2017	Greenscape Bd Meeting	1648 Hendricks	4pm	Ambassador Speaker	Yes
10	9/21/2017	Renault Garden Club	705 Second Ave. N	10am	Ambassador Speaker	No
11	9/22/2017	Caregiver Conference	WJCT	9am	Ambassador Event	Yes
12	9/23/2017	Q&A with JEA	WOKV	11am - 9pm	Ambassador Speaker	Yes
13	9/25/2017	SE CPAC Meeting	NEFAR	6pm	Ambassador Speaker	Yes
14	9/26/2017	Full STEAM Educators	Springhill Baptist Church	6pm	Ambassador Speaker	No
15	9/26/2017	JAX Channel 4 Planting	Treaty Oaks	9am	Ambassador Speaker	Yes
16	9/27/2017	Drive Electric Rally	Intuition	5pm	Ambassador Event	Yes
17	9/27/2017	JEA Senior Day	Customer Center Lobby	10am	Ambassador Event	Yes
18	9/28 - 10/1/2017	Fall Home & Patio Show	Prime Osborn	11am - 9pm	Ambassador Event	Yes
19	9/30/2017	Q&A with JEA	WOKV	11am - 9pm	Ambassador Speaker	Yes
20						
21						
22						
23	**Oct-17**					
24	10/2/2017	Kiwanis Club	Doubletree	1pm	Ambassador Speaker	No
25	10/5/2017	Environmental Symposium	UNF	9am	Ambassador Event	Yes
26	10/6/2017	Web.com Employee Fair	12808 Gran Bay Parkway	10:30am		
27	10/6/2017	Klighthouse Christian Schoo	6801 Merrill Rd	9am	Ambassador Event	No
28	10/7/2017	2017 Black Expo	Prime Osborn	10am - 7pm	Ambassador Event	Yes

JEA Community Engagement Calendar - September - November 2017

(Events highlighted in blue are either JEA corporate or partner events)

	A	B	C	D	E	F
29	10/19 - 22/2017	2017 Southern Womens Show	Prime Osborn	10am - 9pm	Ambassador Event	Yes
30	10/26/2017	Non-Profit Breakfast	JEA Tower	8am	Ambassador Event	Yes
31	10/27/2017	UNF History Class	Buckman Plant	9am	Ambassador Facility Tour	No
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42	**Nov-17**					
43	11/3/2017	Greenwood School	Main St Lab Tour	10am	Ambassador Facility Tour	No
44	11/11/2017	Veterans Day Parade	Downtown Jax	11:01am	Ambassador Event	Yes
45	11/25/2017	Big Talbot Island Residents	123 Houston Ave	12pm	Ambassador Speaker	No
46						
47						
48						
49						
50						

Building Community

FY17 Communications & Community Engagement Overview and September/October Update

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Overview: Each month we update the board on communications and community engagement activities for the previous and current months. The purpose is to keep you informed about these activities so that you are knowledgeable about JEA's efforts to keep our customers informed, to assist them in the management of their utility services and to be a good corporate citizen.

Communications: On September 27th JEA co-sponsored the National Drive Electric Rally alongside the North Florida Transportation Planning Organization. At this event, EV enthusiast were invited to come out and test drive EVs and share their experiences with others at the event. Beginning October 1st, our JEA Power of Thanks Giveaway began. During this giveaway all customers who are enrolled in one of our billing and payment programs by 11/30 will automatically be entered to win their choice of a Jacksonville Jaguars game day ticket package or a $500 Amazon gift card. On September 23rd we participated in the Special Olympics Bowling Competition. At this event JEA volunteers had the chance to help out during the event. Otherwise we continued all key messages that were identified by J.D. Power as critical to customers. All paid and owned messaging is supported by social media, using Twitter, Facebook, Linkedin, Google+ and YouTube to provide additional timely, relevant information.

Community Engagement: JEA employees are actively involved in our community engagement efforts. JEA Ambassadors participate in activities where we have an opportunity to help customers manage their utility services and/or to educate customers about how JEA provides critical utility services to our community. These employees are trained and certified ahead of time to help JEA deliver on our mission. On the other hand, JEA Volunteers go out into the community to assist nonprofits accomplish their goals by offering their time and talents to help the nonprofit deliver their mission. Volunteers do not have to have any special training or talent; they just have a caring heart.

In September, Ambassadors were requested by numerous groups including the Florida Association of Mortgage Professionals and the Ribault Garden Club. Ambassadors conducted a tour for the Osher Lifelong Learning Institute of UNF at the Buckman Plant. Ambassadors also participated in several community events including; Fall Home & Patio Show and the Caregivers Conference.

Below, JEA Ambassadors participated in the 2017 Fall Home & Patio Show where they engaged customers while providing conservation and energy efficient information.

In September, JEA volunteers came out in support of the Salvation Army Food Pantry, Feeding NE Florida Food Bank**,** Museum of Science and History, Jacksonville Dragon Boat Festival, Special Olympics Bowling Competition, and Catty Shack.

Catty Shack Ranch

As a community-owned utility, JEA employees take a great pride in the Ambassador and Volunteer programs and these programs go a long way to tangibly demonstrate to customers and the community the incredible "Heart of JEA."

Communications Contacts* Generated Year to Date	**301,571,397**
• Number of Paid Communications Contacts (Radio, Television, Out of Home, Online, Print)	217,732,559
• Number of Other Communications Contacts (Bill Insert, Bill Envelop, Brochure, etc.)	14,074,775
• Number of E-communications Contacts (jea.com Visitors, Email, Social Media, Videos)	69,119,149
• Number of Community Engagement Communications Contacts (Events, Public Speaking, Presentations, Training, Workshops, etc.)	671,914

*Communications Contacts are the opportunities we have to communication information to our customers.

V. B. 1.
JEA Energy Mix Policy

Return to Agenda

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**JEA ENERGY MIX POLICY**

Purpose: ☐ Information Only ☒ Action Required ☐ Advice/Direction

Issue: In August 2010, the JEA Board enacted a resolution calling for up to 30 percent of JEA's energy to be supplied by nuclear energy generation projects by 2030. With the dramatic evolution in the market for carbon-free energy generation, modification of this policy is recommended at this time.

Significance: In 2010, the costs for renewables were considerably higher than the nuclear alternative. With increases in nuclear construction costs and a steady decrease in solar and other renewable costs, renewables are now a less costly source of clean generation (albeit without the capacity benefits of nuclear). This policy change recognizes the importance of carbon-free energy and provides greater flexibility in the generation sources to meet that goal.

Effect: With this modification, any carbon-free (i.e. solar, wind) or carbon-neutral (i.e., biomass, landfill gas) generation, as well as nuclear generation, can be used toward the energy target. This change will allow staff the flexibility to select the most cost-effective option, while still meeting carbon-free targets.

Cost or Benefit: Adoption of carbon-free energy sources will be assessed through an Integrated Resource Plan process, as well as evaluation of specific opportunities. This policy will lead to reduced carbon emissions by JEA, while allowing us the flexibility to implement the most cost-effective projects.

Recommended Board action: Staff recommends that the Board approve a modification to the 2010 Resolution allowing for up to 30 percent of JEA's energy to be provided by carbon-neutral projects by 2030. Projects powered by nuclear, solar, biomass, landfill gas, wind or other clean source would qualify under this policy.

For additional information, contact: Steve McInall, (904) 665-4309

Submitted by: PEM/ MJB/ SGM

Commitments to Action

1. Earn Customer Loyalty
2. Deliver Business Excellence
3. Develop an Unbeatable Team

Return to Agenda

V. B. 1.
10/17/2017

INTER-OFFICE MEMORANDUM

October 2, 2017

SUBJECT:	**JEA ENERGY MIX POLICY**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
In August 2010, the JEA Board enacted a resolution calling for up to 30 percent of JEA's energy to be supplied by nuclear energy generation projects by 2030. With the dramatic evolution in the market for carbon-free energy generation, modification of this policy is recommended at this time.

DISCUSSION:
At the time the resolution was adopted, nuclear projects were expected to be a more cost-effective source of carbon-free energy than alternatives such as renewables. Today, the costs for renewables, particularly universal solar, have decreased to the point where they are on par with JEA's fuel rate, while nuclear costs have substantially increased. Given this switch in the relative economics, it is recommended that JEA's goal be revised to include any carbon-free (i.e., solar, wind) or carbon-neutral (i.e., biomass, landfill gas) generation, as well as nuclear generation. This policy revision will enable JEA to continue to reduce carbon emissions, meet the energy needs of Jacksonville, and allow us the flexibility to select the most cost-effective method.

RECOMMENDATION:
Staff recommends that the Board approve a modification to the 2010 Resolution allowing for up to 30 percent of JEA's energy to be provided by carbon-neutral projects by 2030. Projects powered by nuclear, solar, biomass, landfill gas, wind or other clean source would qualify under this policy.

_____
Paul E. McElroy, Managing Director/CEO

PEM/MJB/SGM

V. B. 2.
Universal Solar Expansion and Land Acquisition

Return to Agenda

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**UNIVERSAL SOLAR EXPANSION AND LAND ACQUISITION**

Purpose: ☐ Information Only ☒ Action Required ☐ Advice/Direction

Issue: The price of universal solar photovoltaic (PV) Power Purchase Agreements (PPAs) has declined from $75/MWh on average in 2016 to current pricing near JEA's fuel rate of $32.50/MWh. Staff is proposing a significant expansion at this time of universal solar for JEA's generation portfolio. In connection with this expansion, four tracts of land have been identified as being suitable to host solar facilities of at least 50 MW each. Two of these tracts are currently owned by JEA and the remaining two are available for purchase.

Significance: Staff recommends that JEA pursue new universal solar PPAs at or below JEA's current fuel rate to take advantage of lower universal solar prices. Universal solar allows JEA to lock in current, competitive low energy prices for a portion of our generation requirements, reducing JEA's reliance on fossil fuels and providing some protection to JEA customers against future changes in volatile fuel and purchase power costs. This expansion will increase JEA's solar footprint by over 600% compared to existing and planned solar facilities, making Jacksonville one of the top solar communities in the country.

Effect: This universal solar expansion supports JEA's Energy Mix Policy. JEA will own the land for the solar facilities, ensuring that the land will remain available for future solar applications. These new projects will also help lower the cost of JEA's SolarSmart offering, and allow for further expansion through the new proposed JEA SolarMax rate.

Cost or Benefit: PPA costs will either offset JEA's fossil fuel expense or be recovered by JEA SolarSmart/SolarMax subscriptions. Staff is requesting a delegated authorization to acquire land to be used for these solar developments. It is a benefit to our customers and the environment, as we lock in low renewable energy prices and add a substantial amount of carbon-free generation to JEA's generation portfolio.

Recommended Board action: Staff recommends the Board delegate authorization to the Managing Director to execute the land purchases needed for the solar developments described above by adopting the attached Resolution 2017-36. The resolution has been prepared by staff and approved by JEA's Chief Legal Officer.

For additional information, contact: Steve McInall, (904) 665-4309 or John McCarthy, (904) 665-5544

Submitted by: PEM/ MJB/ MHD/ SGM/ DLB

Return to Agenda

V. B. 2.
10/17/2017

INTER-OFFICE MEMORANDUM

October 2, 2017

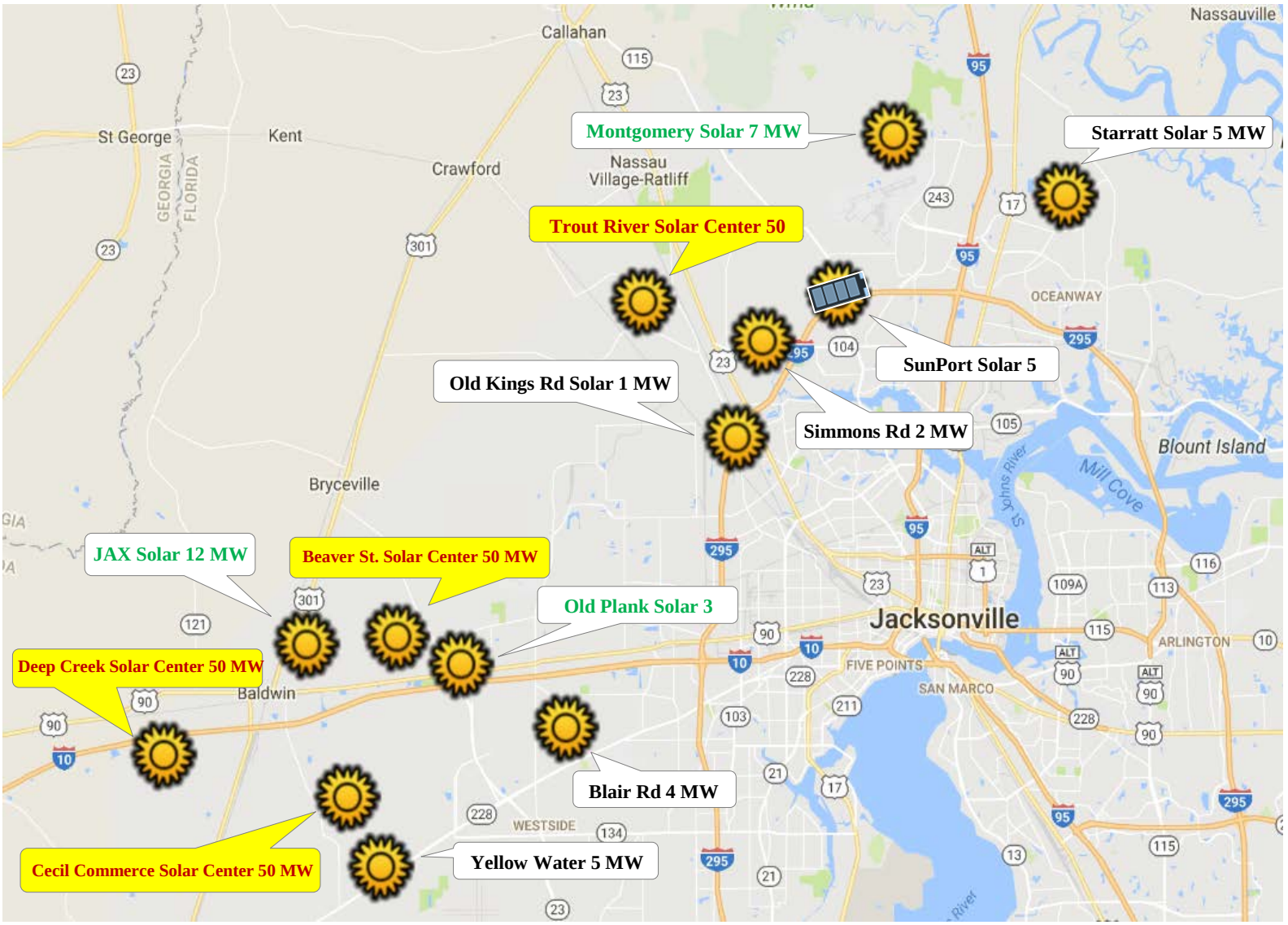
SUBJECT:	**UNIVERSAL SOLAR EXPANSION AND LAND ACQUISTION**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
JEA has a strong history of supporting solar research and incentivizing solar deployments. In 2002, JEA implemented a Solar Incentive Program to help encourage the acceptance and deployment of solar energy systems. In 2009, JEA signed a Power Purchase Agreement (PPA) with Jacksonville Solar, LLC for a 12 MW rated solar photovoltaic (PV) farm located on the city's Westside. Also in 2009, JEA established a 10 MW Net Metering program designed to encourage the installation of private solar PV systems until such time when PV solar systems achieved commercial viability. In 2014, JEA implemented a Solar Policy, which supported the addition of up to 38 MW of solar PV resources in the JEA territory using a set of PPAs. From this initiative, JEA has 27 MW of utility-scale solar PV projects planned for 2017 and an additional 5 MW planned for 2018. In 2016, JEA pledged its participation in the Florida Alliance for Advancing Solar and Storage Technology Readiness (FAASSTeR) with other Florida Municipal Utilities, the Florida Municipal Electric Association (FMEA), the Florida Office of Energy, Nhu Energy, and the U.S. Dept. of Energy. The objective of this effort is to enable FMEA member utilities to grow solar PV in their territories to over 10 percent of power capacity by 2024. Finally, in 2017 JEA initiated the JEA SolarSmart rate, providing all JEA customers the ability to access to solar resources.

