From: Sarah Brody <Sarah_Brody@mckinsey.com>
Subject: FW: SQ1 assumptions
Sent: Wed, 08 May 2019 16:30:36 -0500
To: "Wannemacher, Ryan F. - Chief Financial Officer" <wannrf@jea.com>
20190322 JEA Board presentation - ASSUMPTIONS_updated.pptx

Assumptions document

From: Romero Aguero, Julio E. (Chief Inno. and Transformation Officer) <romeje@jea.com>
Sent: Wednesday, May 8, 2019 5:08 PM
To: Dykes, Melissa H. - President/COO <dykemh@jea.com>
Cc: Sarah Brody <Sarah_Brody@mckinsey.com>
Subject: [EXT]SQ1 assumptions

FYI

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Status Quo Baseline – Assumptions review

The following "Baseline Conversation" financial projections are presented solely for JEA Board of Directors planning and action. They are not a projection of future financial performance and, as such, should not be relied upon by present or prospective JEA bond investors to purchase or sell any security or to make an investment decision. The projections are merely a mathematical representation of a hypothetical case for change. Actual results are likely to differ materially from this business case. Use of this presentation not in its entirety could result in material financial harm to the company.

Disclaimer

The following **"Status Quo Baseline"** financial projections are presented solely for JEA Board of Directors planning and action in connection with the development of a strategic plan. They are not a projection of future financial performance and, as such, should not be relied upon by present or prospective JEA bond investors to purchase or sell any security or to make an investment decision. The projections are a mathematical representation of a status quo business case and do not reflect numerous likely future events and future JEA actions that will likely cause actual results to differ materially from this business case. The presentation should be viewed in its entirety with individual slides or sections of the presentation having no greater or reduced significance relative to other slides or sections of the presentation

Goals for today

- Review goals of status quo baseline presentation
- Review assumptions underlying status quo projections and initial results
- Discuss communication to Board

Assumptions and key financial outputs

Summary: the status quo is a result of sales and cost drivers and trends, with assumption that JEA takes no action outside business as usual

	Sales drivers and trends	Cost drivers and trends
Energy	▪ **Customer growth:** growing with strong economic forecast ▪ **Energy efficiency:** continued reduction in sales ▪ **Distributed generation:** begins to drive reduction in sales ▪ **Electric vehicles:** minor growth in sales	▪ **O&M:** growing in line with historical trends ▪ **Capex:** steady throughout period, one major investment (Greenland) ▪ **Debt:** early debt retirement (STAR plan)
Water	▪ **Customer growth:** growing with strong economic forecast ▪ **Water efficiency:** continued reduction in sales	▪ **O&M:** growing in line with historical trends ▪ **Capex:** growth, especially through 2025 ▪ **Debt:** early debt retirement (STAR plan)

Energy Sales

		Key metric	2019	CAGR 2019-2030	2030	Source / rationale
1 Customer growth		Population (thousands)	969	1.2%	1,115	Moody's Duval county forecast
		GDP (Duval, Total, (Mil. Ch. 2009 USD))	55,930	3.1%	80,635	Moody's Duval county forecast
		Median household income ($)	60,476	3.7%	93,258	Moody's Duval county forecast
2 Energy efficiency		Residential efficiency (MWh/customer/yr)	12.5	-0.8%	11.3	Appliance-level adoption assumptions
		Commercial efficiency (MWh/customer/yr)	77.5	-1.0%	68.8	Appliance-level adoption assumptions
		Industrial efficiency (MWh/$M GDP)	57.8	-1.1%	50.4	JEA customer forecast
3 Distributed generation (DG) (solar + storage)	Cost	Residential solar cost ($/W)	$2.65	-6.6%	$1.17	2018 solar cost forecast model
		Residential storage cost ($/W/system)	$0.42	-6.4%	$0.19	2018 storage cost forecast model
		C&I solar cost ($/W)	$1.58	-4.5%	$0.91	GTM solar cost projection
		Incentives in place	ITC through 2022, battery rebate through 2030			Current regulation
	Value	Retail electricity price (R) ($/kWh)	0.103	1.6%	.126	Status quo rate projections (as of 2/17)
		Residential storage backup value ($/year)	$200	Constant	$200	Internal estimate based on sales trends
		Addnl consumption enabled by battery (% load)	35%	Constant	35%	Solar output and household consumption curves
		Retail electricity price (C&I) - weighted solar ($/kWh)	$0.07	2%	.09	Baseline (current projection) assumptions
	Adoption	Developer hurdle (% IRR)	9%	Constant	9%	Appetite for commercial offtaker risk & new market
		Pre-parity adoption rate - resi, C&I (% sales per year)	0.10%	Constant	0.10%	In line with historic pre-parity adoption trends
		Post-dvlper parity adoption rate - C&I (% sales per year)	1.25%	Constant	1.25%	High end of historic post-parity adoption trends
		Post-customer parity adoption rate – Resi (% sales per year)	1.00%	Constant	1.00%	High end of historic post-parity adoption trends
		Post-dvlper parity adoption rate – Resi (% sales per year)	1.50%	Constant	1.50%	High end of historic post-parity adoption trends
4 DG (non-solar)		Annual adoption (kW / year)	475	Constant	475	Consistent with national trends over past decade
		Economically viable for broad customer base		No		Consistent with national trends
5 Electric vehicles (EV)		EV penetration (%)	0.30%	23.2%	3.6%	2018 EV growth forecast model, current Jacksonville fleet
		EVs in fleet (#)	1,968	23.2%	30,751	2018 EV growth forecast model
		Consumption per BEV (weighted, MWh)	3,850	-2.8%	2,750	Current efficiencies and estimate of improvements

1 Assumes battery part of most installations by mid-2020s

Energy Costs

	Key metric	Assumptions	Source / rationale
6 O&M	O&M escalator (%)	7% CAGR 2018-20 4% CAGR 2021-30	2019-20 based on current budget / forecasted spend 2021 onwards based on historical growth by category, adjusted for known anomalies
Base rate	Base rate (inclusive of fuel) in 2019 ($/kWh)	$.103 in 2019	Baseline (current projection) assumptions
7 Capital costs	Average capital expense ($M)	Average annual spend 2019-2025: $193M Average annual spend 2026-2030: $184M	Based on Capital Budget Planning project list; future average excludes generation
	New capacity ($M)	New capacity (Greenland combined cycle) ($532M spend 2021-2025)	Costs based on IRP base case assumptions
Debt	New debt ($M)	Assumes STAR plan of early debt retirements of $413M (from 2019 – 2022). Greenland is debt financed in all scenarios	Based on stated STAR plan

