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**From:** Blackshear, Victor L. - Manager Financial Planning & Rates <blacvl@jea.com>  
**Sent:** Monday, December 17, 2018 2:52 PM  
**To:** 'Aaron Bielenberg'  
**Subject:** DRAFT JEA Status Quo Case dmg.pptx  
**Attachments:** DRAFT JEA Status Quo Case dmg.pptx



A white LED light bulb is lying on a bed of green grass. The word "DRAFT" is written in large, bold, red capital letters across the middle of the bulb. A dark blue diagonal shape is on the right side of the image.

**DRAFT**

**JEA**<sup>®</sup>



**The case for  
innovation and  
change**



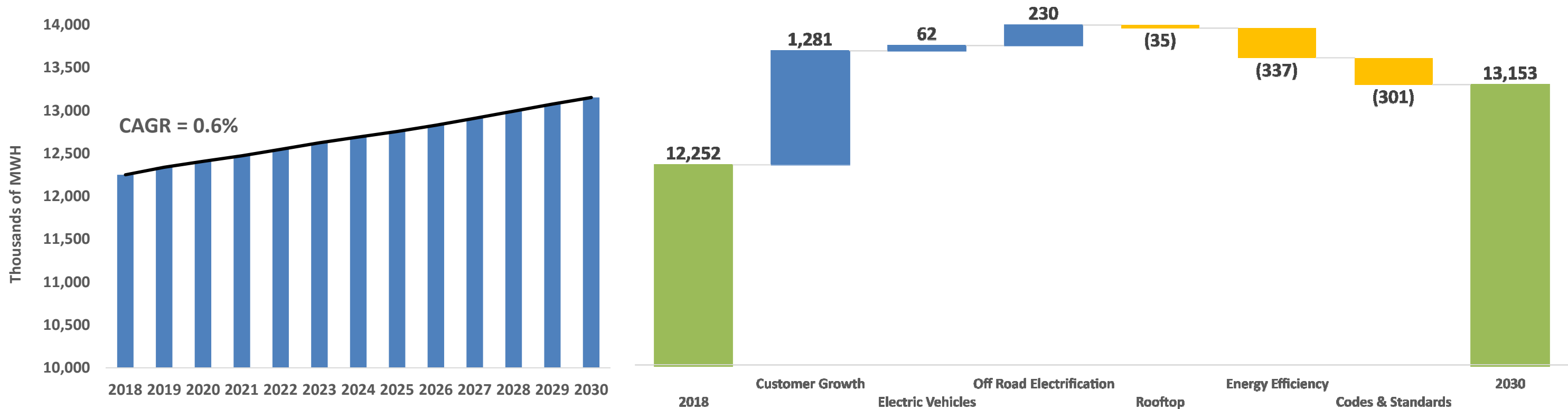
I think we need to put a slide on the pressure on the city contribution if both the status quo cases happen.

Basically, we need to put more on the water side because of potential to disconnect on the electric side - but then it hits water rates even more. We need to show the link and importance of the electric business to the water side of the house.