DISCUSSION:
The price of utility-scale solar PPAs has declined from $75/MWh on average in 2016 to near JEA's current fuel charge of $32.50/MWh today. It is recommended that JEA pursue new universal solar PPAs at or below JEA's current fuel rate to take advantage of lower universal solar prices. Universal solar allows JEA to lock in current, competitive low energy prices for a portion of our generation requirements, reducing JEA's reliance on fossil fuels and providing some protection to JEA customers against future changes in volatile fuel and purchase power. This proposed expansion will increase JEA's solar footprint by over 600% compared to existing and planned solar facilities, making Jacksonville one of the top solar communities in the country. The construction of the new solar developments is expected to be completed by the end of 2020.

Four tracts of land have been identified as suitable to host solar facilities of at least 50 MW each. Two of the tracts are owned by JEA, and the remaining two are available for purchase. The JEA-owned parcels are the Peterson and Miller tracts. They were purchased in 2000 and 2001 under a Jacksonville initiative known as the Preservation Project. At that time, the JEA Board stipulated that should the property be improved with utility facilities, JEA would substitute a similar property. The parcels proposed for purchase provide sites for new solar development and for offsets for solar development on its existing sites. The total cost of acquisition of the additional properties will not exceed fifty million dollars ($50,000,000). The four proposed new solar sites are highlighted in yellow on the map on the following page.

Consistent with JEA's Real Estate Procurement Directive and real estate industry practice, staff will secure an appraisal of the value of property, and negotiate acquisition terms and pricing for the tracts of land. JEA shall not acquire these properties at a price greater than the appraised value.



**Yellow highlighted sites expected to commission by end of 2019/early 2020. Sites not highlighted are the 32 MW awarded through JEA's Phase 1 -3 Solar RFPs. Sites in green font are already online and producing*

RECOMMENDATION:

Staff recommends that the Board delegate authorization to the Managing Director to execute the land purchases needed for the solar developments described above by adopting the attached Resolution 2017-36. The resolution has been prepared by staff and approved by JEA's Chief Legal Officer.

_____

Paul E. McElroy, Managing Director/CEO

PEM/MJB/MHD/SGM/DLB

Resolution 2017-36

A RESOLUTION TO DELEGATE AUTHORITY TO NEGOTIATE AND EXECUTE REAL ESTATE PURCHASE AGREEMENTS FOR UNIVERSAL SOLAR PROGRAM TO THE MANAGING DIRECTOR/CEO IN ACCORDANCE WITH JEA CHARTER SECTION 21.10

WHEREAS, after consideration by JEA, staff has recommended JEA pursue additional universal solar opportunities within JEA service territory; and

WHEREAS, certain real estate parcels have been identified in JEA service territory that can accommodate the JEA universal solar projects; and

WHEREAS, JEA staff will negotiate acceptable terms and conditions for the purchase of the needed parcels of real estate; and

WHEREAS, the total cost for the acquisition of the needed parcels of real estate shall not exceed fifty million dollars ($50,000,000).

WHEREAS, the JEA Charter, Section 21.10, provides that the JEA Board may delegate the authority to an officer, agent or employee of JEA by resolution to execute purchase and sale agreements.

BE IT RESOLVED by the JEA Board of Directors that:

1. JEA acquire the necessary real property associated with JEA's universal solar expansion program under terms and conditions satisfactory for the intended use by JEA.
2. The Board hereby delegates to the Managing Director/CEO the authority to execute all transaction documents required for the acquisition of real estate for JEA's universal solar expansion program.
3. The total acquisition cost of all real property necessary for JEA's universal solar expansion program shall not exceed fifty million dollars ($50,000,000) without additional approval by the JEA Board of Directors.

Dated this ____ day of October 2017.

JEA

By: _____
G. Alan Howard, Chair

Attest:

_____
Reverend Frederick Newbill, Secretary

Approved as to form:

_____
Jody Brooks, Chief Legal Officer

V. B. 3.
Distributed Generation Policy and Proposed Battery Incentive Program

Return to Agenda

Building Community

AGENDA ITEM SUMMARY

October 2, 2017

SUBJECT:	**DISTRIBUTED GENERATION POLICY AND PROPOSED BATTERY INCENTIVE PROGRAM**

Purpose: ☐ Information Only ☒ Action Required ☐ Advice/Direction

Issue: JEA allows customers to connect private generation to the JEA grid under two different policies, depending on the size and type of the generating facility. The new proposed Distributed Generation Policy consolidates and streamlines the interconnection process, aligns financial incentives to current market conditions, and preserves customer choice. The net metering cap under the current policy is expected to be reached by January 2018.

Significance: A new policy is needed that streamlines the process, preserves customer choice, and allows JEA to allocate incentives where they will be of greatest benefit to the system and the community. JEA is proposing to combine the 2014 Net Metering and Distributed Generation policies, modify them to meet strategic goals, and implement a battery incentive program to encourage installation of private battery storage.

Effect: Combining the separate policies helps streamline the process for JEA's customers while providing new benefits. Incentivizing battery storage helps move storage toward the mainstream, lowers the overall cost of storage technology for everyone, and gives the customer the opportunity to offset their own consumption with a battery as opposed to using the JEA grid to store excess production. This has the effect of reducing overall costs to the community.

Cost or Benefit: Savings to JEA from the new Distributed Generation Policy and the Battery Incentive program are strongly dependent on the adoption rate. With full adoption of the program at $1,000,000 per year in rebate funding, JEA expects to see approximately 4 MW of private solar/battery installed annually. Under the current Net Metering policy, the net present value cost over 20 years for 4 MW of installed private solar is approximately $4,800,000.

Recommended Board action: Staff recommends that the Board approve the new Distributed Generation Policy. The Battery Incentive program will be incorporated into JEA's existing rebate and incentive programs and is being presented as information only.

For additional information, contact: Steve McInall, (904) 665-4309

Submitted by: PEM/ MJB/ SGM

Return to Agenda

INTER-OFFICE MEMORANDUM

October 2, 2017

SUBJECT:	**DISTRIBUTED GENERATION POLICY AND PROPOSED BATTERY PROGRAM**
FROM:	Paul E. McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND:
JEA allows customers to connect private generation to the JEA grid under two different policies, depending on the size and type of the generating facility. Staff is proposing a new Distributed Generation Policy that consolidates and streamlines the interconnection process, aligns financial incentives to current market conditions and preserves customer choice. The Net Metering cap under the current policy is expected to be reached by January 2018.

DISCUSSION:
The proposed new Distribution Generation policy combines the existing Net Metering and Distributed Generation policies into a new Distribution Generation policy, and concurrently incorporates a new Battery Incentive program. Effective February 1, 2018, the proposed Distributed Generation Policy supersedes the existing Net Metering and Distributed Generation policies dated December 2, 2014.

The proposed policy addresses the following:

- Allows grandfathering of all Private Solar systems installed by January 31, 2018 for 20 years (until January 31, 2038) unless voluntary withdrawal from the program
- Reduces the policy to only 2 tiers (DG-1 for systems less than or equal to 2 MW and DG-2 for systems greater than 2 MW)
- Eliminates the consumption history-based limit on system size
- Retains limits based on safety and system limitations
- Eliminates the cap on total installed MW
- Credits the customer the fuel rate for any excess energy sold back to JEA

Effective February 1, 2018, the Battery Incentive program will be offered as an optional program for renewable distributed generation customers. This program provides a one-time 30 percent rebate on the purchase and installation of a household battery system, up to a maximum of $2,000 per household, and up to a maximum of $1,000,000 per year. Price signals will incentivize battery use to provide household power through peak periods. Incentivizing storage captures the original intent of net metering, which was to encourage solar adoption at a time when solar costs were prohibitive. With costs for solar now much lower, it is appropriate to repeat the success of net metering by now incentivizing storage to help move storage toward the mainstream and to lower the overall cost of storage technology.

The proposed Battery Incentive program:

- Preserves customer choice
- Helps the customer ride through outages
- Maximizes the benefit of customer-owned solar systems by offsetting consumption
- Reduces demand throughout the peak period
- Operates during early morning winter peak hours when solar production is low
- Reduces JEA's overall costs (the rebate is a one-time per customer cost compared to the continual and cumulative nature of full retail net metering)

Existing grandfathered net metering customers can voluntarily withdraw from the 2014 Net Metering program and utilize instead the Battery Incentive program. The new Battery Incentive program is anticipated to be in effect until battery prices reach a level where support is no longer required. JEA will annually revisit the rebate amount and adjust it to encourage target program participation levels.

Savings to JEA from the new Distributed Generation Policy and the rebate program are strongly dependent on the adoption rate. With full adoption of the program at $1,000,000 per year in rebates, JEA expects to see approximately 4 MW of private solar/battery installed annually. Under the current Net Metering policy, the net present value cost over 20 years for 4 MW of installed private solar is approximately $4,800,000.

RECOMMENDATION:
Staff recommends that the Board approve the new Distributed Generation Policy. The Battery Incentive program will be incorporated into JEA's existing rebate and incentive programs and is being presented as information only.

_____
Paul E. McElroy, Managing Director/CEO

PEM/MJB/SGM

JEA Distributed Generation Policy

Effective February 1, 2018

Summary

This JEA Distributed Generation Policy is intended to facilitate generation from customer-owned renewable and non-renewable energy generation systems interconnecting to the JEA electric grid. The policy provides requirements to ensure the safety of JEA employees and customers and to maintain the reliability of the electric grid. The policy defines the billing and credit methodologies that apply to customer-owned distributed generation arrangements. Applicable customers who install Private Solar systems on or before January 31, 2018 will have the option to be subject to the Net Metering Policy dated December 2, 2014.

This policy supersedes and replaces the following policies:

- *JEA Distributed Generation Policy – 12-2-14; and*
- *JEA Net Metering Policy Tiers 1-3 – 12-2-14.*

Definitions

For the purposes of this policy the following definitions apply:

- Avoided Cost – The value assigned to energy delivered to JEA, determined by the cost of the fuel that JEA would have used to generate the same amount of energy and a representative heat rate.

- Distributed Generation (DG) – Customer-owned generation located in the JEA electric service territory. Size may result in annual generation in excess of the customer's annual energy demand. Excludes customer-owned generation which is used for back-up/standby and does not operate in parallel with the JEA system.

- FERC – Federal Energy Regulatory Commission.

- Fuel Charge – The charge for the fuel component in JEA's electric rates, as defined in the JEA Pricing Policy. The Fuel Charge will be set annually during the budget process to be effective October 1 of the upcoming fiscal year. The Charge is based on the forward 12-month energy cost projection and will be structured to fully recover all expected fuel-related costs and any amounts for Fuel Stabilization Fund over the coming fiscal year

- Gross Power Rating (GPR) – The total manufacturer's AC nameplate generating capacity of an on-site, customer-owned generation system that will be interconnected to and operate in parallel with JEA's distribution facilities. For inverter-based systems, the GPR shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.

- Net Metering – A metering and billing methodology whereby customer-owned renewable generation is allowed to offset the customer's electricity consumption on site.

- Power Purchase Agreement (PPAs) – Technical and commercial agreement in which a third-party developer owns, operates and maintains an electric generation system and an electric utility purchases the system's electric output for a predetermined period.

- Private Solar – A customer-owned photovoltaic (PV) solar system on customer's home or business, usually on the roof, that produces energy to offset energy consumed.

- PURPA – Public Utility Regulatory Policies Act of 1978. Provides the definition of a Qualifying Facility (applicable to cogeneration facilities).

- Renewable Energy Generation – Energy produced from sources identified as renewable in Florida Statute 366.91(2) (d).

- Utility Distribution Service Rating – Distribution capacity rating of the JEA assets serving the customer up to the point of service. This includes, but is not limited to, the utility distribution transformer and utility service conductor.