Water Sales & Costs

	Key metric	2019	CAGR 2019-2030	2030	Source / rationale
8 Customer growth	Water sales from customer growth (mn kgal / year)	35.8	1.3%	42.2	SPLASH model growth forecast based on BBER projections
	Reclaimed sales from customer growth (mn kgal / year)	3.5	5.7%	6.9	Higher rates in reclaimed service territory
	Sewer sales from customer growth (mn kgal / year)	26.9	1.3%	31.7	Same rate as water growth
9 Efficiency	Residential consumption[2] (kGal/ customer / yr)	74	-0.8%	67	Efficiency based on forecasted adoption of appliances
	Commercial & industrial consumption (kGal/yr)	650	-0.9%	582	Efficiency based on forecasted adoption of appliances
	Outdoor usage	No reduction			Assuming no behavioral change; no natural adoption of efficient technology
10 O&M	O&M escalator (%)	4% CAGR 2018-20 5% CAGR 2021-30			2019-20 based on current budget / forecasted spend 2021 onwards based on historical growth by category, adjusted for known anomalies
Base rate	Base rate in 2019 ($/kGal)	Water: $4.65 / Sewer: $9.16 / Reclaim: $4.47			Calculation based on yield per product
11 Capital costs	2019-2024 expenditures	Average $242M annual spend			Based on Capital Budget Planning project list (additional reclaimed water projects added)
	2025-2030 expenditures	Average $207M annual spend; based on extension of 2019-24 capacity and R&R spend, with additional supply projects included totalling $187M			Based on Capital Budget Planning project list (additional reclaimed water projects added)
Debt	New debt ($M)	Assumes STAR plan of early debt retirements of $140M (in 2019), additional borrowing of $333M			Based on stated STAR plan, revised capex plan

1 Customer growth assumption applied as aggregate growth across classes

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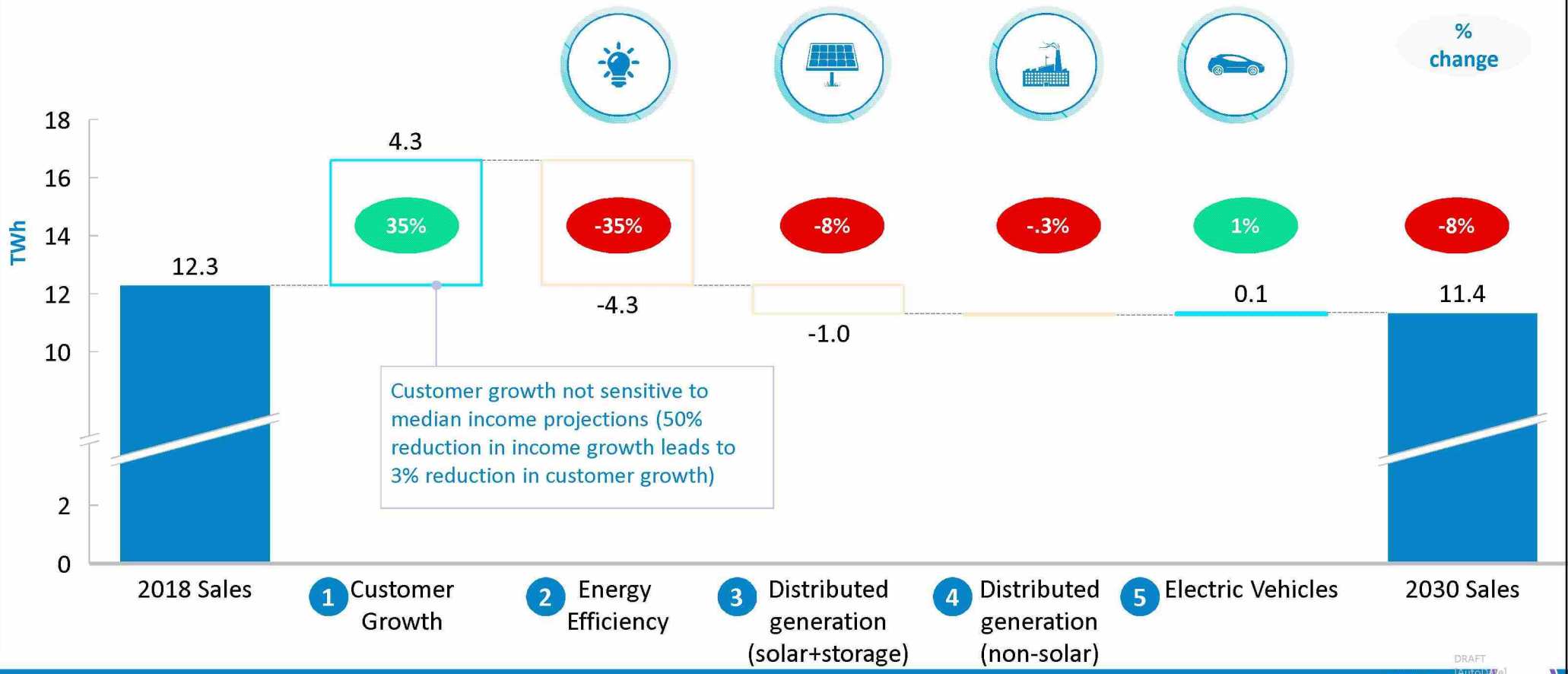
Energy sales forecast: Energy efficiency and solar will drive down JEA's sales by 8% through 2030 despite a growing customer base

2030 JEA projected energy sales, TWh



[Slide 9]

Anticipating 3.5% penetration in Jacksonville by 2030

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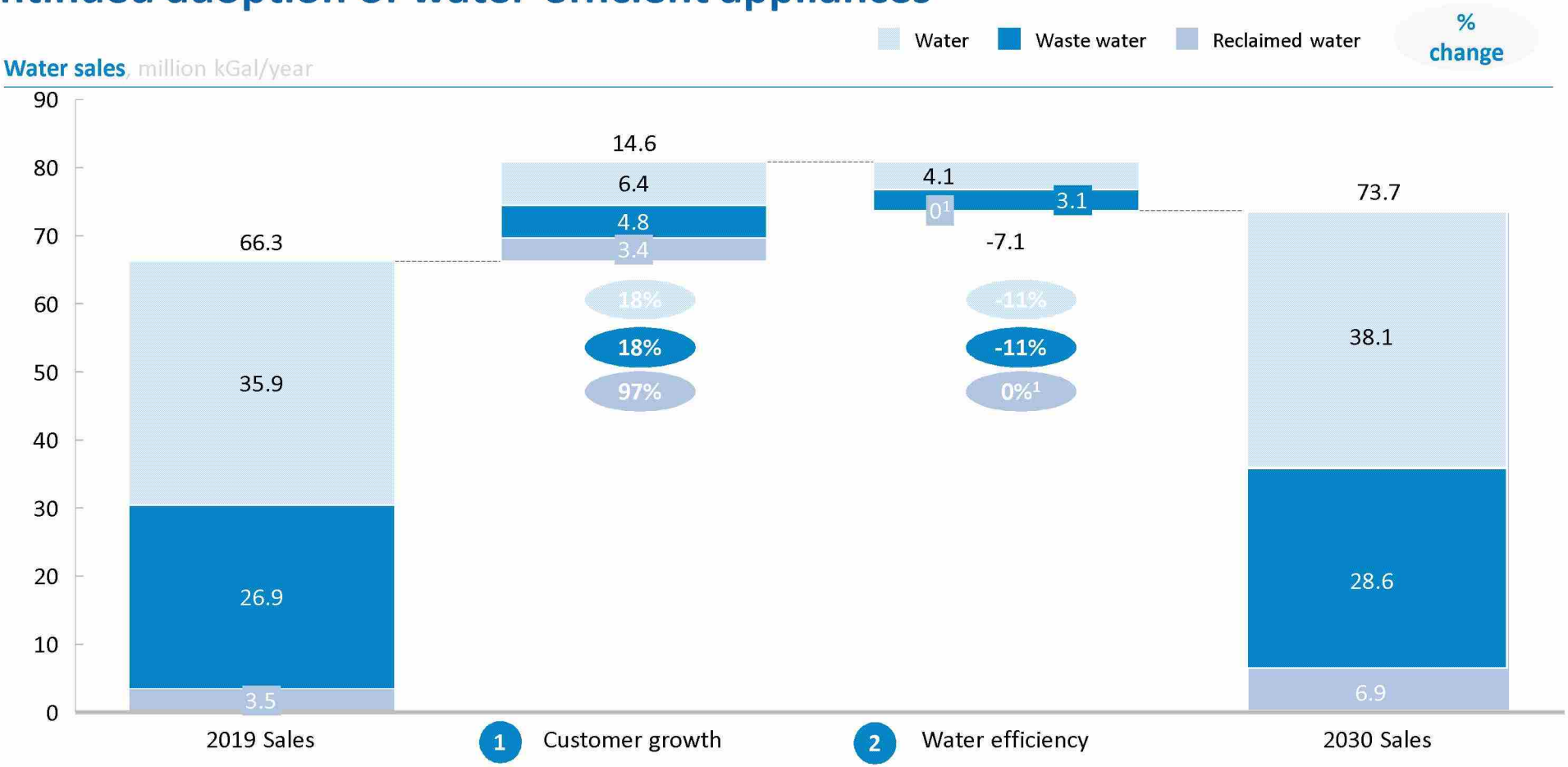
Water sales will see continued growth driven by population and tempered by continued adoption of water-efficient appliances