Thanks,  
Ryan

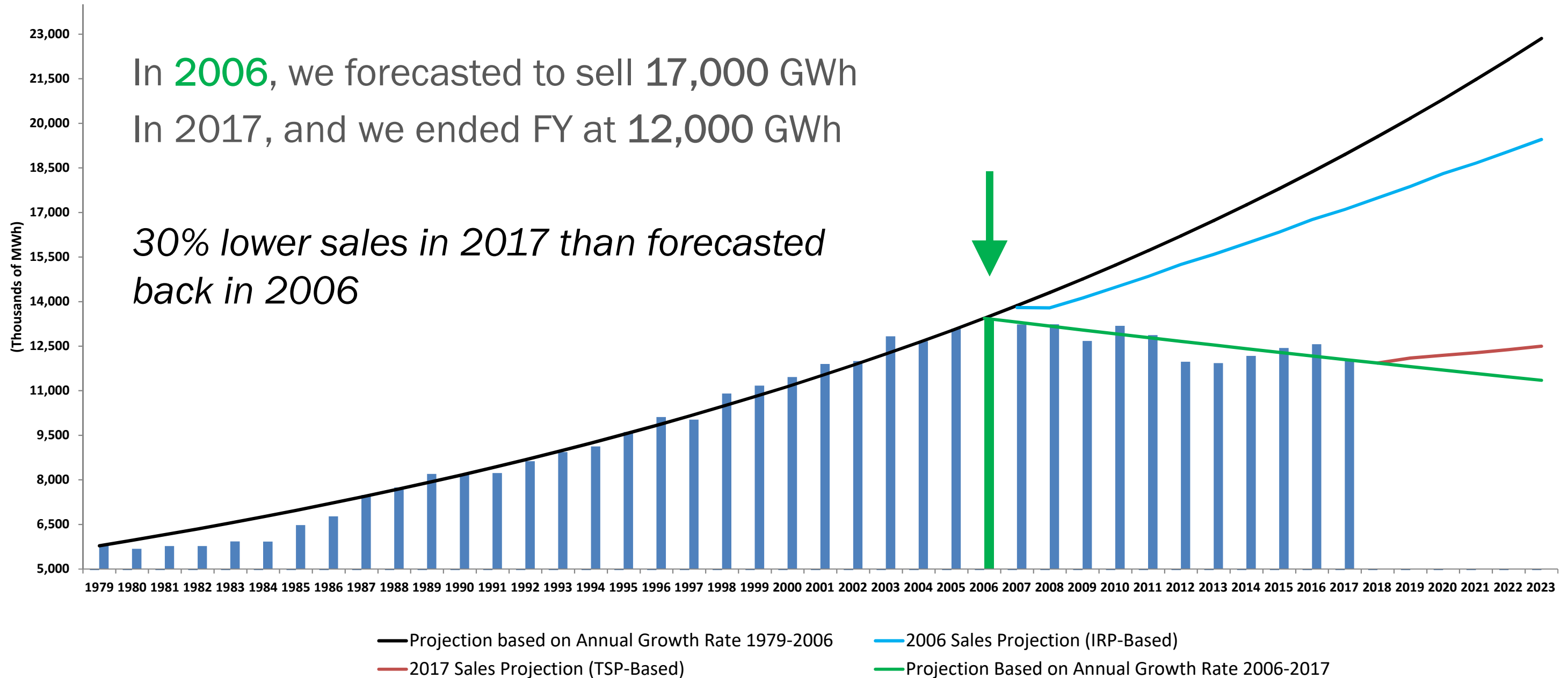
# JEA Current Electric Sales Forecast

Ten Year Site Plan shows growth:



However, recent history has taught us that market forces can change this trend...

# Historical Electric Sales and Forecasts



There are market influences that could quickly diverge our forecast, up or down...

# Positive Market Forces:

**Electric Vehicles(EV)** Low adoption assumed for Jacksonville, achieving 9 times the 2018 energy in 2030, forecasted based on battery charge and miles driven per day. EV adoption cause an increase in JEA electric sales.

## Non-Road Electrification(NRE)

Low forecast, achieving 3 times the 2018 energy in 2030 including the assumption to not renew/rebid the FY18-20 electrification contract. Non-road electrification causes an increase in JEA electric sales.