Qualifications

In order to qualify for interconnection to JEA's distribution grid, the customer's distributed generation system must have a gross power rating that:

1. Does not exceed 90 percent of the customer's utility distribution service rating.
2. Falls into one of the following generation ranges:
   - DG-1– Less than or equal to 2 MW.
   - DG-2D – Over 2 MW gross power rating with distribution level connection to JEA's system.
   - DG-2T – Over 2 MW gross power rating with transmission level connection to JEA's system.

JEA reserves the right to impose limits on the aggregate level of intermittent renewables on the system (including Private Solar) based on either local or system-wide electrical limitations (i.e., potential backflow in an area in excess of transformer ratings). At management's sole discretion, aggregate load limits may be imposed in the future that will limit the private solar and other renewable energy generation customers by total MWs connected, date or other aggregate characteristics. Currently, no aggregate JEA system load limit is proposed for interconnection of private solar and other renewable energy generation.

JEA Distributed Generation Policy

Effective February 1, 2018

Application

An application form must be submitted by the customer and approved by JEA prior to initiating installation or construction of any distributed generation system. The customer will be required to complete and sign the application, and provide all required documentation listed in the application form, including an IRS W-9 form and an interconnection agreement. These documents can be found at jea.com. The documents must be signed by the individual who is listed on the JEA account. The application form and the interconnection agreement will be based on the system size and type of distributed generation:

- JEA Application Form for Interconnection of Distributed Generation Systems
- A Small Generator Interconnection Agreement is required for systems with less than or equal to 2 MW gross power rating to connect to JEA's system (DG-1systems).
- A Power Purchase Agreement (PPA) may be required for systems over 2 MW gross power rating to connect to JEA's system (DG-2D and DG-2T systems). A PPA is required if any sale of energy to JEA is planned.

The customer can email the application package to DistGen@jea.com or deliver to:

Manager Customer Solutions
JEA T-12
21 West Church Street
Jacksonville, FL 32202

Upon receipt of the application package, a JEA employee will contact the customer to review their proposed installation and will begin the interconnection analysis to determine any additional requirements and/or costs. The customer shall be responsible for all equipment upgrades, or similar, which would be necessary to complete the interconnection. The interconnection agreement or the PPA serves as the contract between JEA and the customer, and will include additional requirements.

Commercial customers are encouraged to utilize their key account representative if they are considering installing a DG system.

Installation

The customer will be required to install the system in accordance with JEA Rules and Regulations section 2.16 and Electric Systems Procedure ES20202 902 or its successor, as appropriate. An electrical construction permit must be obtained from the appropriate jurisdiction. The system must also pass a JEA inspection prior to connection and operation. Any required upgrades to JEA's system will be paid by the customer, or if addressed under a PPA, may be paid by JEA with the cost of the upgrades being reflected in the negotiated rate.

JEA Distributed Generation Policy

Effective February 1, 2018

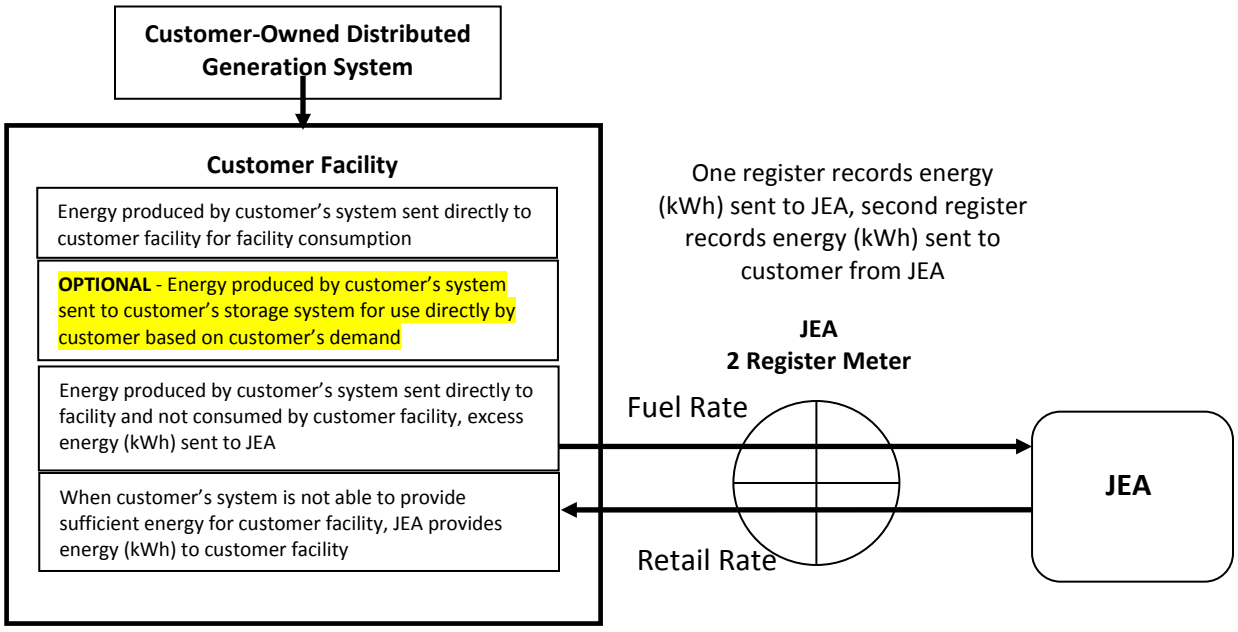
JEA will evaluate proposed DG systems using factors which include, but are not limited to, the following:

- Location of customer's generation system;
- Size (MW) of customer's generation system;
- Point of Connection to JEA's electric system and JEA study of interconnection;
- Available capacity on the JEA Distribution or Transmission system, as appropriate;
- Fuel source of customer's proposed generation system;
- Availability (capacity factor) of customer's proposed generation system;
- Environmental impact of customer's proposed generation system;
- Required upgrades, if any, to JEA's system to accommodate customer's load;
- Required level of backup by JEA to customer's system; and
- JEA's current or projected capacity and energy needs.
- For DG units utilizing JEA's transmission system to transmit energy out of JEA's territory, customer will need to request transmission service through JEA's Open Access Transmission Tariff (OATT). JEA will also need to study and approve the proposed interconnection.
- Start-up, standby, and any other ancillary services to be provided by JEA; and
- Financial strength of PPA offeror (customer).

Metering

JEA will furnish, install, own, and maintain metering equipment at the installation point capable of monitoring the flow of energy (kWh) from JEA to the customer and from the customer to JEA. Service from JEA to the customer will be the same as for retail customers.

Diagram:



JEA Distributed Generation Policy

Effective February 1, 2018

Billing

The billed kWh consumption for each billing period will be the amount of kWh received from JEA measured at the meter at the end of the billing period. Customers will be charged using the customer's Retail Rate for energy, demand, fuel, environmental and conservation charges for the metered kWh and/or kW, as applicable received from JEA during each billing cycle. The customer will always pay the monthly customer charge and the Retail Rate plus taxes and fees based on the kWh and/or kW that customer receives from JEA even if there is net zero consumption or net excess kWh exported to the grid during the billing cycle.

Systems with a gross power rating of 50 kW or greater will require standby and/or supplemental energy from JEA and will be required to take service under Rate Schedule SS-1 "Standby and Supplemental Service."

JEA reserves the right to develop specific rate classifications that may have different cost recovery based rate structures than implied through distributed generation practices under this policy.

Credits

DG-1 Systems (Including Private Solar)

Monetary credits for each billing period will be based on the kWh sent to JEA measured at the meter on an instantaneous basis (15 minute average), and the fuel rate. If the credit for a billing period is larger than the charges received from JEA, then JEA will carry over the credit balance (in dollars), less any included taxes, to the next billing period. JEA will not distribute a monthly payment for the credit balance. JEA will apply the credit balance to the electric service balance each billing period through the end of the calendar year. If at the end of the calendar year the customer has a credit balance on the customer's JEA account related to their distributed generation service, the credit balance will be applied to any outstanding balance on the combined JEA customer account. JEA will then pay the customer the remaining account credit balance. JEA will also apply any credit balance to the final bill at the time the service agreement, or account, is closed and final billed. At the end of each, year JEA will issue an IRS 1099-MISC tax form totaling all monthly credits for the previous year to customers with total credits of $600 or greater.

DG-2D and 2T Systems

Distributed Generation systems are considered to be DG-2D if connected to JEA's system at the distribution level, and DG-2T if connected at the transmission level. Other than the type of connection to JEA's electric grid, DG-2D and DG-2T are the same. The rates for energy delivered to JEA by DG-2D and DG-2T generation systems will be addressed on an individual basis with the customer through a Power Purchase Agreement (PPA). PURPA Qualifying Facilities may receive Avoided Cost payments for energy sold to JEA.

JEA Distributed Generation Policy

Effective February 1, 2018

Additional Requirements for Systems over 100 kW

The following requirements are in addition to those in the Policy Statement above and must be submitted to JEA in order to properly evaluate the request to interconnect to the JEA grid:

1. Completed application with signature and fees as established in the JEA Electric Service Tariff;
2. Completed interconnection agreement;
3. Completed Power Purchase Agreement (PPA), if applicable;
4. Proof of general liability insurance of $2 million; and
5. Evidence of the proposed installation of an externally accessible, lockable a/c disconnect device located in close proximity to the meter location.

Please note that given the complexity and variability of systems of this size, there may be other protection equipment required beyond the disconnect switch, which will be determined through the interconnection study performed by JEA. Any additional equipment costs will be incurred by the customer.

The customer can email the application package to DistGen@jea.com or deliver to:

Manager Customer Solutions
JEA T-12
21 West Church Street
Jacksonville, FL 32202

Upon receipt of the application package, a JEA employee will contact the customer to review the proposed installation and begin the interconnection analysis to determine any additional requirements and/or costs. The customer shall be responsible for all equipment upgrades, or similar, which would be necessary to complete the interconnection. The interconnection agreement or the PPA serves as the contract between JEA and the customer, and will include additional requirements.

PURPA Qualifying Facilities

Facilities proposing to sell electricity as a "Qualifying Facility" as defined by the Public Utility Regulatory Policies Act of 1978 ("PURPA") and the Federal Energy Regulatory Commission ("FERC") regulations implementing PURPA, may fall into the DG-2D or DG-2T categories. A "Qualifying Facility" is one that meets certain federal guidelines and qualifies to receive avoided cost payments from the utility. Depending on the project, a customer may need to fill out FERC Form 556, which is available on the FERC website.

Facilities larger than one (1) MW in size as defined by maximum net power production capacity must file a FERC Form No. 556 either as a self-certification (or self-recertification) or as an application for Commission certification.

PURPA Qualifying Facilities are eligible to receive payments of avoided costs from JEA for energy delivered to JEA.

Grandfathering

Systems currently enrolled as Net Metering customers have the option of remaining as net metering customers, or voluntarily withdrawing from the program. The grandfathering will be attached to the system, not the customer, so the system will remain as a grandfathered net metered system when a home is sold and a new interconnection agreement is signed for the existing system. The grandfathering is not transportable, i.e., it cannot be moved by a customer to a new location.

The grandfathered status will expire 20 years after the effective date of this policy, unless terminated earlier due to voluntarily withdrawal.

Renewable Energy Attributes

All DG-1 and DG-2 customers will retain any renewable energy attributes associated with customer-utilized renewable generation. For any kWh purchased by JEA, the renewable energy attributes will be transferred to JEA.

JEA Distributed Generation Policy

Effective February 1, 2018

Appendix

The following table summarizes this policy for each category of distributed generation.

Distributed Generation Policy Summary

Generation Range	Energy (kWh) Received (Purchased) from JEA	Energy (kWh) Delivered (Sold) to JEA	Notes
DG - 1 up to 2 MW	Retail Rate	Fuel Charge	• SS-1 Service may be required over 50 kW • Application fee required over 100 kW • Interconnection Agreement required
DG-2D – Over 2 MW – Distribution Level Connection	Retail Rate	Avoided Cost (for PURPA Qualifying Facility)	• PPA may be required • SS-1 Service may be required • Application fee required • Interconnection Agreement required
DG-2T – Over 2 MW – Transmission Level Connection	Retail Rate	Avoided Cost (for PURPA Qualifying Facility)	• PPA may be required • SS-1 Service may be required • Application fee required • Interconnection Agreement required

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JEA Battery Incentive Program

Effective February 1, 2018

Summary

This JEA Battery Incentive Program is intended to act in concert with the Distributed Generation Policy to facilitate generation from customer-owned renewable generation systems interconnecting to the JEA electric grid.

Definitions

- Battery – refers to an energy storage device connected to a home or business renewable generation system, designed to store the output of the renewable generation system and supply power on demand.

- Distributed Generation (DG) – Customer-owned generation located in the JEA electric service territory. Size may result in annual generation in excess of the customer's annual energy demand. Excludes customer-owned generation which is used for back-up/standby and does not operate in parallel with the JEA system.

- Fuel Charge – The charge for the fuel component in JEA's electric rates, as defined in the JEA Pricing Policy. The Fuel Charge will be set annually during the budget process to be effective October 1 of the upcoming fiscal year. The Charge is based on the forward 12-month energy cost projection and will be structured to fully recover all expected fuel-related costs and any amounts for Fuel Stabilization Fund over the coming fiscal year

- Gross Power Rating (GPR) – The total manufacturer's AC nameplate generating capacity of an on-site customer-owned generation system that will be interconnected to and operate in parallel with JEA's distribution facilities. For inverter-based systems, the GPR shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.

- Net Metering – A metering and billing methodology whereby customer-owned renewable generation is allowed to offset the customer's electricity consumption on site.

- Private Solar – A customer owned photovoltaic (PV) solar system on customer's home or business, usually on the roof, that produces energy to offset energy consumed.

- Renewable Generation – Energy produced from sources identified as renewable in Florida Statute 366.91(2) (d).

- Utility Distribution Service Rating – Distribution capacity rating of the JEA assets serving the customer up to the point of service. This includes, but is not limited to, the utility distribution transformer and utility service conductor.