1 No change as water efficiency applies to indoor use water

DRAFT [AutoDate]

SOURCE: JEA

Additional financial assumptions used to develop energy and water status quo baseline scenarios

HAS NOT BEEN UPDATED TO LATEST O&M ASSUMPTIONS

Financial assumption	Energy	Water
Use rate increases to meet cash flow gap	YES	NO
Raise additional debt to meet cash flow gap	NO (with exception of debt funding for Greenland)	YES
Fund city contribution post 2023	NO	YES

Note: assuming no rate increases, no additional debt, and funding of the city contribution through 2030 results in a cumulative cash flow gap of

- **$2.4B** for energy
- **$.8B** for water

Energy financial dashboard

	Metric	2019	2025	2030	CAGR	Notes
Rates	Residential bill[1], ($/month)	$137.18	$137.18	$148.65	1.7%	Current Florida median is $125
Cash flow	Operating free cash flow, $M	$554	$396	$378	-3.4%	
	Capital expenditures, $M	($275)	($322)	($179)	-3.8%	2025 capex driven in part by Greenland
	Funds available, $M[2]	$279	$75	$199	-3.0%	
	New debt, $M	$0	$63	$0		
	Debt service, $M	($229)	($131)	($208)		Does not allow for city contribution
Balance sheet	Net funded debt, $M	$1,943	$1,833	$1,302	-3.6%	
	Debt to capital ratio, %	60%	59%	53%	-	Current target is 50%

1 Monthly bill after taxes

2 For debt service and city contribution

SOURCE: JEA

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Water financial dashboard

	Metric	2019	2025	2030	CAGR	Notes
Rates	Residential bill[1], ($/month)	$70.45	$70.45	$70.45	0.0%	Current Florida median is $77
Cash flow	Operating free cash flow, $M	$347	$304	$281	-1.9%	
	Capital expenditures, $M	($220)	($205)	($216)	-0.2%	Capex remains high through projection
	Funds available, $M[2]	$128	$99	$65	-6.0%	
	New debt, $M	$0	$49	$84		
	Debt service, $M	($108)	($116)	($126)		Allows for city contrib. after borrowing
Balance sheet	Net funded debt, $M	$1,217	$1,279	$1,272	0.4%	Total debt increases by 5% ($50m) 2019-2030
	Debt to capital ratio, %	41%	38%	37%	-	Current target is 50%

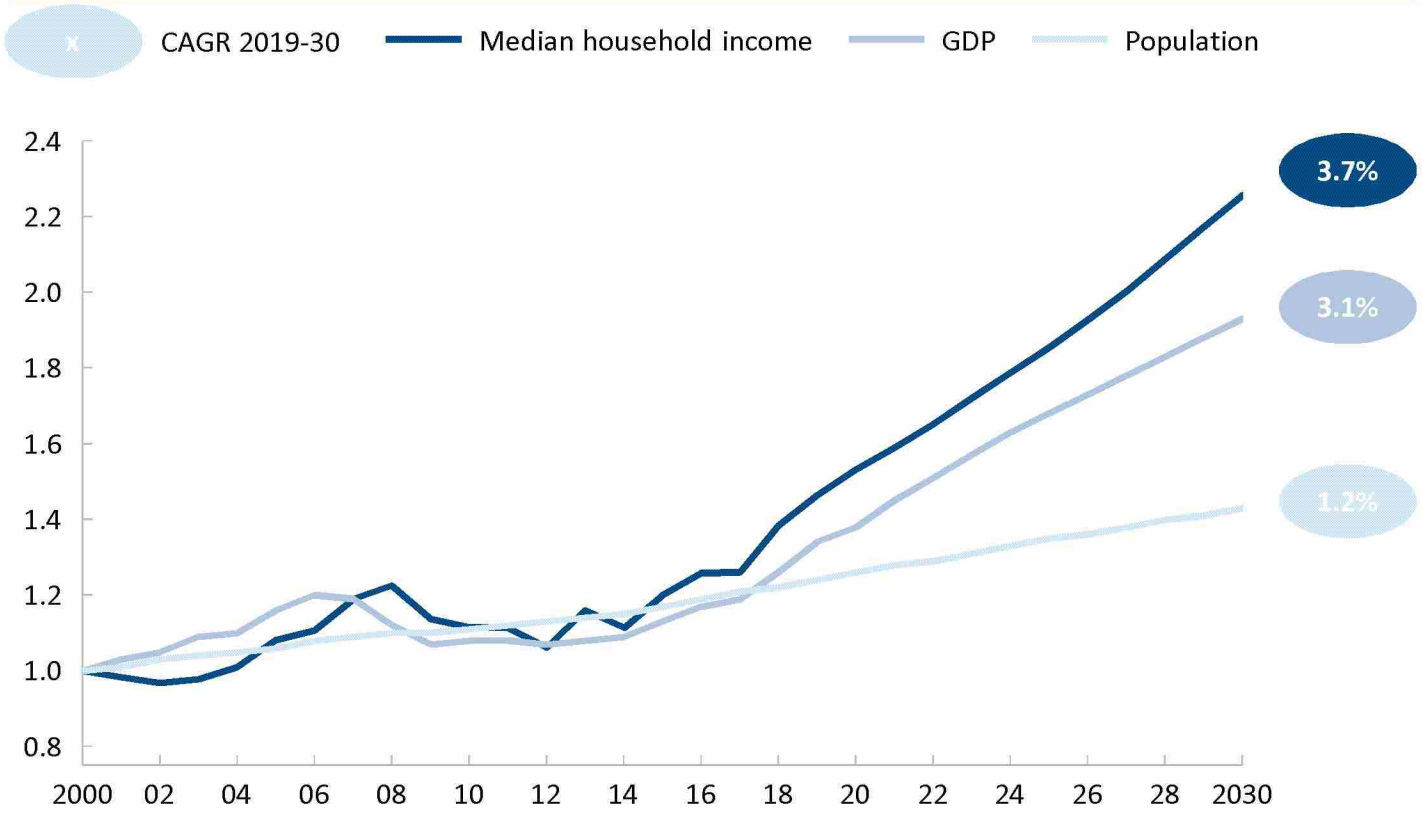
1 Monthly bill after taxes 2 For debt service and city contribution

