From:	McInall, Steven G Dir, Electric Production Resource Planning <mcinsg@jea.com></mcinsg@jea.com>				
Sent:	Thursday, April 5, 2018 11:09 AM				
То:	Taylor, Brandi N Executive Assistant				
Cc:	Moran, Mary L Mgr Electric Generation Planning; Brost, Mike J VP/GM Electric				
	Systems				
Subject:	RE: TYSP Board Package				
Attachments:	Board Agenda Item Memorandum_TYSP April 2018.docx; JEA Board Meeting April 2018 - TYSP sgm_040418.pptx; Board Agenda Item Summary_TYSP April 2018.docx				

Helps if you save the document you are working on before sending. THESE are final.

From: McInall, Steven G. - Dir, Electric Production Resource Planning
Sent: Thursday, April 05, 2018 11:07 AM
To: Taylor, Brandi N. - Executive Assistant <taylbn@jea.com>
Cc: Moran, Mary L. - Mgr Electric Generation Planning <GuytML@jea.com>; Brost, Mike J. - VP/GM Electric Systems
<BrosMJ@jea.com>
Subject: TYSP Board Package

Made some tweaks. These documents are final.



Steve McInall, P.E. Director, Electric Production Resource Planning JEA 21 West Church Street, Jacksonville, Florida 32202 904 665 4309 mcinsg@jea.com

Please note that under Florida's very broad public records law, most written communications to or from city officials are public records available to the public and media upon request. Your e-mail communications may therefore be subject to public disclosure.

JEA is a not-for-profit, community owned utility 🖪 😏 📠



INTER-OFFICE MEMORANDUM

April 2, 2018

SUBJECT: ELECTRIC SYSTEM - TEN YEAR SITE PLAN

FROM: Paul E. McElroy, Managing Director/CEO

TO: JEA Board of Directors

BACKGROUND:

Each year JEA prepares a Ten Year Site Plan (TYSP) as a required filing of the Florida Public Service Commission (PSC). The PSC uses this information to ensure that the state has sufficient generation to meet native load, that utilities are prudently planning their systems, and that the state maintains an adequate reserve margin of generation to ensure the reliable supply of electricity.

DISCUSSION:

One of the key drivers for additional electric system capacity is load growth. JEA annually prepares a peak demand and energy forecast for a ten year planning horizon. On average, JEA peak demand and energy is projected to grow at reduced levels around 0.6 - 0.8% annually over the next ten years. Depending on the strength of the local economic recovery, these projected demand levels could conceivably be even lower.

With our relatively low projected load growth, the decommissioning of SJRPP, and upgrade to two Brandy Branch CTs, annual and seasonal purchase power agreements are recommended in this 2018 TYSP to meet JEA's firm demand and reserves. This year's resource plan includes the SJRPP Sales suspension and decomissioning January 5, 2018, the upgrades to Brandy Branch Combined Cycle in 2019, and the nuclear power purchase agreement with the Municipal Electric Authority of Georgia (MEAG) for our portion of the new Plant Vogtle Units 3 and 4 currently under construction. Included in this plan is 27 MW of solar photovoltaic (PV) for solar arrays fulfilling the Board's 2014 Solar Policy. Six MW of solar PV are planned to be completed in the remainder of 2018. Twenty-one MW of solar PV were completed in 2017 and early 2018. The 250 MW of solar PV from the 5 x 50 MW sites is not reflected in this plan, because the bid evaluations are still in process.

RECOMMENDATION:

No action is required by the Board; this item is submitted for information. Staff is available to answer any questions on the TYSP.

Paul E. McElroy, Managing Director/CEO

PEM/MJB/SGM

Generation Reference Plan

Notes

- 27 MW of signed Solar PV PPAs included in this plan.
- (2) SJRPP sales end and plant decommissioned 1/5/2018.
- (3) Southern Power Annual combined cycle purchased power agreement for 2018 & 2019 (Wansley).
- (4) Current CODs for 100 MW each of <u>Vogtle</u> Units 3 & 4 are 11/2021 and 11/2022.
- (5) Annual/Seasonal purchased power to be acquired by TEA at minimum the season prior to need (0-100 MW summer Seasonal, 0-100 Annual).

Year	Resource Plan				
2018	SJRPP Decommissioned (-638 MW)				
	SOCO Annual Contact (200 MW)				
	TEA Seasonal Purchase (25 MW)				
2019	SOCO Annual Contact (200 MW)				
	Brandy Branch CC Upgrade				
	(83 MW Summer/ 57 MW Winter)				
2020	TEA Purchase (200 MW)				
2021	MEAG Plant Vogtle 3 Purchase (100 MW)				
	TEA Purchase (200 MW)				
2022	MEAG Plant Vogtle 4 Purchase (100 MW)				
2022	TEA Purchase (125 MW)				
2023					
2024	TEA Seasonal Purchase (50 MW)				
2025					
2026					
2027	Trail Ridge Contract Expires (-15 MW)				
	TEA Purchases (25-50 MW)				



Building Community®

April 2018

Electric System Ten Year Site Plan

Background

TYSP data is due annually to Florida Reliability Coordinating Council (FRCC) in March and is the basis for studies conducted for the state.