# Negative Market Forces:

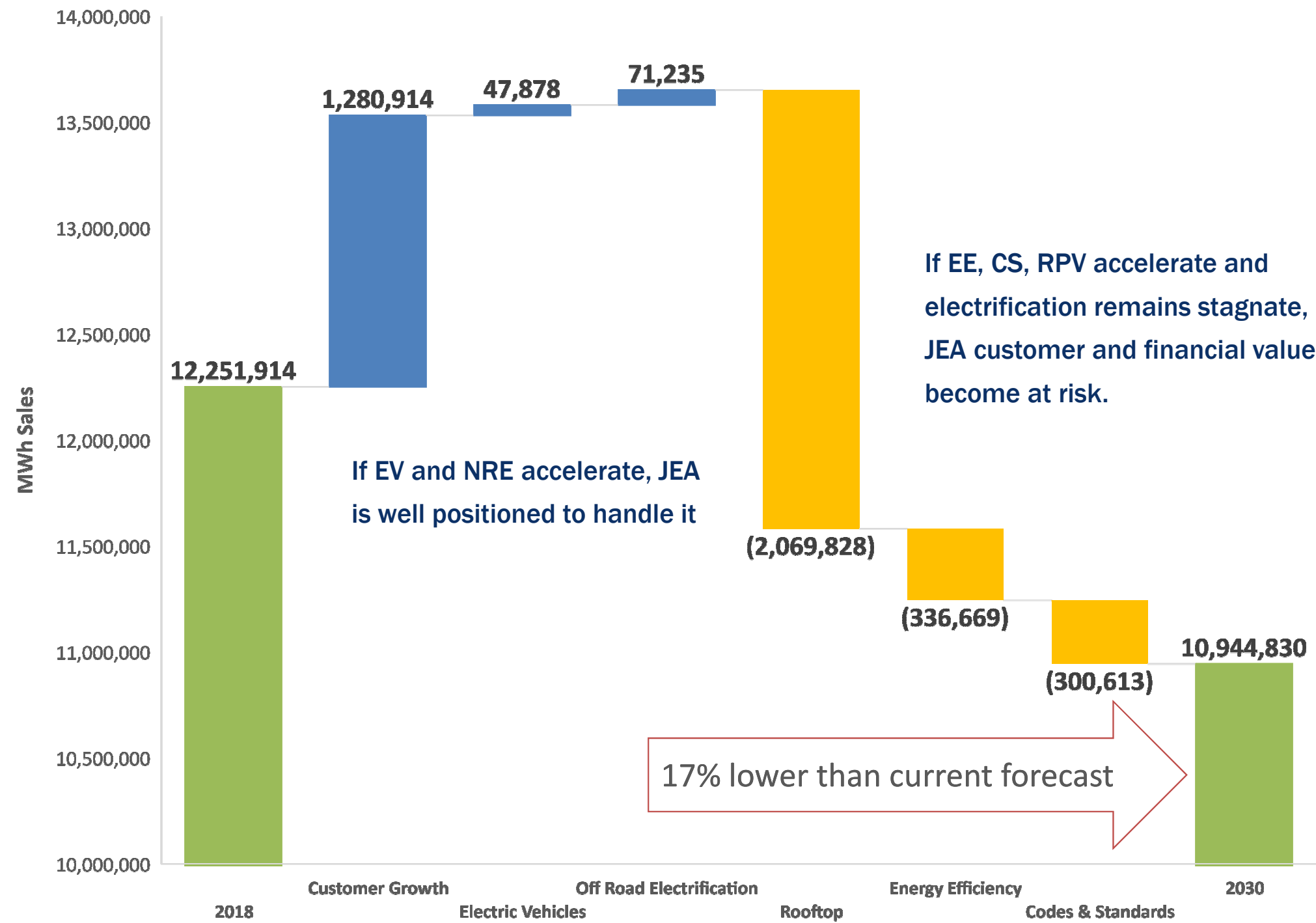
**Energy Efficiency (EE)** JEA is offering customers both education and economic incentives on more efficient end-use technologies achieving a 24% CAGR between 2018 and 2030

## Codes and Standards (CS)

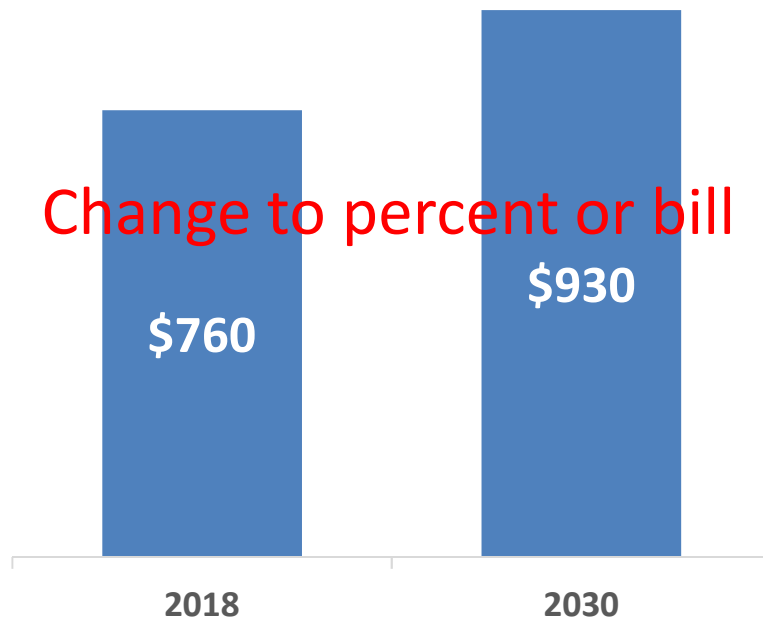
Anticipating stricter regulations will lead to 1% CAGR between 2018 and 2030