SOURCE: JEA

Supplemental assumptions

1 Customer growth likely to continue in the foreseeable future

Duval County Specific economic indicators (Indexed to 2000)



- Customer growth projections considers the U.S. Census Bureau (BOC): Population Estimates, Projections; Moody's Analytics Estimates and Forecasts for Duval County
- Residential customer growth is calculated based on projections for population (primary factor) and median household income (secondary factor)
- Commercial and industrial customer growth is calculated based on GDP projections
- For Duval County through 2030, Moody's Analytics projects GDP and median household income growth to outpace previous decade and outpace US average
- Primary driver of Moody's economics projections is increase in finance and insurance jobs (in US overall and in Jacksonville particularly), with wages ~50% higher than current local average

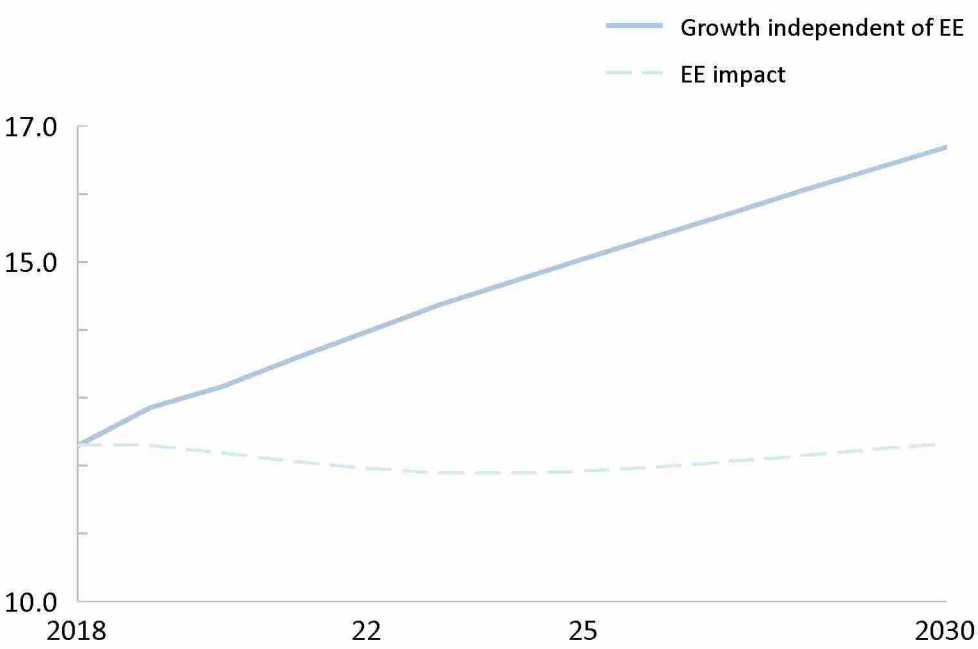
SOURCE: Moody's; US Census Bureau

[Slide 15]

Separate res and commercialInclude kwh and customer growth assumptionsRate increase percentage

2 Energy efficiency momentum is the largest driver of energy sales reductions, consistent with US utility trends

Annual energy sales,[1] thousand MWh

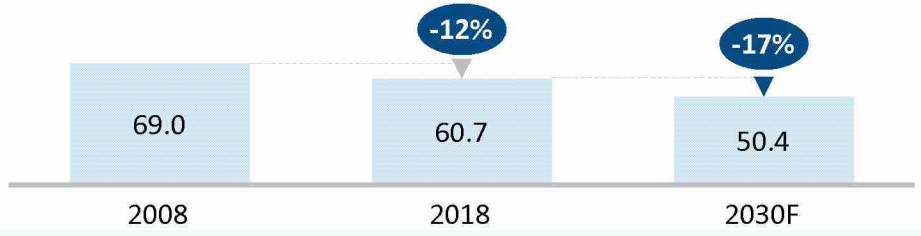


- Only considers commercial and residential EE adoption
- Gains driven by continued organic adoption of efficient products (e.g., cooling systems) as inventory turns in homes and additional uptake of "step-change" products such as LED lights and heat pump water heaters

Residential consumption per capita, MWh / customer

Commercial consumption per capita, kWh / sq foot

Industrial consumption per capita, MWh / $M GDP[2]



1 Sales estimate prior to incorporation of impact of DG and EV

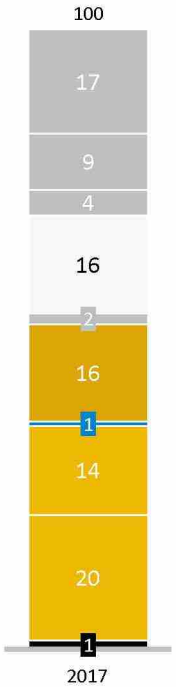
2 Flat industrial sales through period implies efficiency on a per-unit of GDP basis

SOURCE: JEA forecast, PowerIQ

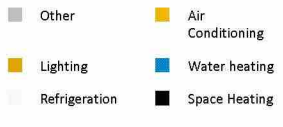
2 Natural EE improvements with new products will drive up EE; consumer choices regarding new water and space heating technologies can have outsize impact on efficiency

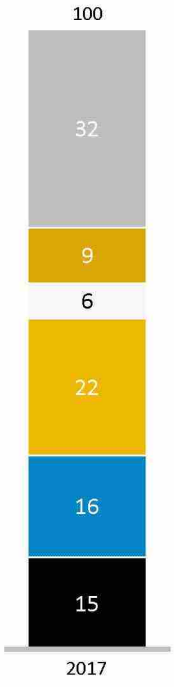
★ JEA 2013 survey results

Commercial energy consumption,[1] %



Residential energy consumption,[1] %



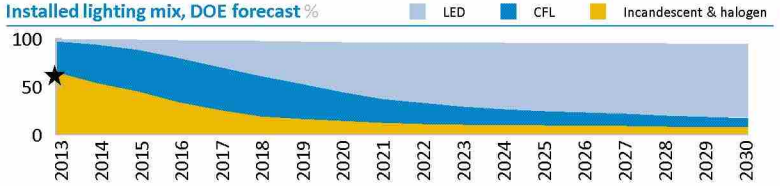


Main drivers

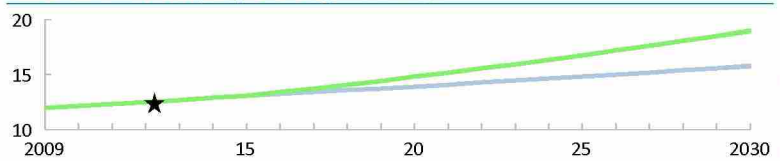
- Lighting
- Cooling
- Water heating
- Space heating
- Other *(examples, not exhaustive)*

Trends (residential forecasts)

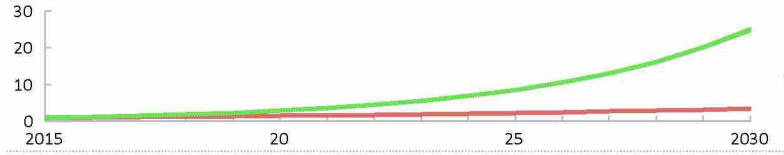
Installed lighting mix, DOE forecast %



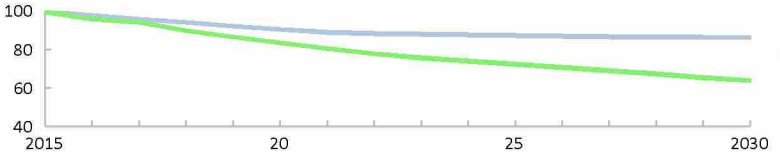
Residential HVAC heat pump efficiency, SEER rating