TYSP reports from utilities throughout the state are due annually to FPSC on April 1.

- The Florida Public Service Commission (FPSC) is responsible for ensuring that Florida's electric utilities plan, develop, and maintain a coordinated electric power grid throughout the state that ensures electric system reliability and integrity is maintained at a reasonable cost.
- The Ten-Year Site Plan (TYSP) provides information and data that will facilitate the FPSC's review.
- JEA's 2018 TYSP provides information related to JEA's power supply strategy to adequately meet the forecasted needs of our customers for the ten year planning period from January 1, 2018 to December 31, 2027.

Ten Year Site Plan Contents

The 2018 TYSP does not address any system changes that may be required in order to comply with EPA's Clean Power Plan (CPP) Rule.

President Trump signed an executive order that initiates a review of the CPP and unravels a handful of other energy orders and memorandums.

The TYSP addresses the following topics:

- Existing and Committed Facilities
 - Power Supply System Description
 - Transmission and Distribution
 - Demand Side Management
 - Clean Power and Renewable Energy
- Forecasts and Planning Assumptions
 - Electric Demand and Energy Forecast
 - Plug-in Electric Vehicle (PEV) Forecast
 - Energy Efficiency Forecast
 - Fuel Price Forecast
 - Economic Parameters
- Future Resource Needs

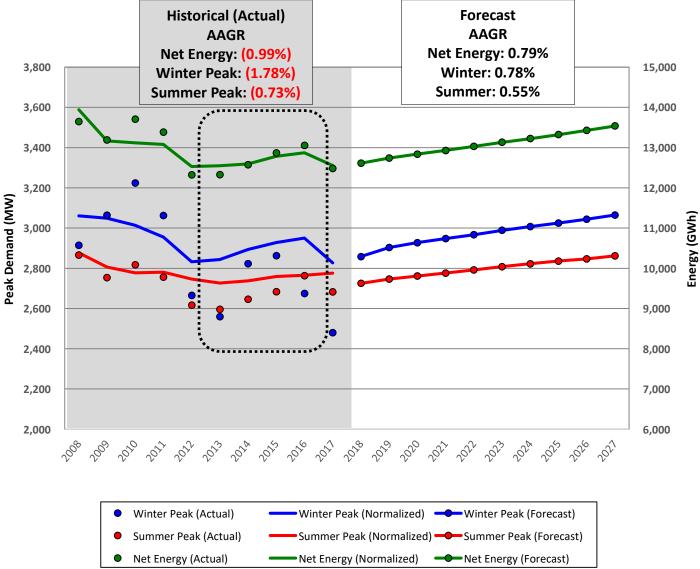
Total Demand & Energy Forecast

JEA experienced decline since 2007.

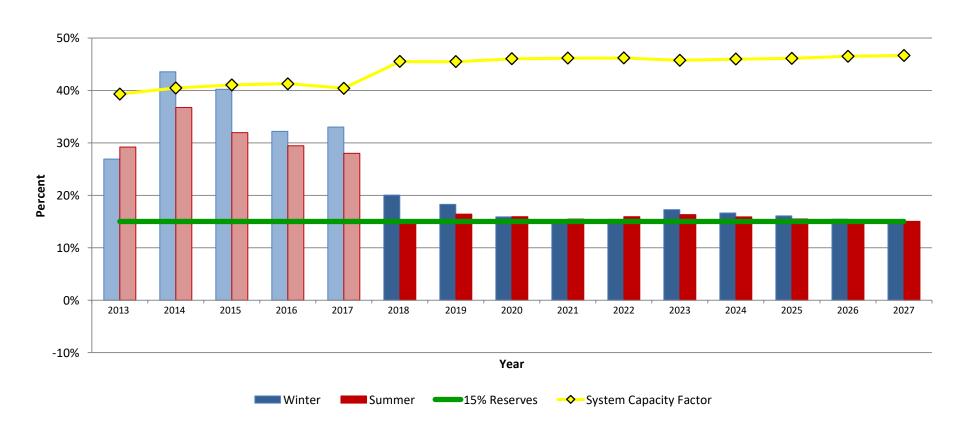
JEA began experiencing a slow recovery starting in 2012. Normalized AAGR from 2012 to 2016 Net Energy: 0.69% Winter Peak: 0.14% Summer Peak: 0.51%

FPU's wholesale power agreement ended December 31, 2017.