**Rooftop PV (RPV)** According to Solar Energy Industry Association (SEIA), total installed PV capacity in the U.S. is expected to more than double over the next 5 years and JEA is taking a more aggressive forecast of 60% CAGR between 2018 and 2030

# Potential Market Forces by 2030



*Declining electric sales  
results in significant rate  
increases to meet higher  
revenue requirements*



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**THE RISK AT HAND**

## What does this mean for JEA, if we remain Status Quo?

- Less sales + increasing costs = rate increases
- More pressure to meet the COJ contribution requirement
- Additional revenue required from customers from 2018 to 2030 = \$1 billion

# Disruptive Innovation

- JEA could participate in disruptive innovation, i.e. installing rooftop and commercial solar, develop and retail storage solutions, expand dark fiber, and other technology.
- Change the current rate structure
- Accelerate or extend debt repayment

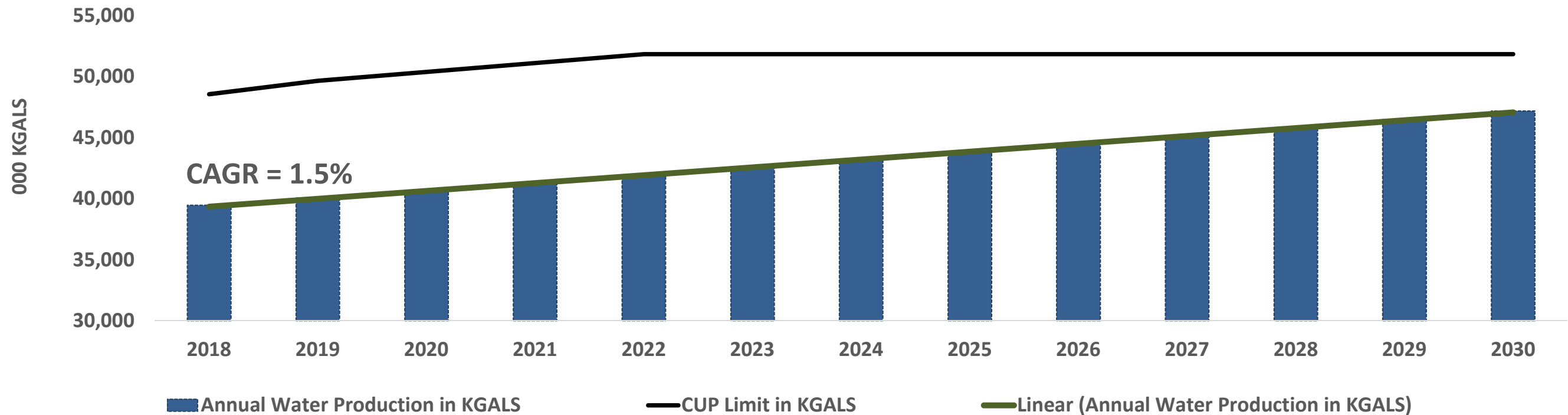
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# JEA Current Water Sales Forecast

## Total Water System Consumptive Use Permit Limit



## Growth

JEA water sales are forecasted using multiple regression analysis of sales history, population, weather, and socio-economic variables.