Heat pump water heater penetration[2], % installed



Residential heating energy intensity (Btu:Btu)[2], % indexed to 2015



Reduction assumptions

Base case — Low case - used for resi and commerical customers in forecast

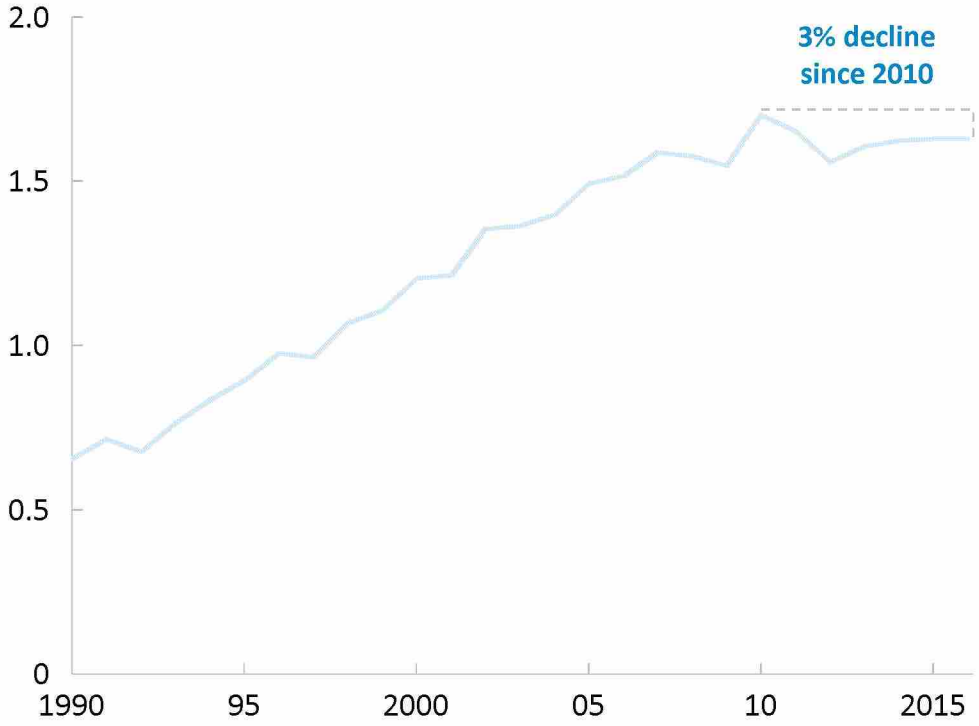
- LED installed stock penetration increases to 100% for commercial and residential customers by 2030 (slightly above DOE estimate of 80%), enabling step-change in efficiency for bulbs replaced
- Lighting efficiency drives ~20% of residential and ~30% of commercial EE savings
- New units are 0.4% - 0.9% more efficient for the same level for each year between manufacture, resulting in natural EE as inventory turns; with assumption of 15 SEER rating by 2030
- JEA customers were slightly below regional average efficiency in 2030, indicating additional room to grow beyond what is forecasted
- Cooling drives ~30% of residential and ~20% of commercial EE savings
- Improvements in efficiency of resistance units have nearly plateaued; decision to switch to heat pump water heaters would have outsize impact. 20% install heat pump water heaters by 2030
- Impact is higher for residential customers (~10%) than C&I due to low electricity utilization for C&I water heating
- Adoption of heat pumps reduces winter heating in adopted homes by 50%-60%; expecting 5-10% adoption
- Impact of space heating higher for residential customers than C&I, as C&I typically utilize gas heating
- **Appliance efficiency:** JEA average customer energy star rating may indicate room for continued residential update
- **New house characteristics:** continued increase in gas connections in new homes could lower energy use ~20-30% per customer; however increased size of new homes could increase energy use

1 ECS breakdown, South Atlantic, % 2 2013 JEA customer survey did not cover heat pump water heater penetration or residential heater age

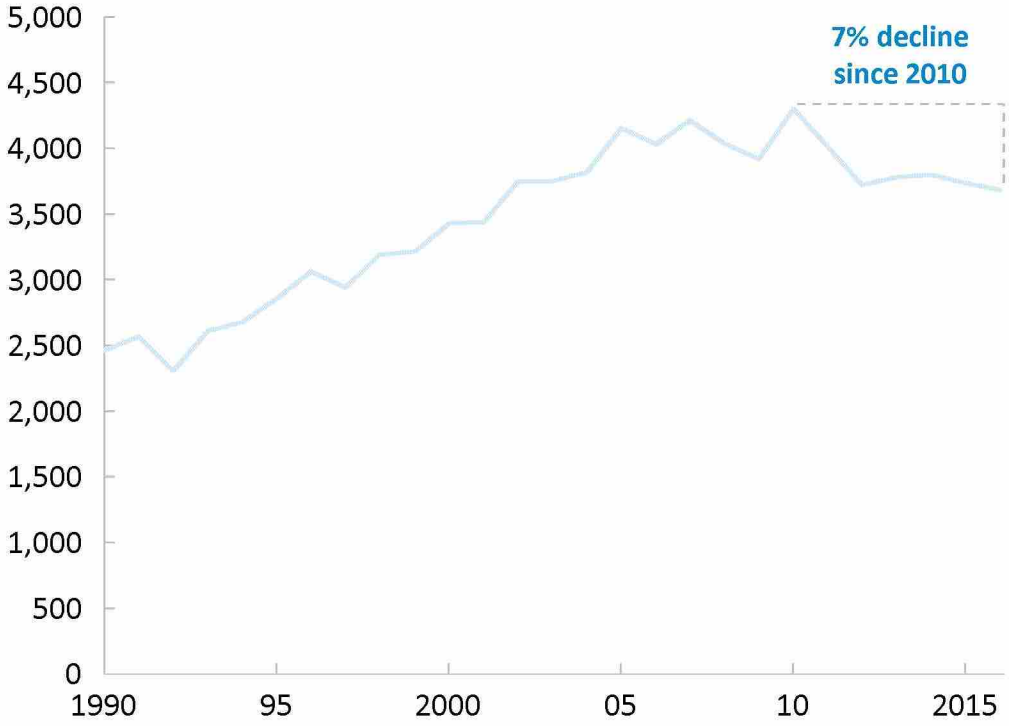
SOURCE: EIA RECS 2015 and CBECS 2012, Pathways database

2 National residential trends highlight declining use per capita after peaking in 2010

U.S. annual residential electricity sales, Trillion kilowatt-hours



Residential electricity sales per capita, kilowatt-hours per persons



- Per-capita sales have declined since 2010, a trend which is forecast to continue
- These widespread efficiency gains are expected to drive further declines, even as electrification (e.g., of vehicles) increased demand