JEA Battery Incentive Program

Effective February 1, 2018

Qualifications

Any renewable Distributed Generation system is eligible to participate in the Battery Incentive Program.

Program Description

JEA shall provide a rebate of 30 percent of the cost of an energy storage system, up to $2,000/customer, subject to lawfully appropriated funds. The JEA rebate is in addition to any federal tax incentive for which customers may be eligible. The requirements for suitable energy storage systems are established in the interconnection agreement. Customers electing to collect this rebate will be able to offset their consumption of electricity from JEA up to the limits of their storage device. At least annually as part of the budget process, JEA shall review the battery incentive program and the adoption rate of battery systems and modify the incentives, if necessary, to optimize adoption.

Application

An application form must be submitted by the customer and approved by JEA prior to initiating installation or construction of any distributed generation system. The customer will be required to complete and sign the application and provide all required documentation listed in the application form including an IRS W-9 form and an interconnection agreement. These documents can be found at jea.com. The documents must be signed by the individual who is listed on the JEA account. The application form and the interconnection agreement will be based on the system size and type of distributed generation:

- JEA Application Form for Interconnection Distributed Generation Systems. The same form can be used for a Private Solar Application and a Battery, if installed concurrently.

The customer can email the application package to DistGen@jea.com or deliver to:

Manager Customer Solutions
JEA T-12
21 West Church Street
Jacksonville, FL 32202

Upon receipt of the application package, a JEA employee will contact the customer to review the proposed installation and begin the interconnection analysis to determine any additional requirements and/or costs. The customer shall be responsible for all equipment upgrades, or similar, which would be necessary to complete the interconnection. The interconnection agreement serves as the contract between JEA and the customer, and will include additional requirements.

JEA Battery Incentive Program

Effective February 1, 2018

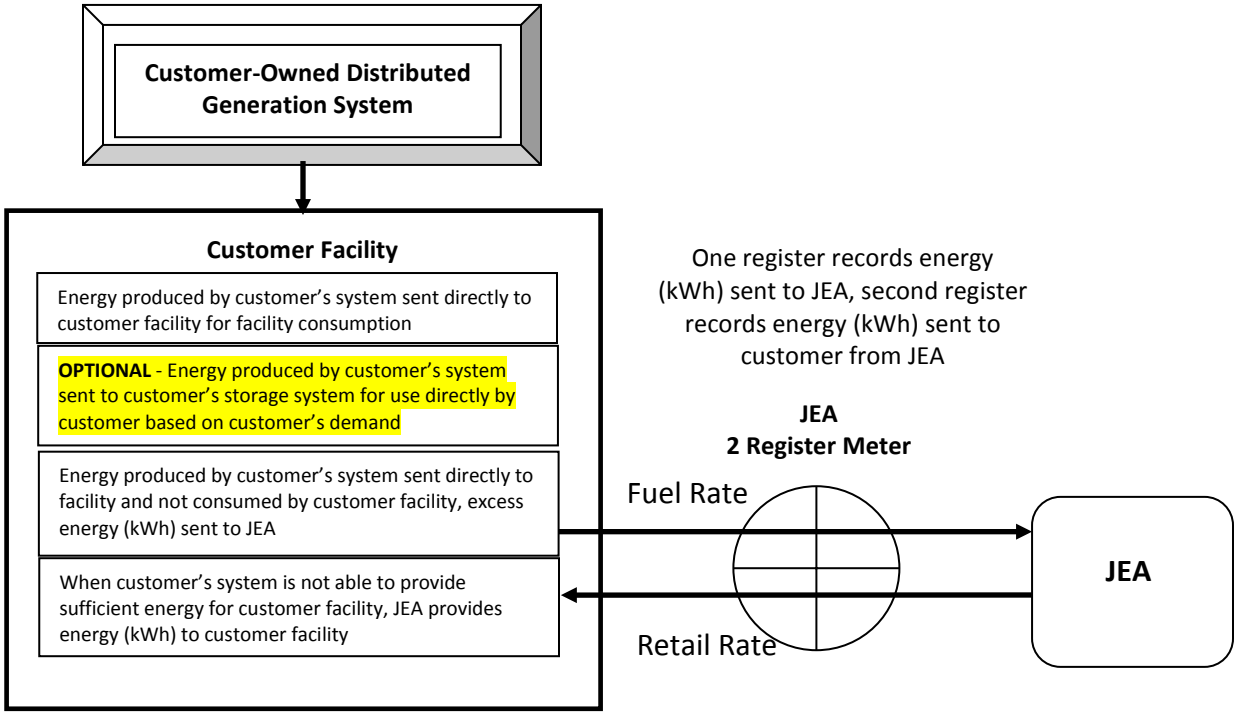
Installation

The customer will be required to install the system in accordance with JEA Rules and Regulations section 2.16 and Electric Systems Procedure ES20202 902 or its successor as appropriate. An electrical construction permit must be obtained from the appropriate jurisdiction. The system must also pass a JEA inspection prior to connection and operation. Any required upgrades to JEA's system will be paid by the customer.

Metering – Billing & Credits

When a battery is installed in conjunction with a Private Solar installation, it should be sized to store the excess energy produced during the day (i.e., the energy that would have otherwise been sent to JEA). This stored energy would then be used by the customer during hours when the Private Solar is not producing energy. In this way, the customer would offset full retail consumption from JEA for all energy that is produced and used or stored for later use. Little or no energy from the Private Solar installation would be expected to be sent to the grid. Any excess energy sent to JEA would be credited in accordance with the Distributed Generation Policy.

Installation of a battery system changes the Distributed Generation diagram as follows:



V. B. 4.

Approval of Resolution: FY2018 Budgetary Transfers

Building Community

AGENDA ITEM SUMMARY

August 30, 2017

SUBJECT:	**APPROVAL OF RESOLUTION: FY2018 BUDGETARY TRANSFERS**

Purpose: ☐ Information Only ☒ Action Required ☐ Advice/Direction

Issue: Consistent with past practices and Board delegation of authority, the Managing Director is authorized to approve FY2018 budget transfers up to $5.0 million. In the past, the Board has delegated to the Managing Director the authority to make transfers during the fiscal year (FY) between budget line items, where in December 2008 a modification was made to notify the Board of line item transfers greater than $5.0 million.

Significance: High. Delegates authority to Managing Director to approve budget transfers for FY2018.

Effect: Transfers occurring within FY2018 Operating and Capital Budgets.

Cost or Benefit: Business continuity, administrative efficiency and budget effectiveness.

Recommended Board action: Staff recommends that the Board approve the attached Resolution 2017-35, which allows the Managing Director to process budget transfers within JEA budget for FY2018. This authorization is limited to $5.0 million per transfer, except in the event of an emergency or year-end adjustments, where transfers over $5.0 million will be brought to the Board for ratification.

For additional information, contact: Melissa Dykes

Submitted by: PEM/ MHD/ KMQ

Commitments to Action

1. Earn Customer Loyalty
2. Deliver Business Excellence
3. Develop an Unbeatable Team

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Building Community

INTER-OFFICE MEMORANDUM
August 30, 2017

SUBJECT:	**APPROVAL OF RESOLUTION: FY2018 BUDGETARY TRANSFERS**
FROM:	Paul McElroy, Managing Director/CEO
TO:	JEA Board of Directors

BACKGROUND

The budget ordinance includes the authority for JEA to transfer from time to time, without Council approval, appropriated funds from one of the purposes for which funds are appropriated to another such purpose during the fiscal year. The ordinance requires that the City Council Auditor be provided, at the end of each quarter, a copy or a written summary of the documentation of all transfers made between approved budget line items. In the past, the Board has delegated to the Managing Director authority to make transfers during the fiscal year within the budget line items.

DISCUSSION

The proposed Resolution authorizes the Managing Director to approve transfers between approved budget line items within the JEA budget for Fiscal Year 2018. Authorization is limited to $5.0 million per transfer; however, in the event of an emergency or for year-end adjustments, the Managing Director is authorized to approve budget transfers exceeding $5.0 million. Emergency and year-end transfers exceeding $5.0 million will be brought to the Board for ratification. The Resolution states that the JEA staff will provide to the City Council Auditor at the end of each quarter a copy or written summary of the documentation of all transfers made between approved budget line items.

RECOMMENDATION

Staff recommends that the Board approve the attached Resolution 2017-35, which allows the Managing Director to process budget transfers within JEA budget for FY2018. This authorization is limited to $5.0 million per transfer, except in the event of an emergency or year-end adjustments, where transfers over $5.0 million will be brought to the Board for ratification.

_____
Paul McElroy, Managing Director/CEO

PEM/MHD/KMQ

Resolution No. 2017-35

A RESOLUTION AUTHORIZING THE MANAGING DIRECTOR TO AFFECT TRANSFERS WITHIN THE ACCOUNTS OF THE FISCAL YEAR 2018 OPERATING AND CAPITAL BUDGETS FOR JEA, AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, each year, the City Council approves the JEA Budget, and authorizes the Board to make allocations, allotments, and transfers within the approved budget for JEA; and

WHEREAS, each year, the Board of Directors authorizes the Managing Director to make allocations, allotments, and transfers within the approved budget for JEA, within a limit set by Resolution; now therefore

BE IT RESOLVED by the JEA Board of Directors that:

1. The Managing Director is authorized to approve transfers between line items within the JEA budget for Fiscal Year 2018, providing the transfers are within the total budget as approved by the City Council.
2. This Authorization is limited to $5.0 million per transfer except in the event of an emergency or year-end adjustments, where the Managing Director is authorized to approve budget transfers exceeding $5.0 million. Emergency and year-end transfers exceeding $5.0 million will be brought to the Board of Directors for ratification.
3. There shall be a copy or a summary of the written documentation of all transfers made between approved budget line items provided to the Council Auditor at the end of each quarter.
4. This Resolution shall be effective immediately upon passage.

Dated this _____ day of _____2017.

JEA

By: _____
Chair

Form Approved:

_____
Jody L. Brooks
Chief Legal Officer

V. B. 5.

JEA Sewer System: Framework to Resiliency Update

Building Community

AGENDA ITEM SUMMARY

September 7, 2017

SUBJECT:	**JEA SEWER SYSTEM: FRAMEWORK TO RESILIENCY UPDATE**

Purpose: ☒ Information Only ☐ Action Required ☐ Advice/Direction

Issue: JEA has developed a multi-step plan, **JEA Sewer System: Framework to Resiliency**, presented at the November 15, 2016 Board Meeting, to analyze and assess the Hurricane Matthew event in an effort to implement near-term resiliency initiatives and to incorporate system resiliency in major rehabilitation and new construction standards.

Significance: JEA's Sanitary Sewer System continues to perform well in normal operating conditions, proactively invests in Renewal and Replacement (R&R) programs, and adopts new technology and processes to further improve system reliability and performance. JEA is focusing on opportunities to improve resiliency during extreme weather events. The current milestone of the multi-step plan, is completion of the Capacity, Management, Operation and Maintenance Assessment (CMOM) that was performed under the standard approach developed by Region IV of the Environmental Protection Agency (EPA) with the goal of minimizing Sanitary Sewer Overflows (SSOs).

Effect: JEA approached the Florida Department of Environmental Protection (FDEP) with the concept to conduct an independent CMOM assessment of its wastewater system. The CMOM assessment was officially incorporated as a consent order item following Hurricane Matthew. FDEP and JEA agreed to engage Jim Peters, P.E. of JAKAP Consulting, LLC, under the oversight of the FDEP to conduct the CMOM assessment with full participation from JEA.

Cost or Benefit: The CMOM assessment identified five (5) areas of exemplary industry leading activities by JEA, and seven (7) recommendations for future improvement. JEA fully concurs with and will act on all of the recommendations. In addition, JEA will conduct periodic comprehensive CMOM assessments in future years to ensure effective implementation. These activities will help identify cost effective means for further reducing SSOs during extreme weather events.

Recommended Board action: Provide the Board an update on the multi-step JEA Sewer System: Framework to Resiliency plan for discussion and feedback, focusing on the Capacity, Management, Operation and Maintenance Assessment Report.

For additional information, contact: Brian Roche 665-6580

Submitted by: PEM/BJR/PKS

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Building Community

INTER-OFFICE MEMORANDUM
September 7, 2017

SUBJECT:	**JEA SEWER SYSTEM: FRAMEWORK TO RESILIENCY UPDATE**
FROM:	Brian Roche, VP/GM W/WW Systems
TO:	JEA Board of Directors

BACKGROUND:
During Hurricane Matthew in October 2016, JEA's Water/Wastewater system performed very well in maintaining service to customers, as less than 1% lost water and sewer services during the period impacted by Hurricane Matthew. However, JEA experienced sanitary sewer overflows (SSOs) during the three day period after the storm's impact to Northeast Florida, primarily due to power outages at over half of JEA's 1375 sewer pump stations and the inability for operating personnel to travel to pump station sites during the peak storm period.

JEA operates the second largest water/wastewater system in Florida with 3900 miles of sewer collection piping, the most number of pump stations of any utility in the country, treating over 80 million gallons per day of wastewater. JEA has invested more than $3B since assuming ownership of the water/wastewater system from the City of Jacksonville in 1997. An additional $1 billion is scheduled to be invested over the next five years. While the wastewater system has nearly doubled in size, the number of Sanitary Sewer Overflows (SSOs) events has been significantly reduced over the last two decades. JEA's Sanitary Sewer System continues to perform well in normal operating conditions, proactively invests in Renewal and Replacement (R&R) programs, and adopts new technology and processes to further improve system reliability and performance. Along with many other wastewater utilities across the nation, JEA has opportunities to improve storm resiliency, including minimizing SSOs during extreme weather events.

JEA has developed a multi-step plan, **JEA Sewer System: Framework to Resiliency**, to analyze and assess the Hurricane Matthew event in an effort to implement near-term resiliency initiatives and to incorporate system resiliency in major rehabilitation and new construction standards. Updates to the multi-step plan have been provided to stakeholders, including at milestone points at three JEA Board meetings this fiscal year.