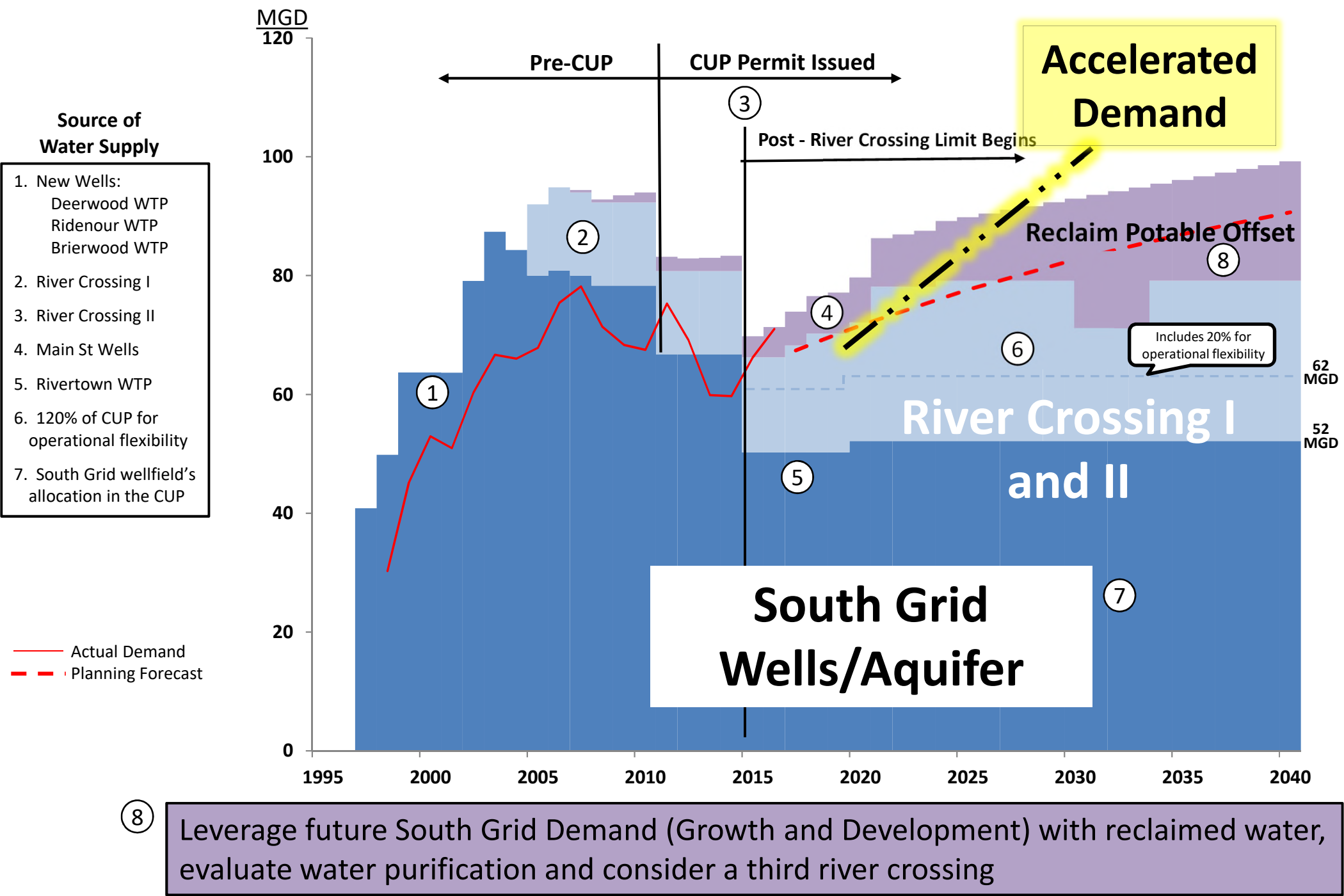
**However, associated costs to maintain growth could quickly erode financial value if local CUP limits are exceeded**

# LOCAL GRID CUP PRESSURE

South Grid’s CUP limit is 52MGD. The current demand is ~65 MGD. 18MGD currently comes from Main Street River Crossings.

In the future under high growth conditions, the demand on the South Grid could exceed current supply options.

Costly investments in alternative water supply options will be required.