SOURCE: EIA

3 Customer needs will drive choice of DG system

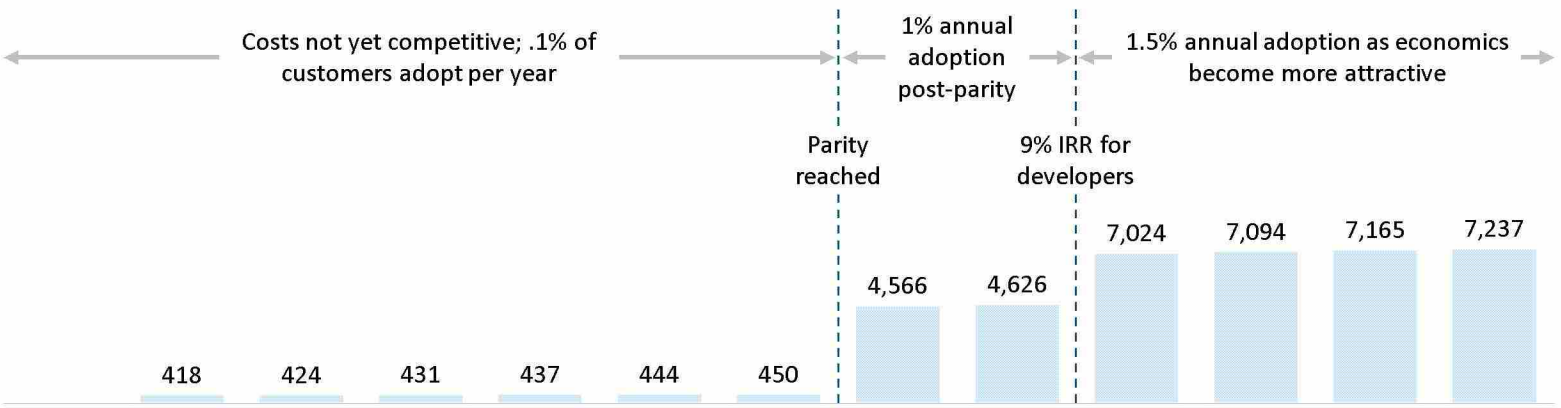
	% of total sales	Customer characteristics	Considerations for DG	DG system modelled
Residential	44	▪ Typical energy use: 1,000 kWh/month ▪ 69% single family homes ▪ 31% of homes built after 2000 (vs. 19% in US)	▪ Will consider solar DG once economic ▪ Typically generate more energy than consumed; storage needed to derive full value from solar ▪ Value attributed to backup power provided by storage	Solar plus storage
Commercial	33	▪ Average peak demand < 1000 kW ▪ Peak demand typically occurs midday ▪ Largest customers include retail chain operators and campuses	▪ Will consider solar DG once economic, with short payback period ▪ Will consider third-party installation in exchange for reduced electricity costs ▪ Energy needs typically too large for solar to fully offset; storage consideration typically separate	Solar alone
Industrial	22	▪ Average peak demand > 1000 kW ▪ Peak demand varies ▪ Largest customers include factories and hospitals	▪ Will consider solar DG once economic, with short payback period; lower electric rates make solar economics poorer[1] ▪ CHP may be economical for some customers with opportunity to increase operational efficiency (e.g., coincident heat and power loads) ▪ Customers are unlikely to build out full DG for resilience	Solar alone CHP