- **November 15, 2016**: Multi-step Framework to Resiliency was presented and discussed, including detailed reports on: Hurricane Matthew Assessment Report, Major Capital Improvements and Significant O&M Activities, and the Governor's 90-Day Emergency Rule: Public Notification of Pollution, which was effective beginning September 26, 2016
- **February 21, 2017:** A preliminary update of FY17 Improvement Activities
- **April 17, 2017**: Comprehensive update of the Analyze Plan and Implement Improvement Activities conducted prior to the CY2017 Hurricane Season.

DISCUSSION:
The current milestone completed is the Capacity, Management, Operation and Maintenance (CMOM) Assessment that was performed under the standard approach developed by Region IV of the Environmental Protection Agency (EPA) with the goal of minimizing SSOs. JEA approached the Florida Department of Environmental Protection (FDEP) with the concept to conduct an independent CMOM assessment of its wastewater system. The CMOM assessment was officially incorporated as a consent order item following Hurricane Matthew events.

FDEP and JEA agreed to engage Jim Peters, P.E. of JAKAP Consulting, LLC, under the oversight of the FDEP to conduct the CMOM assessment with full participation from JEA. Mr. Peters has strong industry knowledge of CMOM programs, utilizes a transparent workshop and field validation approach, and has familiarity of JEA's large wastewater system from leading a CMOM assessment previously at JEA with an international engineering consulting firm.

The CMOM assessment began in March with workshops held to review and rank JEA's current performance of the standard 152 business process elements of CMOM. Field validation and on-site documentation was performed by the consultant on 25 key business processes. FDEP also requested the consultant to provide a status report of JEA's progress on the "Framework to Resiliency". A summary status report of forty (40) CMOM related Improvement Actions JEA has initiated for the multi-year Framework to Resiliency initiative to harden the system was developed and included as an appendix to the CMOM report. The final phase of the assessment was producing the attached "JEA CMOM Documentation Report" which contains seven (7) recommendations and five (5) exemplary activities where JEA contributes to the advancement of the Wastewater Industry.

Recommendations

1. Monitor for Inflow and Infiltration (I&I) within Pump Station Service Areas
2. Focus Cleaning and Proactive Closed Circuit Television (CCTV) Programs using Sewer Line Rapid Assessment Tool (SL-RAT) Screening Technology
3. Improve Air Release Valve Rehabilitation and Maintenance
4. Remain focused on Projects associated with JEA's "Framework to Resiliency"
5. Expand SSO Reporting to include Programmatic Overview of Causes and Prevention
6. Resume Data Dashboards for Collection System Maintenance and Rehabilitation
7. Continue Large Diameter Pipe Evaluation for which JEA has planned approximately $100 million of pipe replacement, and Expand to Small Diameter Ductile Iron, Cast Iron, and Asbestos Cement (AC) Force Mains

JEA Contributions to the Wastewater Industry

1. Apprenticeship Program
2. Capital Improvement Plant (CIP) Planning, Tracking and Funding
3. Data Transfer from Field to GIS
4. Pipe Bursting Program
5. SL-RAT Screening of Gravity Lines (shows great promise)

JEA fully concurs with all of the recommendations from the CMOM assessment and is enhancing the focus on elements of the recommendation where JEA has active programs, or is in the process of initiating new programs to implement all of the recommendations. Additional steps of the overall Framework to Resiliency plan are scheduled to be discussed at future Board Meetings during CY2018 as noted in the attached presentation. The next milestone will be the outline of the multi-year, System Resiliency Assessment that will be conducted in three phases: immediate opportunities such as the CMOM assessment, mid-range defensive actions, and longer-term building to new resiliency standards.

RECOMMENDATION:

Provide the Board an update on the multi-step JEA Sewer System: Framework to Resiliency plan for discussion and feedback, focusing on the Capacity, Management, Operation and Maintenance Assessment Report.

_____

Paul E. McElroy, Managing Director/CEO

PEM/BJR/PKS

Attachments: JEA CMOM Documentation Report

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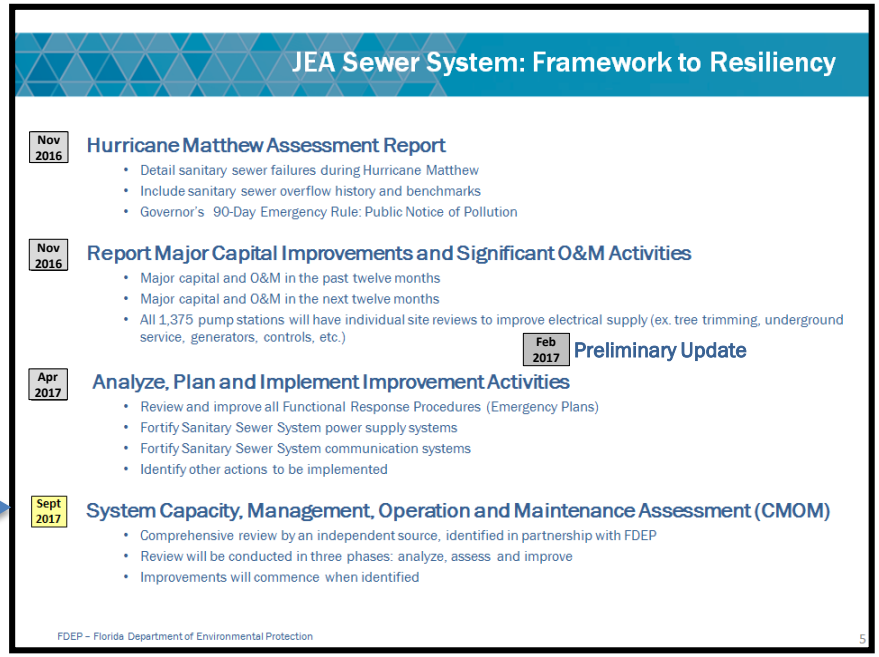
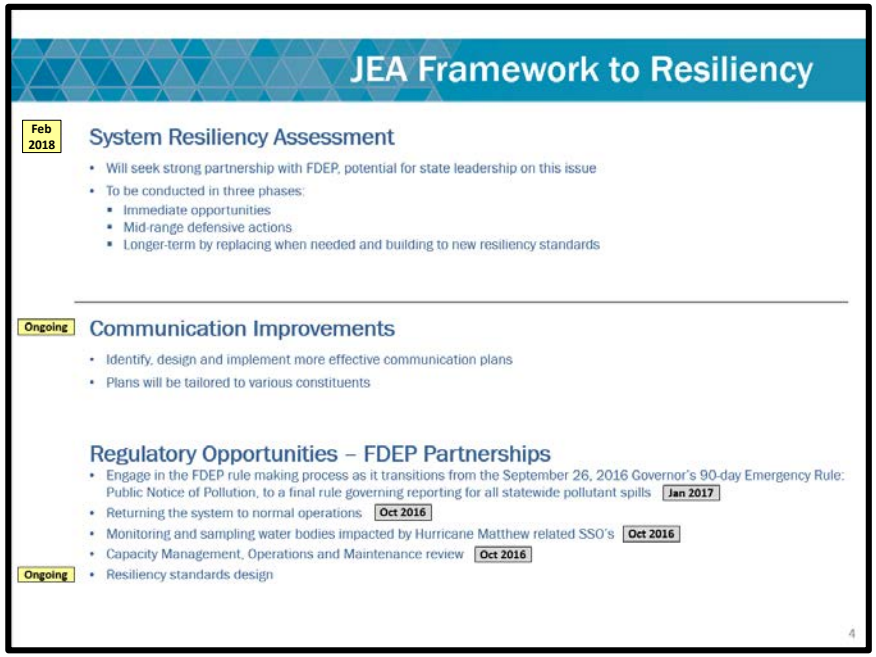
Building Community sm

Framework to Resiliency
JEA Sanitary Sewer System
Capacity, Management, Operation and Maintenance Assessment (CMOM)
September 19, 2017
Presented October 17, 2017

Presented by:
Brian Roche, JEA VP/GM Water/Wastewater Systems
Paul Steinbrecher, JEA Director Environmental Permitting
Jim Peters, P.E. of JAKAP Consulting, LLC

JEA Sewer System: Framework to Resiliency

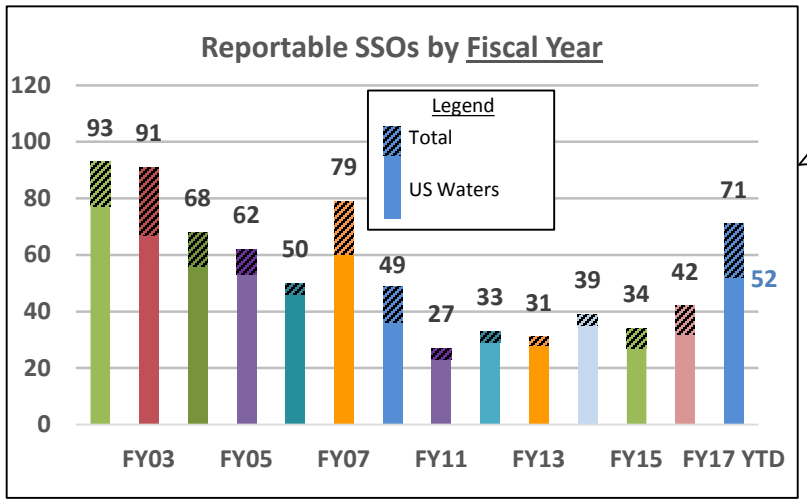




- **Communication:** Stakeholder updates with JEA.com as the centralized information source
- **Analyze, Plan and Implement Improvement Activities:** Pre-2017 Hurricane Season
- **Regulatory**: CMOM Assessment under FDEP oversight - Today's Update
- **System Resiliency Assessment RFP:** Mid-Range and Longer-Term Standards

FDEP: Florida Department of Environmental Protection

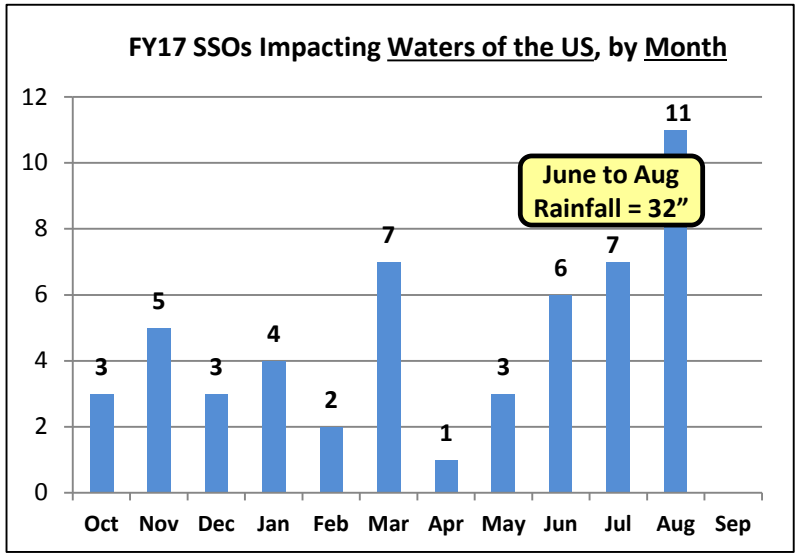
Benchmarking: Reportable and SSOs Events



FDEP Reportable SSOs

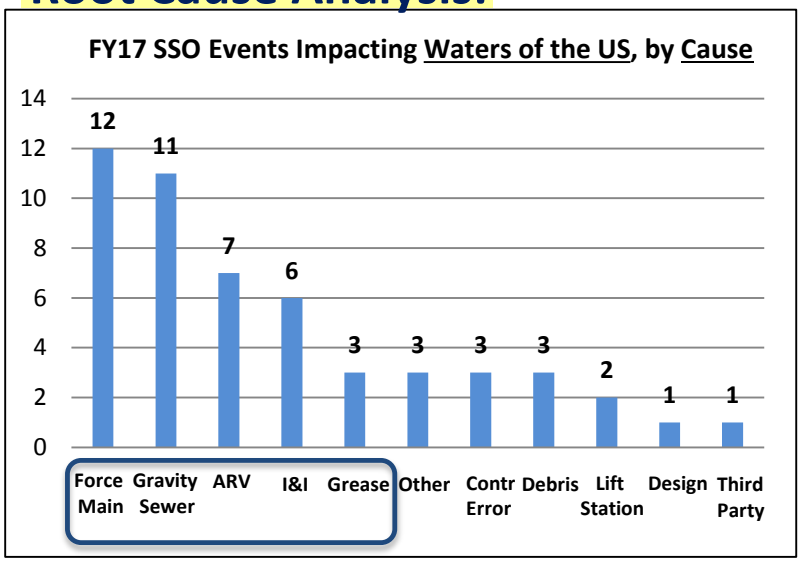
- Sewer spills of any volume that reaches designated Waters of the US, or
- Sewer spills ≥ 1,000 gallons, or
- Threatens the environment or public health

JEA reviews all Reportable SSOs quarterly with FDEP



Note: FY17 excludes events during Hurricane Matthew

Root Cause Analysis:



Capacity, Management, Operations and Maintenance (CMOM)

Independent Assessment

- JEA approached Florida Department of Environmental Protection (FDEP) with the concept to conduct an independent CMOM assessment of JEA's Wastewater System
- Officially incorporated as a consent order item following Hurricane Matthew events
- FDEP and JEA agreed to engage Jim Peters, PE of JAKAP, LLC under FDEP oversight because of his knowledge of CMOM programs, transparent workshop approach, and familiarity with JEA's Wastewater System

Capacity, Management, Operations and Maintenance (CMOM)
Framework

Assessment Key

Importance	Performance	Documentation
High	**4: Outstanding (Optimized)**	**A**
	3: Above Average	B
Medium	2: (Managed)	C
	1: Average (Defined)	D
Low	0: Reactionary (Initial)	F
	N/A: No Program (Unaware)	
	Not Applicable to JEA	

Site Visits to 25 Key Processes

1. Gravity Line Rehabilitation
2. Manhole Inspections
3. Gravity Cleaning Program
4. CIP Funding
5. Industrial Pretreatment Program
6. SSO and Violations Reporting
7. Emergency Pump Station Operations
8. Air Release Valve Maintenance
9. Force/Gravity Main Condition Evaluations
10. ……