# Alternative Water Supply Options

**JEA is conducting a forward-thinking research and development project to evaluate technologies for producing purified water using highly treated wastewater as a source.**

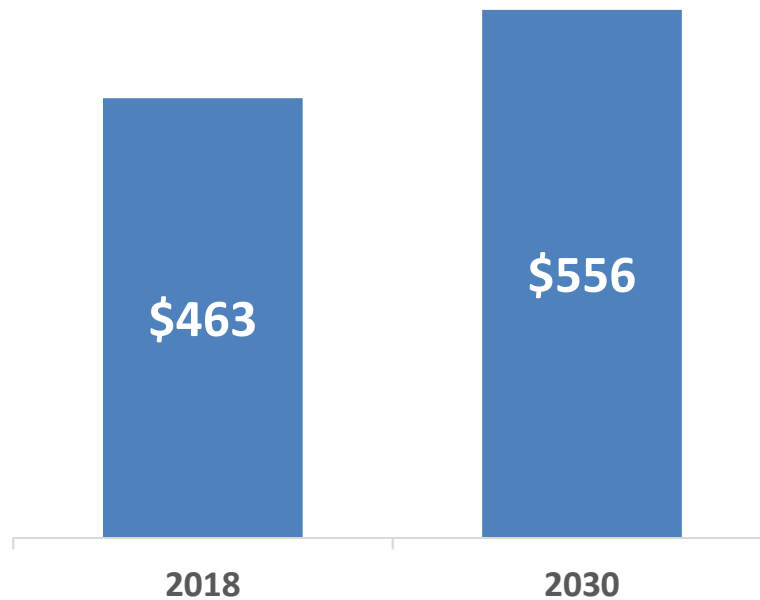
- a. Total O&M cost assumed to be \$1.00/1000 gallons
- b. Total O&M cost assumed to be \$1.50/1000 gallons (Based on Vander Lans and GWRS O&M costs)
- c. Total O&M cost assumed to be \$1.20/1000 gallons (Cost of Brackish Groundwater Desalination in Texas, 2012, Texas Water Develop Board)
- d. Total O&M cost assumed to be \$2.20/1000 gallons (Based upon a + c. Assumes some pretreatment similar to Ozone/BAF would be required for Surface Water RO)
- e. Adjusted to January 2018 dollars (RSMeans Historical Cost Indexes)
- f. Purification Cost only – no storage/transmission mains/injection wells)

Data from Todd Mackey - Dir W/WW & Reuse Treatment

Water Supply Option	Capacity (mgd)	Capital Cost (\$Millions) <sup>e</sup>	O&M Annual/Year (\$ Millions)	Cost per year Capital (\$Millions)*
<b>Demand-Side Management</b>	<b>5</b>	<b>\$6</b>	<b>\$1.0</b>	<b>\$0.4</b>
<b>Reclaimed Retrofit</b>	<b>1</b>	<b>\$19</b>	<b>\$0.1</b>	<b>\$1.2</b>
<b>TWMP</b>	<b>20</b>	<b>\$107</b>	<b>\$2.0</b>	<b>\$7.0</b>
<b>Third River Crossing</b>	<b>25</b>	<b>\$230</b>	<b>\$1.7</b>	<b>\$15.0</b>
<b>Water Purification - Ozone/BAF<sup>a,f</sup></b>	<b>10</b>	<b>\$100</b>	<b>\$3.7</b>	<b>\$6.5</b>
<b>Water Purification - UF/LPRO<sup>b,f</sup></b>	<b>10</b>	<b>\$100</b>	<b>\$5.5</b>	<b>\$6.5</b>
<b>RO of Brackish Groundwater<sup>c</sup></b>	<b>10</b>	<b>\$73</b>	<b>\$4.4</b>	<b>\$4.7</b>
<b>RO of Brackish Surface Water<sup>d</sup></b>	<b>10</b>	<b>\$138</b>	<b>\$8.0</b>	<b>\$9.0</b>

Table from Todd Mackey - Dir W/WW & Reuse Treatment (\* Assumes capital costs are amortized at 5% for 30 years)

*Localized growth results  
in AWS investment  
funded with new debt  
and rate increases\**



*\*assuming overall 1% water/sewer growth*

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**JEA STATUS QUO  
CASE**

## For example: Water Purification Plant

- This 25 MGD plant would cost \$250M in capital and additional \$10M annual O&M.