1 Industrial customers adoption solar receive standby rate

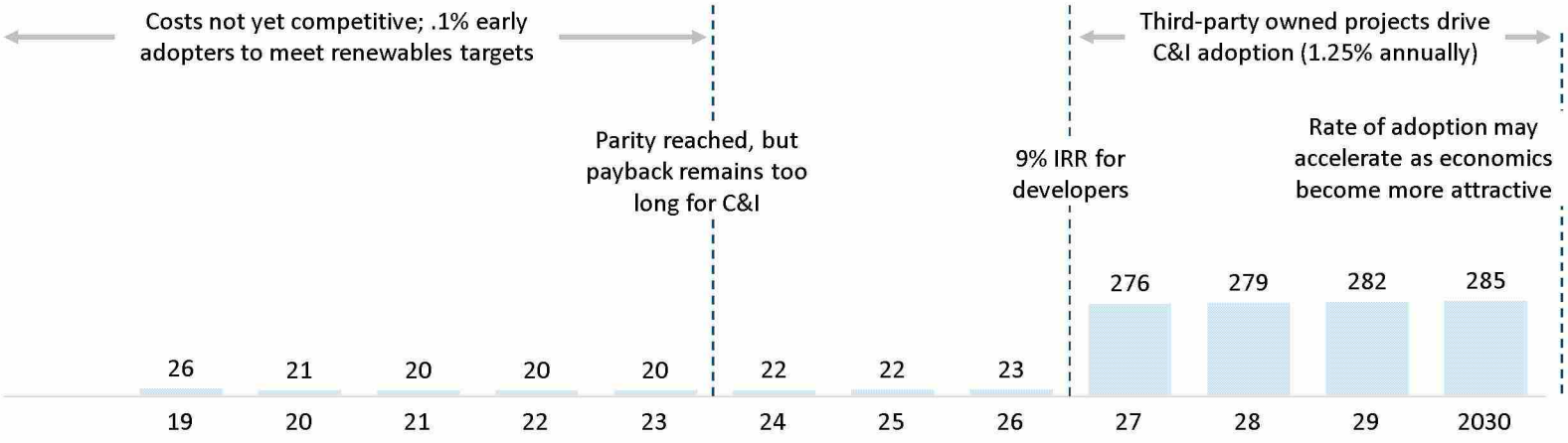
SOURCE: Solar cost model, SEIA

3 Solar adoption rates accelerate as economics improve for stakeholders

New residential solar + storage customers, # of customers



New commercial & industrial solar customers, # of customers

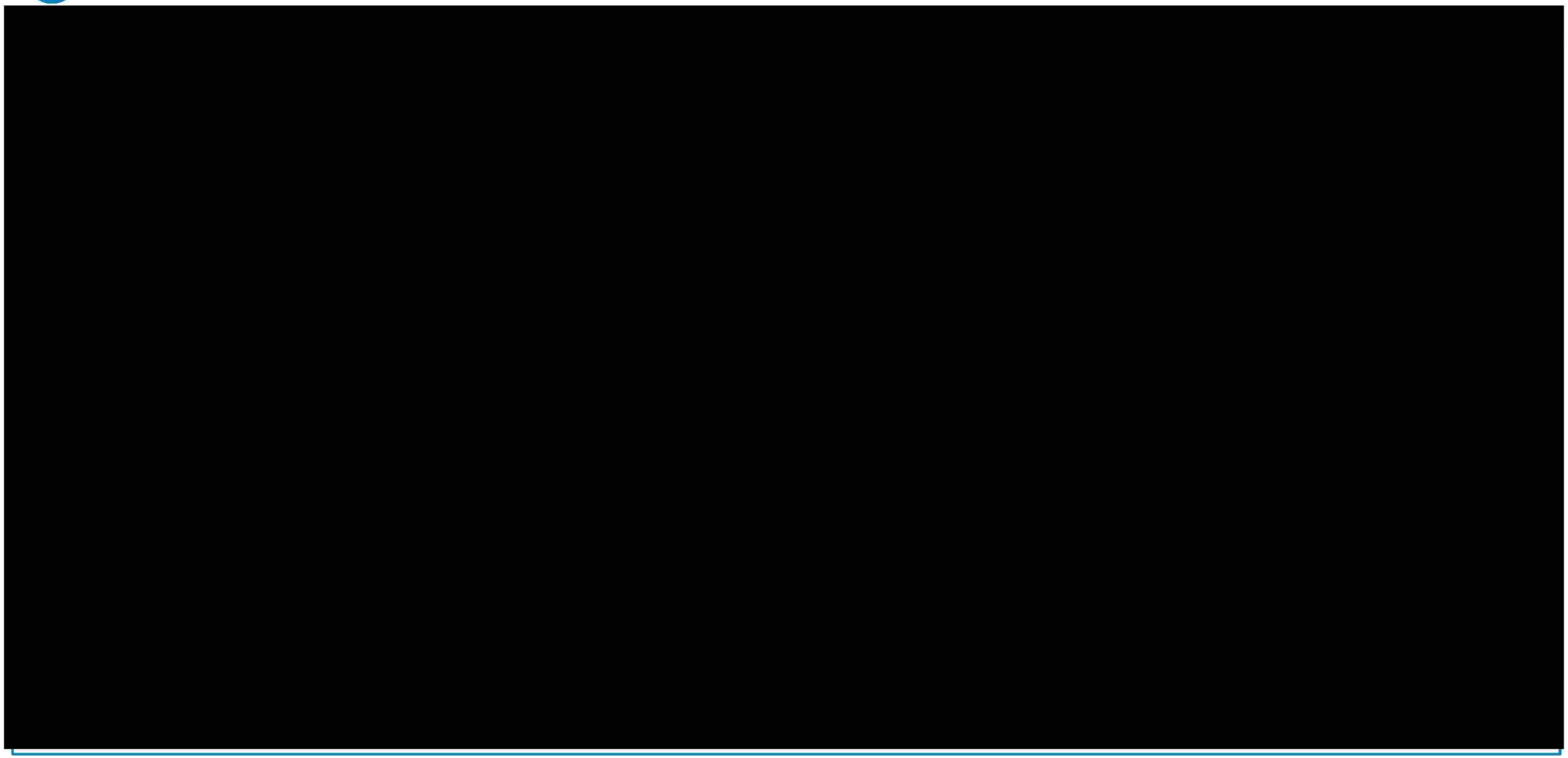


- Uptake is expected to increase as economics become viable for various stakeholders (e.g., system owners, developers)
- Rates of adoption are also expected to increase as parties become familiar with markets and are able to achieve better economics (e.g., lower risk, lower cost, potential for higher electricity prices)
- These trends will continue beyond the forecast period as some features become standard parts of upgrades and new homes (e.g., solar rooftops, mandated solar for new homes in California)

1 x

SOURCE: Sigrin and Drury, Diffusion into New Markets: Economic Returns Required by Households to Adopt Rooftop Photovoltaics, NREL

3 Battery and solar price trends and forecasts



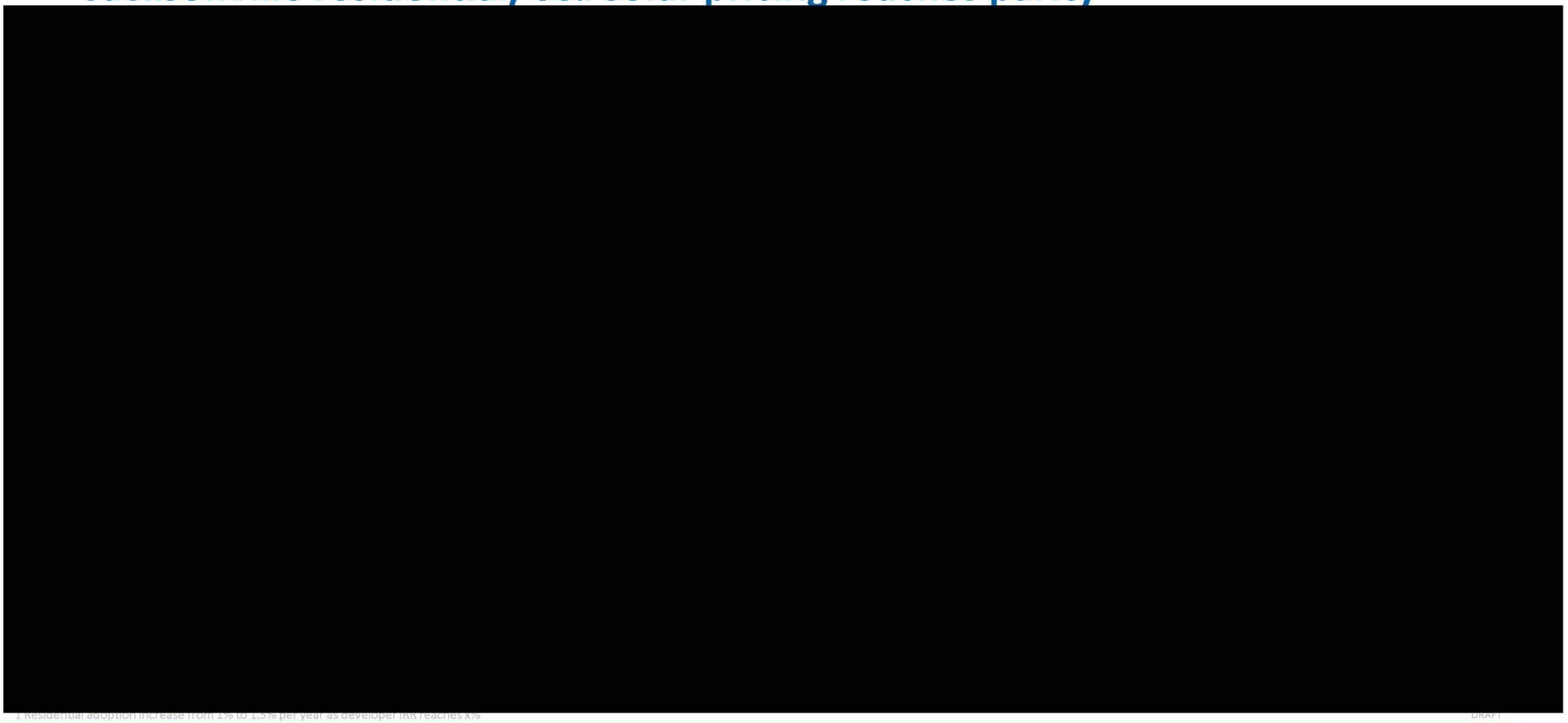
SOURCE: PV pricing trends: historical, recent, and near-term projections, DOE; BNEF; SNE research; Navigant; Avicenne Energy; Berstein; Battery Model (2018), NREL PV system pricing trends

3 Residential DG is attractive for homeowners whereas commercial is attractive for 3rd party developers

[redacted]

SOURCE: PV pricing trends: historical, recent, and near-term projections, DOE; BNEF; SNE research; Navigant; Avicenne Energy; Berstein; Battery Model (2017)

3 Countrywide trends provide indication of potential uptake after Jacksonville residential/C&I solar pricing reaches parity



1 Residential adoption increase from 1% to 1.5% per year as developer IRR reaches x%

SOURCE: GTM, EIA

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4 CHP economics for a generalized JEA industrial customer are not compelling, consistent with recent US installation history