Engagement of Full JEA Team and FDEP in the CMOM Assessment

First Phase: Workshops were held in March to review and rank JEA's current performance of the standard 152 business process elements of CMOM

Second Phase: Field validation and on-site documentation was performed by the consultant on 25 key business CMOM processes. In addition, FDEP requested that the consultant provide a status report of JEA's progress on the "Framework to Resiliency" multi-step plan. A summary status report of forty (40) CMOM related Improvement Actions JEA has initiated for the multi-year "Framework to Resiliency" plan to harden the system was developed

Final Phase: "JEA CMOM Documentation Report" and "JEA and CMOM" PowerPoint presentation includes seven (7) recommendations, and five (5) outstanding programs JEA contributes to the Wastewater Industry

CMOM Recommendations

❑ Specific Infrastructure Action

1. Monitor for Inflow and Infiltration (I&I) within Pump Station Service Areas
2. Initiate Cleaning and Proactive CCTV Programs using SL-RAT Screening Technology
3. Improve Air Release Valve Rehabilitation and Maintenance

❑ Process Management

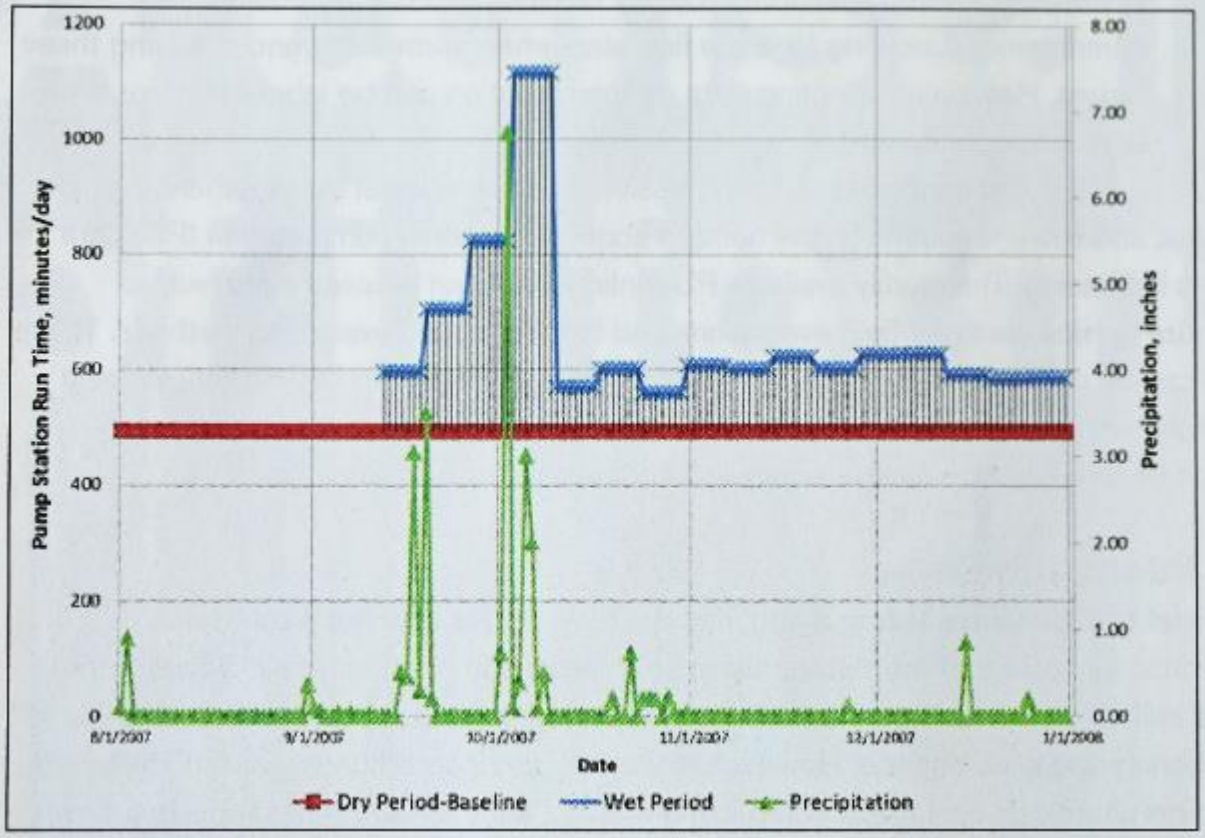
4. Remain focused on Projects associated with JEA's "Framework to Resiliency"
5. Expand SSO Reporting to include Programmatic Overview of Causes and Prevention
6. Resume Data Dashboards for Collection System Maintenance and Rehabilitation
7. Continue ARCADIS Large Diameter Pipe Evaluation where JEA has planned approximately $100 million of pipe replacement, and Expand to Small Diameter Ductile Iron, Cast Iron, and Asbestos Cement (AC) Force Mains

CCTV: Closed Circuit Television
SL-RAT: Sewer Line Rapid Assessment Tool

Monitor for Inflow and Infiltration within Pump Station Service Areas

CMOM Recommendations

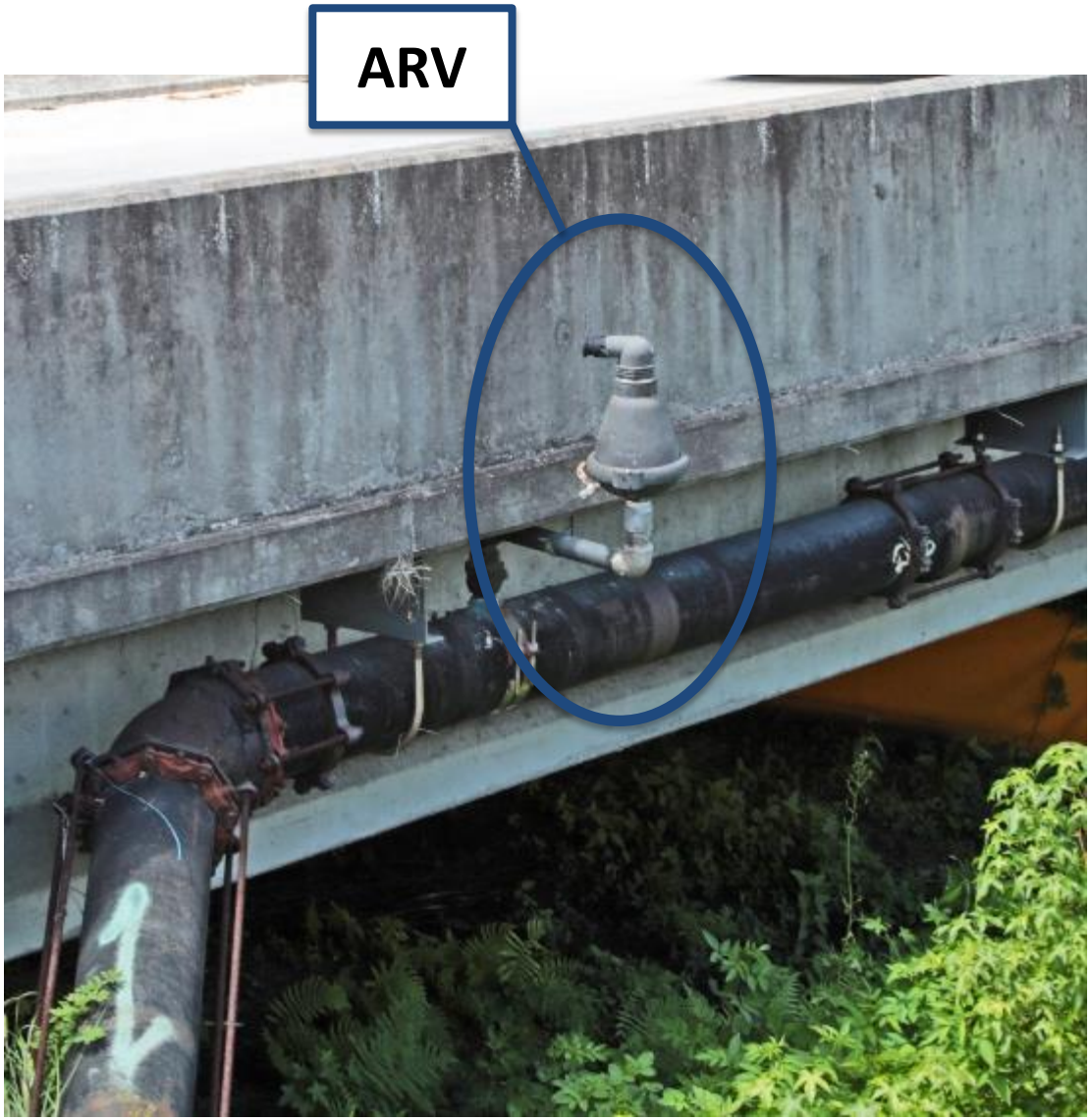
Figure 1. Typical pump station runtime graph indicating inflow and infiltration



- Data and methods are available to compare very wet weather pump station run time to very dry weather run time. Data and method are available.
- Install flow meters during pump station rehabilitation projects to improve flow measurement accuracy
- Provide communication link between SSO Root Cause Committee and inflow and infiltration evaluator

Improve Air Release Valve (ARV) Rehabilitation and Maintenance

CMOM Recommendations



- ❑ Replace brass valves and fittings with stainless steel
- ❑ Locate ARVs away from water bodies where possible
- ❑ Customize ARV maintenance schedules

Initiate Cleaning and Proactive CCTV Programs using SL-RAT Screening Technology

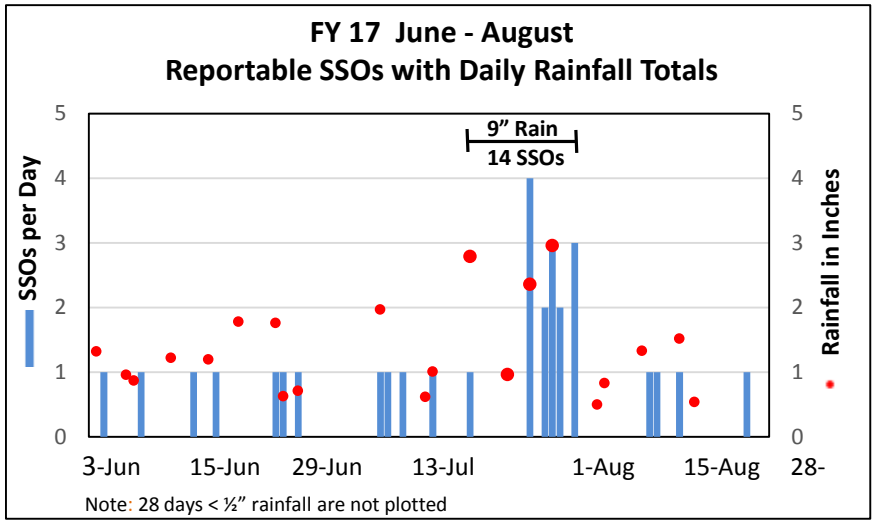
CMOM Recommendations

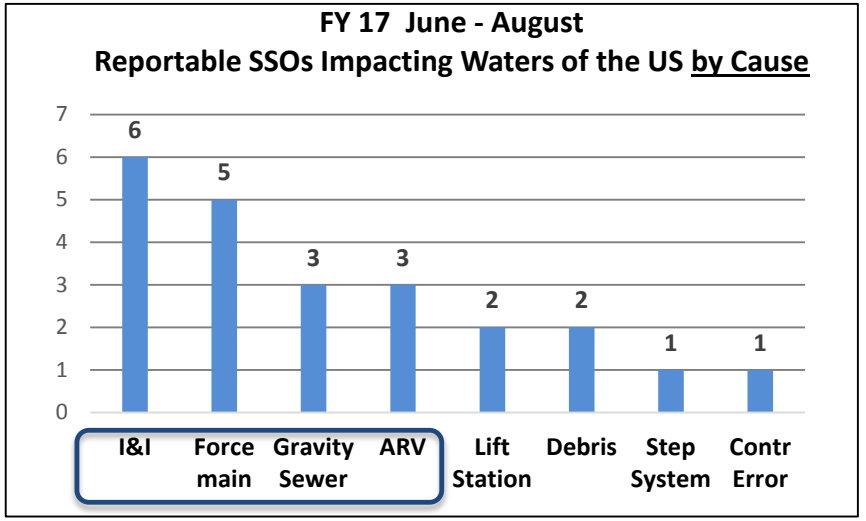
- ❑ Screen areas for CCTV and cleaning using SL-RAT (Sewer Line Rapid Assessment Tool)
- ❑ Initiate proactive CCTV program
- ❑ Initiate gravity line cleaning beyond Hot Spot Cleaning areas
- ❑ Gain additional benefit of accelerated manhole inspections

JEA Contributions to the Wastewater Industry

Outstanding Programs

1. Apprenticeship Program
   - ❑ Four-year state certification of delivery & collection personnel
   - ❑ Recent addition of pipes to plants, “Bridge” program after four years
2. Capital Improvement Plant (CIP) Planning, Tracking and Funding
3. Data Transfer from Field to GIS
4. Pipe Bursting Program
5. SL- RAT Acoustic Screening of Gravity Lines
   - ❑ New technology
   - ❑ Significantly accelerate gravity pipe assessments





Improvement Actions on all CMOM Recommendations

1. Expand FDEP SSO Reporting to include Programmatic Overview of Causes and Prevention
2. Maintain Dashboards for Delivery and Collection Maintenance and Rehabilitation; expand to Pump Stations
3. Engage engineering firm to specifically focus on I&I evaluations wet periods data vs. dry weather baseline
4. Continue implementing the $100 million Large Diameter Pipe Evaluation and Replacement Program
5. SL-RAT acoustic pipe inspection units are currently being procured to implement CMOM Assessment recommendation, with target inspections on the 2500 miles of pipe less than 12" diameter
6. Multi-year ARV Program beginning in FY18 to replace pipe fittings or entire ARV to meet current standard of 316 stainless steel and relocate ARVs away from US waters if feasible
7. Remain focused on Projects associated with JEA's overall "Framework to Resiliency" plan