AAGR = Annual Average Growth Rate



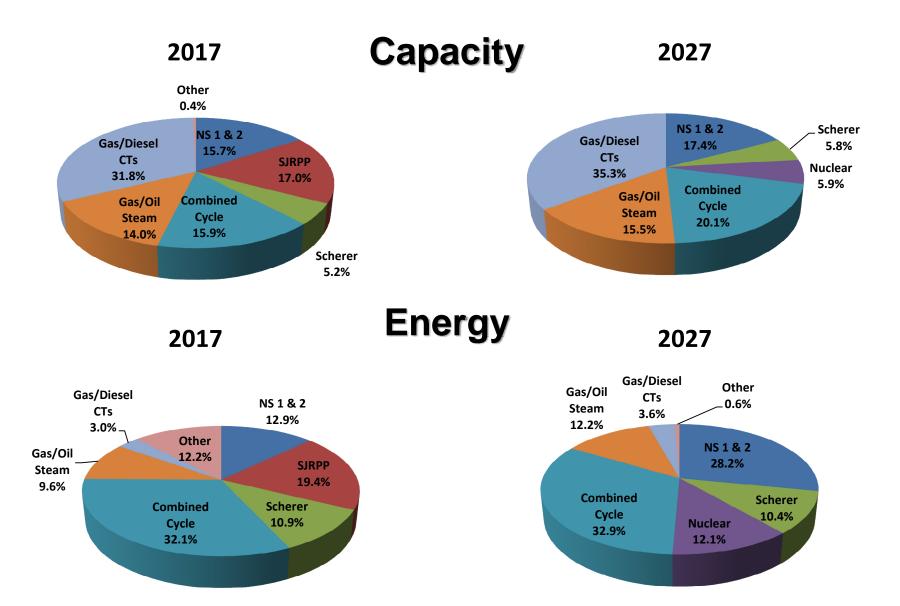
Reserve Margin



Minimum 15 percent reserve margin maintained throughout 10 year planning horizon with annual and seasonal purchases.

Fleet utilization increases after SJRPP decommissioning.

Fuel Mix for Electricity Production



Generation Reference Plan

<u>Notes</u>

- 27 MW of signed Solar PV PPAs included in this plan.
- (2) SJRPP sales end and plant decommissioned 1/5/2018.
- (3) Southern Power Annual combined cycle purchased power agreement for 2018 & 2019 (Wansley).
- (4) Current CODs for 100
 MW each of Vogtle
 Units 3 & 4 are 11/2021
 and 11/2022.

 (5) Annual/Seasonal purchased power to be acquired by TEA at minimum the season prior to need (0-100 MW summer Seasonal, 0-100 Annual).

Year	Resource Plan				
2018	SJRPP Decommissioned (-638 MW)				
	SOCO Annual Contact (200 MW)				
	TEA Seasonal Purchase (25 MW)				
2019	SOCO Annual Contact (200 MW)				
	Brandy Branch CC Upgrade				
	(83 MW Summer/ 57 MW Winter)				
2020	TEA Purchase (200 MW)				
2021	MEAG Plant Vogtle 3 Purchase (100 MW)				
	TEA Purchase (200 MW)				
2022	MEAG Plant Vogtle 4 Purchase (100 MW)				
2022	TEA Purchase (125 MW)				
2023					
2024	TEA Seasonal Purchase (50 MW)				
2025					
2026					
2027	Trail Ridge Contract Expires (-15 MW)				
	TEA Purchases (25-50 MW)				

Integrated Resource Planning Study

Integrated resource planning (IRP) is the process for integrating supply-side and demand-side resources to provide electric services, system reliability and system integrity at a reasonable cost.

- An IRP defines the company's resource plan, which describes
 - the planning environment,
 - the resource portfolio modeling process and assumptions,
 - the resource need,
 - the preferred resource portfolio, and
 - the action plan
- Specific impacts to be considered
 - unit retirements (Northside Unit 3 and NSCTs) along with potential capacity replacements
 - combined cycle conversion: Greenland Energy Center
 - solar integration
 - transmission limitations (import restrictions)
- Schedule
 - Draft Report early December 2018
 - Final Report late January 2019



April 2, 2018	April 2, 2018						
SUBJECT:	ELECTRIC SYSTEM - TEN YEAR SITE PLAN						
Purpose:	🛛 Inforn	nation Only	Action R	Required	Advice/Direction		
Issue: The Florida Public Service Commission (PSC) requires all Florida electric utilities to file an annual Ten Year Site Plan addressing their respective long term electric system generation plans.							
Significance: The PSC uses this information to ensure that the state has sufficient generation to meet native load, that utilities are prudently planning their systems, and that the state maintains an adequate reserve margin of generation to ensure the reliable supply of electricity.							
Effect: Continued, long term supply of reliable and affordable electricity to our customers is a primary goal of this planning effort. Electric System debt is required to fund capital expenditures for new generation projects recommended in the Ten Year Site Plan.							
Cost or Benefit: Included in the Capital Investment Plan.							
Recommended Board action: No action is required by the Board; this item is submitted for information.							
For additional information, contact: Steve McInall, (904) 665-4309							
Submitted by: PEM/ MJB/ SGM							
	Rergizing our community through high-value energy and water solutions.	JEA is a premier service provider, valued asset and vital partner in advancing our community.	Safety - Safety - Service - Growth ² - Accountability - Integrity		tments to Action Earn Customer Loyalty Deliver Business Excellence Develop an		

Develop an Unbeatable Team