## ...RESULTS IN

- New debt for AWS capital investments
- Require a 5% rate increase in 2025



# Conclusion

## TBD

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**JEA STATUS QUO  
CASE**

Extra Slides

# JEA CURRENT FRAMEWORK



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**JEA STATUS QUO  
CASE**

## Florida Public Service Commission

- Require electric power conservation and reliability within a coordinated grid
- Approve territorial agreements and settle territorial disputes
- Prescribes uniform systems of accounts & rate structures for all electric utilities
- This includes oversight that the total revenue requirements of utilities are collected fairly from all customer classes.

## City of Jacksonville Charter

- Article 21.01: Established JEA for the express purpose of acquiring, constructing, operating, financing, and otherwise having 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.
- Article 21.04: If JEA determines that it is...appropriate...to provide...any other utility system or function...JEA shall by resolution identify such additional utility system...to the council
- Article 21.07: There shall be assessed upon JEA...from revenues of the electric...and water and sewer system...after the payment of all costs and expenses incurred by JEA in connection with the operation...JEA shall pay the city combined assessment from the electric system and the water and sewer system.

## St. Johns River Water Management District

- The district sets minimum flows and levels for rivers, lakes and springs to ensure that water use does not cause significant harm to these important resources.
- JEA's consumptive use permit (CUP) allows water to be withdrawn from groundwater or surface water for reasonable-beneficial uses — such as public supply (drinking water), agricultural and landscape irrigation, commercial use and power generation

## JEA Pricing Policy

- Primary goal is to establish revenue requirements to fully recover the costs necessary to operate and maintain the utility, consistent with its mission, through fair and equitable pricing
- The total revenue requirement of each system must be sufficient to ensure the financial integrity of the utility, including recovery of debt service, sufficient revenue to meet renewal and replacement fund requirements, and maintenance of key financial metrics

# WATER MARKET

**Water Efficiency** JEA water production is governed by the consumptive use permit (CUP) issued by the St. Johns River Water Management District. The current permit is valid through the year 2031 for a system total of 142 MGD. JEA Water/Wastewater Planning projections for this time period does not exceed the total CUP limit for combined JEA grids. There is the slight possibility that SJRWMD will reduce JEA's total CUP after 2031. There is some localized CUP limit pressure (namely the Southside grid) that will impact water supply decisions before 2031.

**Water Quality** Currently, the St. Johns River Water Management District does not regulate JEA on mineral discharge into the waterways. The District may choose in the future to regulate utilities and other companies on nitrogen or phosphorous discharge and strontium scale formation. Increased water quality and discharge regulation will increase cost for the water and wastewater systems.

**Nitrogen Credits** The City of Jacksonville has an agreement with JEA to trade nitrogen credits. If the city requires JEA to transfer additional nitrogen credits in the future, JEA will have to implement alternative wastewater solutions to fulfill this requirement.



# Disruptive Innovation



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**JEA STATUS QUO  
CASE**

The JEA Enterprise systems face increasing pressure from disruptive innovation. A disruptive innovation is an innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market-leading firms and products. As we all know, disruptive innovation has changed phone service [iPhone], video rental [Netflix], retail sales [Amazon], and taxi [Uber/Lyft] industries.

JEA, and its predecessor organizations, has been the market leader for providing electric, water, and sewer services to northeast Florida for over 100 years. Increasing innovation threaten the stability of the core businesses of JEA.

The Electric Enterprise faces threats from increasing rooftop and commercial solar penetration, energy efficiency, and the advancement of battery technology. Electric vehicles and non-road electrification can offset some of the erosion by solar and battery technology and energy efficiency.

The Water Enterprise faces threats from growth in constrained water supply areas due to JEA's CUP limits, and legislation requiring stricter treatment and discharge criteria.

This analysis is an examination of the disruptive innovations affecting the JEA systems. There are several assumptions made in this analysis as to how these innovations and changes will affect traditional JEA revenue sources (electric, sewer, and water sales).