Milestones

Nov, 2016	Hurricane Matthew Assessment Report
Nov, 2016	Report Major Capital Improvements and Significant O&M Activities
Feb, 2017	Improvement Activities: Preliminary Update
Apr, 2017	Analyze, Plan and Implement Improvement Activities
Sep, 2017	System Capacity, Management, and Operation, and Maintenance Assessment (CMOM)
Feb, 2018	System Resiliency Assessment
Ongoing	Communication Improvements
Ongoing	Regulatory Opportunities – FDEP Partnership

Multi-Year ongoing effort to implement:
- Mid-Range Defensive Actions
- Long Term Design Changes

Supplemental

Capital Improvement Projects: Sewer Collection and Pump Stations

Five-year $250M Capital Plan

2017	**58,756,674**
2018	61,475,489
2019	55,066,990
2020	41,733,000
2021	40,745,000
Total	**$257,777,153**

Major Projects (FY16-FY19)

Project Name	Amount
Southshores River Crossing FM	**$14M** ✓
Memorial Pk/Lane Ave/Timuquana Rd FM	**$20M**
Pump Station Mechanical and Electrical Rebuilds (McMillan, Alachua, Bradley)	**$20M**
Electrical Reliability (New Line Item) (generators, switches, controls, etc.)	**$7M**
Rehabilitation of 20 to 25 Pump Stations	**$3M/yr**
Large Diameter Condition Assessment and Pipe Replacement Program	**$10M/yr**

Memorial Park/Lane Ave/Timuquana - $20 Million

Force Main
SSO by Cause

Large Diameter Pipe Program

- ❑ 12 Discharges to US waters in FY17 due to force main breaks
- ❑ 1,167 Miles of sewer force main are in JEA's system

Actions to Address SSO caused by Force Main Failures

- Matrix established to assess and prioritize force mains
- ARCADIS – contracted for Large Diameter Pipe Program (14" and >) system risk assessment based on Likelihood of Failure and Consequence of Failure. Draft prioritized list is essentially complete for the five-year $100 million program.
- O&M Maintenance and Engineering and Planning group performs assessments of small diameter (12" and <) force mains and has initiated risk assessment based on the methodology ARCADIS has implemented in the Large Diameter Pipe Program.

Gravity Sewer
SSO by Cause

Inspection and Cleaning Program

- ❑ 2,500 miles of < 12” diameter Gravity Sewer Pipe
- ❑ New technology: Sewer Line Rapid Assessment Tool (SL-RAT) utilizing acoustic to greatly improve pipe inspection efficiency

Actions to Address SSO caused by Gravity Sewer System Failures

- CMOM Assessment to evaluate current processes is complete with a draft report submitted to JEA and FDEP.
- SL-RAT acoustic pipe inspection units are currently being procured to implement CMOM Assessment recommendation.
- Sewer Preventative Maintenance staff continue to perform routine scheduled cleanings of known “hot spots” to mitigate grease build up and resultant blockages.

Air Release Valve (ARV) Rehabilitation and Maintenance

SSO by Cause

Air Release Valves Preventative Maintenance

- ❑ 1,761 ARVs in operation in wastewater collection system
- ❑ Purpose – release trapped air in high points in sewer force mains to ensure full hydraulic pipe flow for better system performance & prevent build-up of corrosive air in long pipelines
- ❑ ARVs are currently on a 2 year inspection cycle
- ❑ Events caused by ARVs are trending up
- ❑ Volume related to ARV events are typically low volume (less than 100 gals)

Actions to Address SSOs caused by ARV Failures

- Assessment of ARV Maintenance program conducted at Pearl Street Service Center with manufacturer
- New ARV models are currently being tested as alternative
- Water and Sewer Standards and Specifications updated to require 316 stainless steel for all pipe fittings for ARV connections
- Comprehensive ARV Program in FY18 to properly relocate ARVs away from US waters and to replace ARV pipe fittings to meet current standard of 316 stainless steel

Inflow and Infiltration
SSO by Cause

Inflow & Infiltration Study

- ❑ Original Scope – Southwest WTP basin
- ❑ Pottsburg Creek (Holiday Road/Pattson Creek)
- ❑ Western Way
- ❑ Moncrief Road – Pop Top manhole inspection/Smoke testing/and CCTV Inspection work is currently being conducted by Delivery and Collection staff

Actions to Address SSOs caused by Inflow/Infiltration (I&I)

- Engage engineering firm to specifically focus on I&I
- Evaluate SCADA data – wet periods vs. dry weather baseline
- Prepare maps lift station basins that experienced the highest increase of flow during recent storm events
- Crews are performing visual manhole inspections in each mapped basin
- Perform smoke testing in areas where higher than inflow/infiltration was noted during inspections

V. B. 6.

JEA Five-Year Financial Assumptions and Projections FY2018-FY2022

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Building Community

AGENDA ITEM SUMMARY

September 30, 2016

SUBJECT:	**JEA FIVE-YEAR FINANCIAL ASSUMPTIONS AND PROJECTIONS FY2017 - FY2021**

Purpose: ☐ Information Only ☐ Action Required ☒ Advice/Direction

Issue: Present the FY2017 - FY2021 Financial Assumptions including unit sales, base rates, internal funding, and debt. The Five-Year Financial Projections are an essential component for the annual presentation to the Rating Agencies.

Significance: High. Credibility in the credit markets and long-term financial planning for JEA customer rates.

Effect: Bond ratings and efficient access to capital markets and JEA customer rates.

Cost or Benefit: N/A

Recommended Board action: Staff recommends that the Board receive the presentation for consideration and provide staff feedback and direction regarding the FY2017 - FY2021 Financial Assumptions and Projections.

For additional information, contact: Melissa Dykes

Submitted by: PEM/MHD/RFW/

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Building Community sm

Five-Year Financial Assumptions

JEA Board of Directors Meeting

October 17, 2017

Assumptions/Projections

1. Unit Sales Growth
2. Residential Rates
3. Total Debt and Variable Debt
4. Summary

Key Objectives
For Annual Rating Agency Meeting

- Review FY17 Financial and Operating Results
  - FY17 Financial audit report typically available immediately prior to the rating agency meetings in December
- Relay key messages about financial strategic planning and other FY17 developments
- Demonstrate relationships between JEA, the Mayor & his administration, and the City Council President & Jacksonville City Council
- Provide firsthand interaction with JEA's Board leadership
- Illustrate strength of management team in strategically and responsibly managing the utility
- Discuss future performance and risks

Unit Sales Growth

FY2018 – FY2022 Financial Assumptions

Electric System

- Trends: 3.6%, 2.0%, (0.7%)
- FY18: 12,000,000 MWh
- FY18-22: 0% annual growth

Unit Sales Driver

	FY15	FY16	FY17	Avg[1]
Growth	2.2%	1.1%	(3.6%)	
Deg Days	4,259	4,096	3,680	3,957

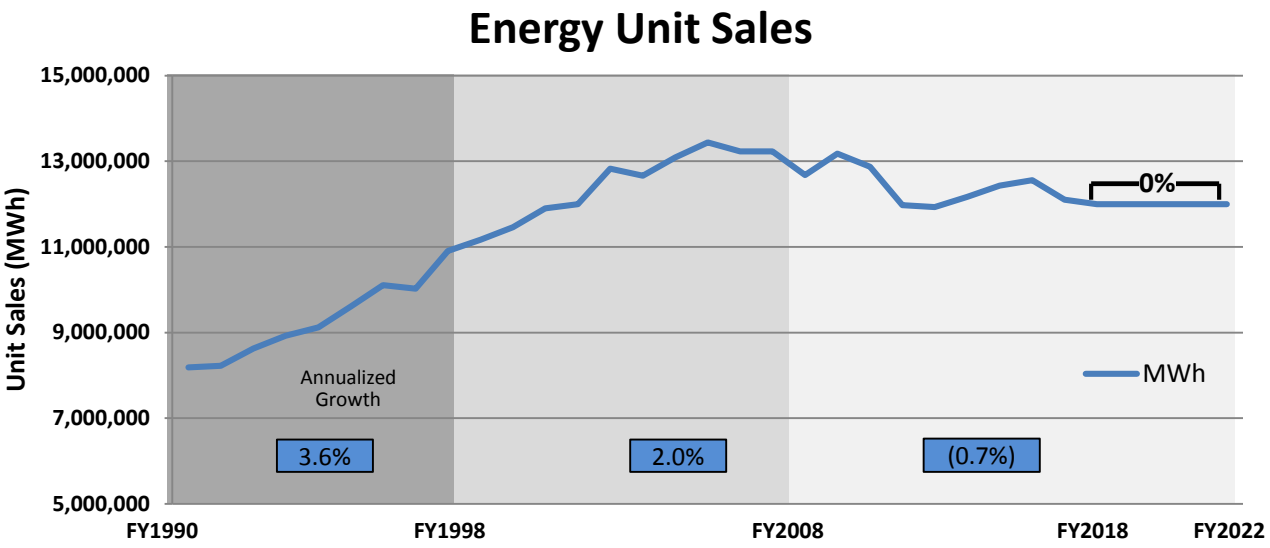
Water and Sewer System

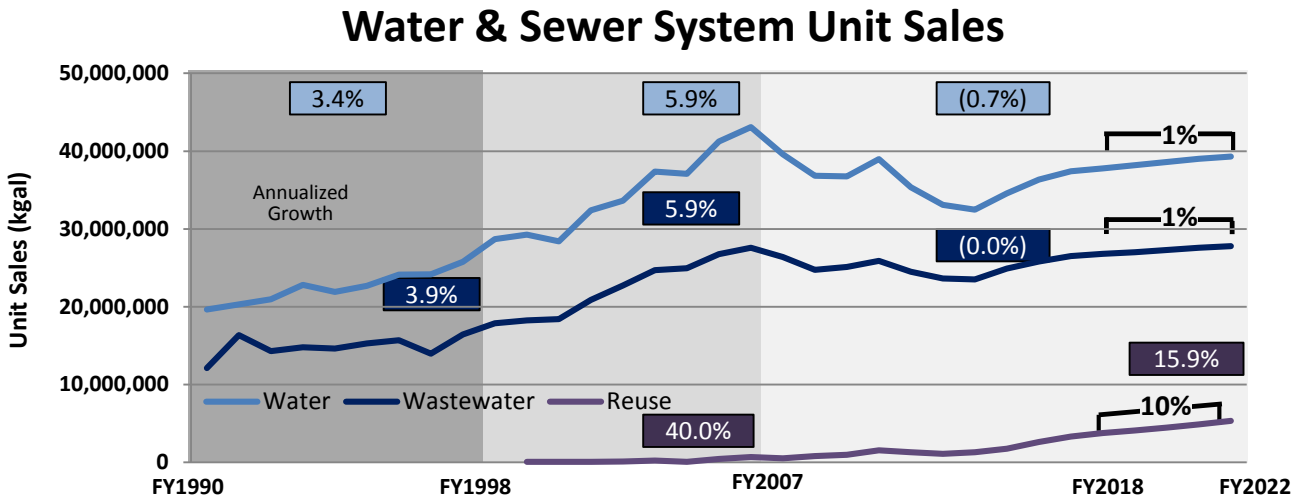
- Trends (W): 3.4%, 5.9%, (0.7%)
- FY18: 37,800,000 kgals
- FY18-22: 1% Water and Sewer annual kgal growth
- FY18 - 22: 10% Reuse annual growth

Unit Sales Driver

	FY15	FY16	FY17	Avg[1]
Growth	6.4%	5.2%	2.9%	
Rainfall "	49.4	31.4	72.9	52.4
Rain Days	114	98	98	115

[1] 30 Year Average





Residential Customer Rates
FY2018 – FY2022 Financial Assumptions

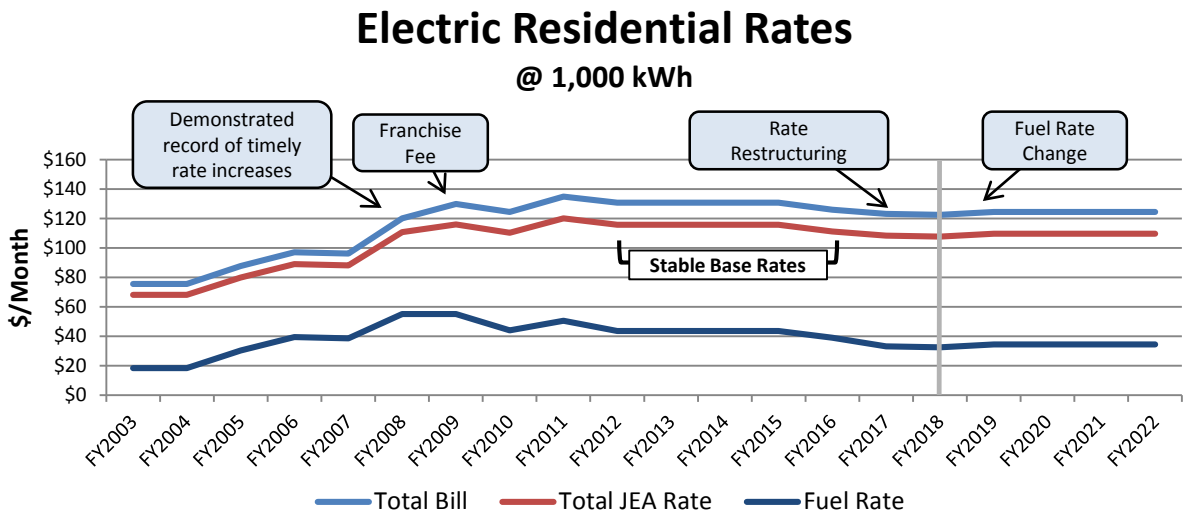
Electric System

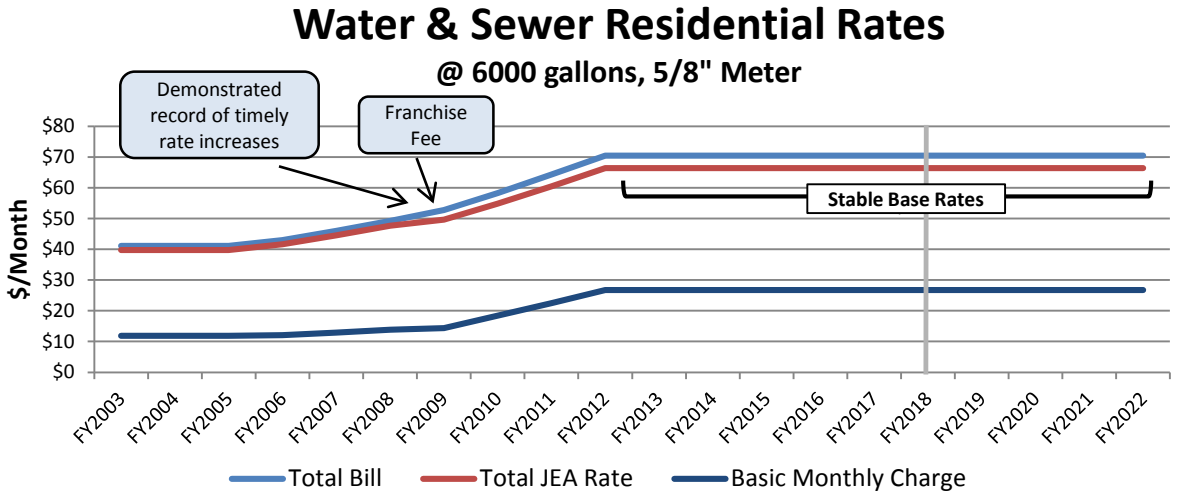
- Demonstrated record of timely rate increases
- Fuel Reserve FY17 balance higher than 15% target
- Fuel Rate adjusts up or down according to fuel expenses[1]
- Environmental regulations, if material, will be recovered via the Environmental Charge

Water and Sewer System

- Demonstrated record of timely rate increases
- Stable rates in FY12 – FY22
- Environmental regulations, if material, will be recovered via the Environmental Charge

[1] Current Forecast supports a fuel rate change in FY19





Total Debt and Variable Debt

FY2018 – FY2022 Financial Assumptions

Electric System[2]

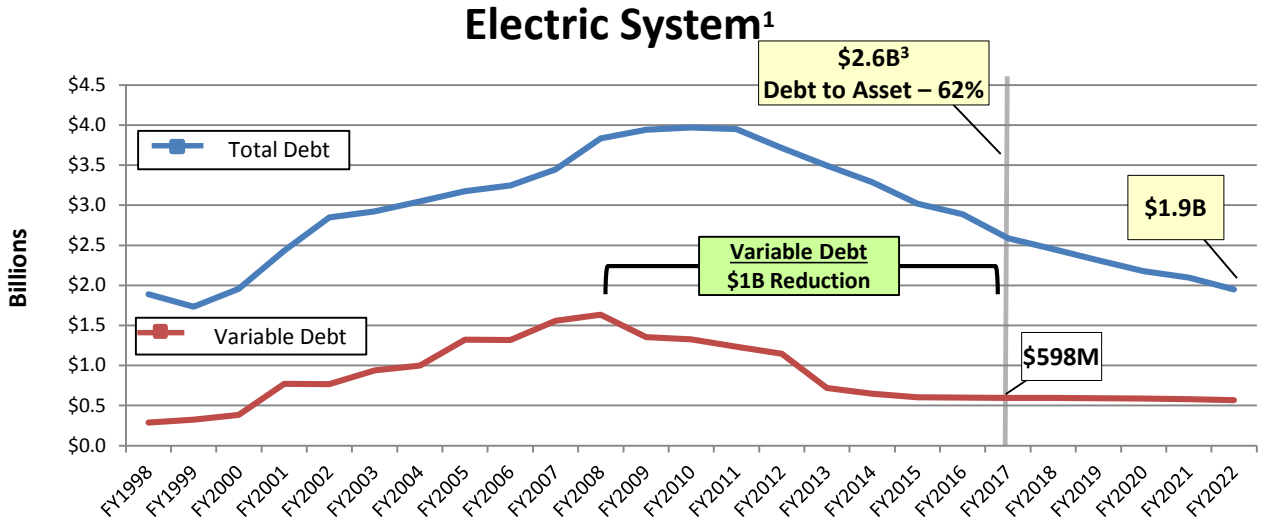
- No New Debt!
- FY2018-FY2022: Projected $640 million in debt reduction
- Variable Debt exposure reduced by $1 billion, current balance of $598 million

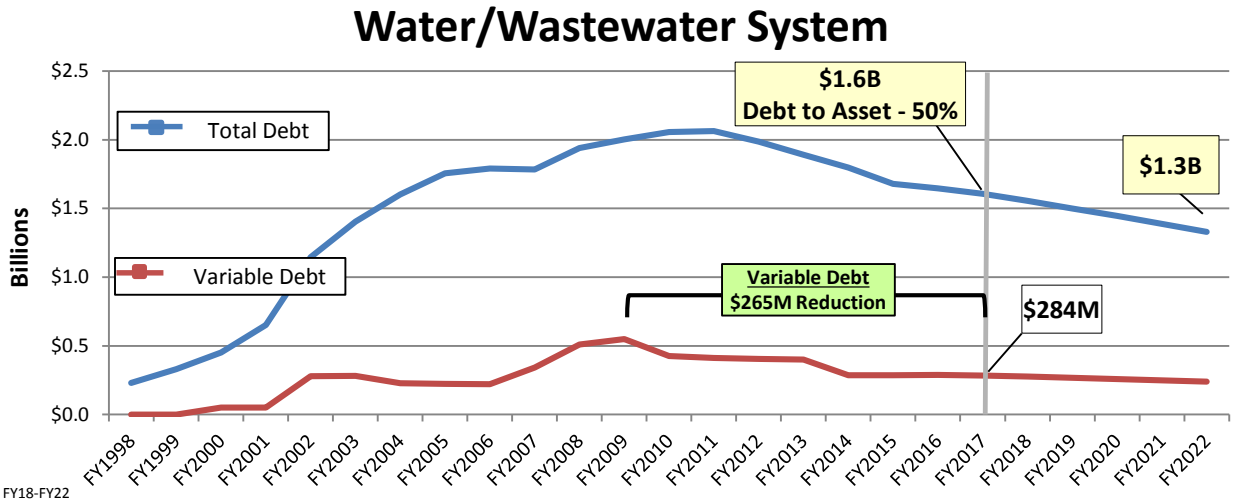
Water and Sewer System

- No New Debt!
- FY2018-FY2022: Projected $278 million in debt reduction
- Variable Debt exposure reduced by $265 million, current balance of $284 million

Variable Interest Rates[3]

FY17	FY18	FY19	FY20
1.35%	2.50%	3.50%	4.00%





[1] Includes JEA's portion of SJRPP and Plant Scherer Debt.
[2] Includes remaining SJRPP Issue Two Bonds & projected early debt retirement in FY18-FY22
[3] All-in interest cost; Debt Management Reserve will mitigate possible "spikes"

Summary
FY2018 – FY2022 Financial Assumptions

Assumptions and Projections	Projected Results	
1. Unit Sales Growth	Electric 0%, Water 1%	✔
2. Residential Bills	Stable Base Rates	✔
3. Capital Expenditures and Internal Funding	PAY-GO with no new debt	✔
4. Total Debt and Variable Debt	$0.9 Billion Reduction	✔
5. Other – O&M and City Contribution	Stable with Year-to-Year Variances	✔
6. Financial Metrics – Coverage, Liquidity, and Debt	Stable Liquidity and Coverage	✔

- JEA's Five Year Financial Plan includes accelerated debt retirement and scheduled principal repayments of $0.9 billion, stable year-to-year variances in O&M and City Contribution expenditures, and stable Liquidity and Debt financial metrics to support JEA's strong credit ratings.
- The resulting objectives are to maintain long-term competitive rates, operational excellence, and environmental stewardship, while improving the overall customer experience.

V. B. 7.
Monthly Operational and Financial Review

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V. B. 7.
10/17/2017

Board of Directors Meeting
October 17, 2017

Water & Wastewater Monthly Operations Scorecard

Water & Wastewater	FY2016	FY2017 Goal	FY2017 YTD	Status
JEA Safety RIR	1.82	1.40	**2.0**	
Sales Forecast (kGals in 1000's)	36,358	34,558	**37,245**	
Water Unplanned Outages (# cust.)	12,735	9,000	**4,893**	
CUP Compliance	Yes	Yes	**Yes**	
Nitrogen to the River (tons)	527	550	**558**	
Sanitary Sewer Overflows (SSO's)	32	27	**57**	

Significant Occurrences or Concerns This Month

- Five (5) OSHA recordable safety incidents for JEA in September, 42 YTD
- Unplanned Water Main Outages: 4,893 customers well below target, event communication enhancements ongoing into FY18
- CUP: Average daily flow of 116 MGD is 12% below CY limit of 133 MGD; reclaim usage reached 20 MGD
- Nitrogen to River: 558 tons YTD slightly above the 550 target impacted by Hurricanes Matthew and Irma. JEA provides 37 tons to City of Jacksonville.
- SSO's Impacting Waters of the US: *57 YTD, root cause analysis is performed on each SSO

OSHA – Occupational Safety and Health Administration, CUP – Consumptive Use Permit, MGD – Million Gallons Per Day
*Excluding events occurring during Hurricane Matthew

Electric Monthly Operations Scorecard

Electric System	FY2016	FY2017 Goal	FY2017 YTD	Status
JEA Safety RIR	1.82	1.40	**2.0**	
Sales Forecast (million MWh)	12.6	12.4	**12.1**	
T&D Grid Performance Customer Outage				
Frequency (outages/year)	*1.4*	*1.8*	***1.6***	
Electric Outage Duration (minutes/year)	*71*	*80*	***99.5***	
Transmission Line Faults (# per 100 miles)	*0.7*	*2.5*	***2.0***	
$CEMI_5$ (% cust. > 5 outages/year)	*1.4*	*1.5*	***1.96***	
Generating Plant Performance				
Generation Fleet Reliability (forced outages rate)	2.0	2.1	**2.17**	
Environmental Compliance (permit exceedances)	4	5	**6**	

Significant Occurrences or Concerns This Month

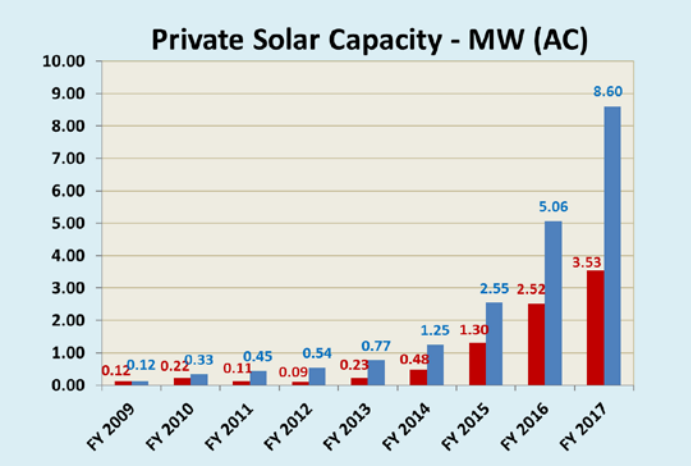
- Generation Fleet performed well this year. Successful outages completed this year on steam units at Northside and SJRPP, along with the Combined Cycle Unit at Brandy Branch.
- Due to a tough weather year, T&D grid performance are near annual targets, and in line with prior year results.

Customer Experience Monthly Operations Scorecard

Customer Experience	FY2016	FY2017 Goal	FY2017 YTD	Status
JDP Customer Satisfaction Index - Residential	2nd Q	1st Q	**1st Q**	
JDP Customer Satisfaction Index - Business	#1	Top Decile	**#12**	
Overall First Contact Resolution Index	79.4%	≥79.4%	**79.4%**	
Self Service Utilization	76.0%	≥77.3%	78.4%	
Net Write-Offs	0.14%	≤0.20%	**0.15%**	

Significant Occurrences or Concerns This Month

10MW Policy Limit for Private Solar To Be Reached by January



- The installation rate of net-metered private solar on the JEA system is growing.

- Private solar capacity added in September was 0.14 MW, FY 2017 3.53 MW. Total aggregate capacity is 8.60 MW.

- The annualized expense for the current 8.60 MW of installed private solar is $794,000 annually.

Financial Results and Cost Metrics

Electric System Metrics

	Rating Agency/ Perform. Goal	FY2017	Score
System Sales (GWh)	12,000	12,050	
Base Revenue Growth	(0.1%)	0.0%	
Debt Svc. Coverage	2.3x	2.5x	
Days Liquidity (Cash)	318 (215)	337 (235)	
Debt/Asset %	62%	68%	
Non-Fuel/MWh	$53.94	$52.50	
Net Funded Debt Reduction	$216m	$216m	
Capital Expenditures	$166m	$135m	
Moody's/S&P/Fitch Ratings	Aa2/AA-/AA	Aa2/AA-/AA	

Water and Sewer Systems Metrics

	Rating Agency/ Perform. Goal	FY2017	Score
Water System Sales (kGals)	35,000	37,245	
Base Revenue Growth	(1.3%)	3.6%	
Debt Svc. Coverage	2.5x	3.0x	
Days Liquidity (Cash)	507 (405)	596 (496)	
Debt/Asset %	50%	50%	
Water Cost/kgal	$4.75	$4.57	
Sewer Cost/kgal	$10.27	$9.20	
Net Funded Debt Reduction	$77m	$77m	
Capital Expenditures	$205m	$188m	
Moody's/S&P/Fitch Ratings	Aa2/AA/AA	Aa2/AAA/AA	

Significant Occurrences or Concerns This Month

- Despite significant rainfall in FY17, Water System Sales were 2% over FY16 YTD.
- Due to mild weather, Electric System Sales were 4% below FY16 YTD, despite 2% growth in accounts.
- Electric System Debt/Asset % for FY2017 includes SJRPP impairment loss due to decommissioning of the plant.