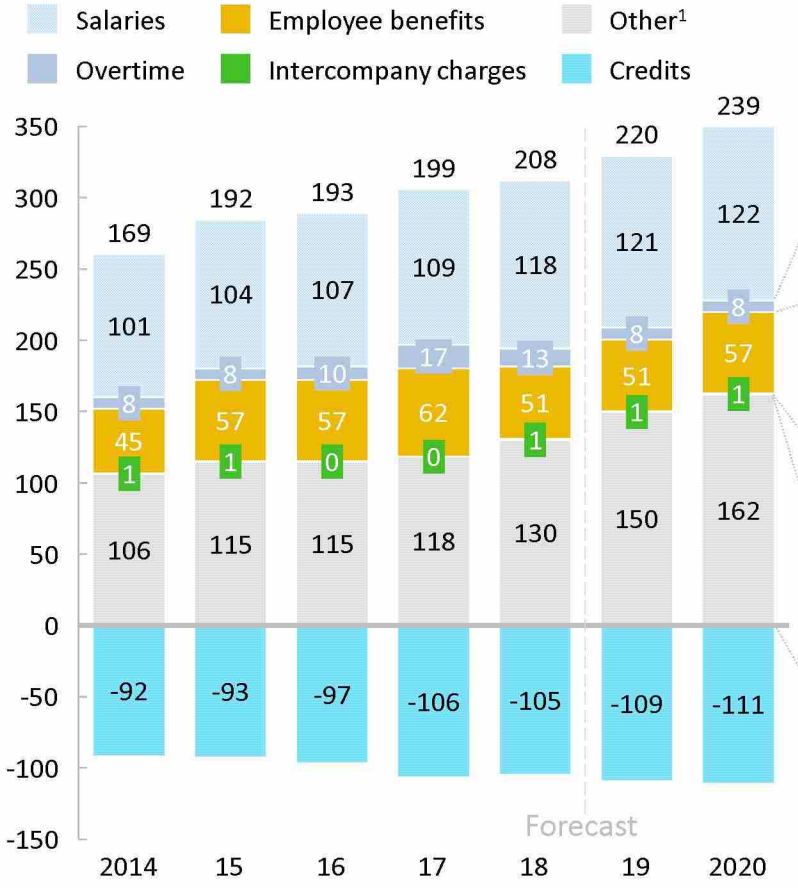
SOURCE: ICF, ACEEE, JEA, GTM

5 30k EVs expected in in JEAs territory by 2030 based on EV modeling and penetration today

SOURCE: Federal Reserve income per capita data; Automotive practice TCO-based forecasting models, Florida Highway Safety and Motor Vehicles , Internal forecasts

6 Energy opex breakdown and assumptions

Yearly energy opex breakdown, $M



CAGR 2014-20 and drivers

2.8%	8% increase in 2018 (CBA)
0.2%	Storm recovery Increase 2017-18
3.3%	Reduction in pension liability 2018 Increased health care costs throughout
12%	Fluctuates throughout period
6.2%	10-15% growth 17-18 and 18-19 due to outages, professional services incl legal, contractors
2.7%	Increase in 2017 due to storm recovery capital work

CAGR 2021-2030 and assumptions

5%	Recent average historical growth (18-20)
5%	Tracks with salary growth
6%	Tracks with salary growth with 1% adder to account for healthcare costs
10%	Historical growth (using 2012-20)
4%	2012-18 historical growth (outsized outage impact 2019-20)
6%	Tracks with salary and benefits growth

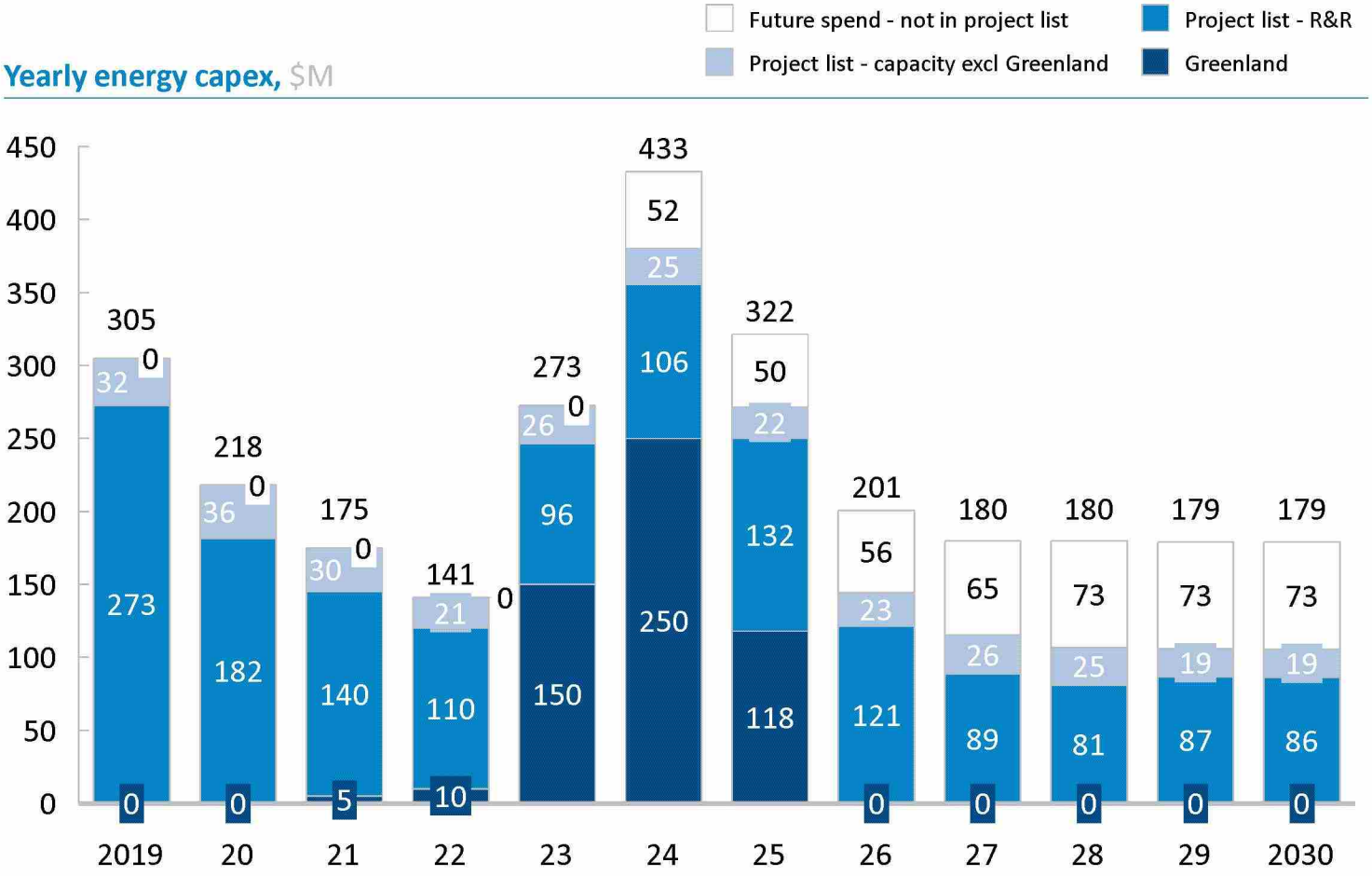
1 Interest, contracts & contingencies, city services, other services & charges, materials & supplies

2 Expected to fall in line with historic trends (e.g., barring one-time events)

SOURCE: JEA

7 Energy capex breakdown and assumptions

Yearly energy capex, $M



Key assumptions:

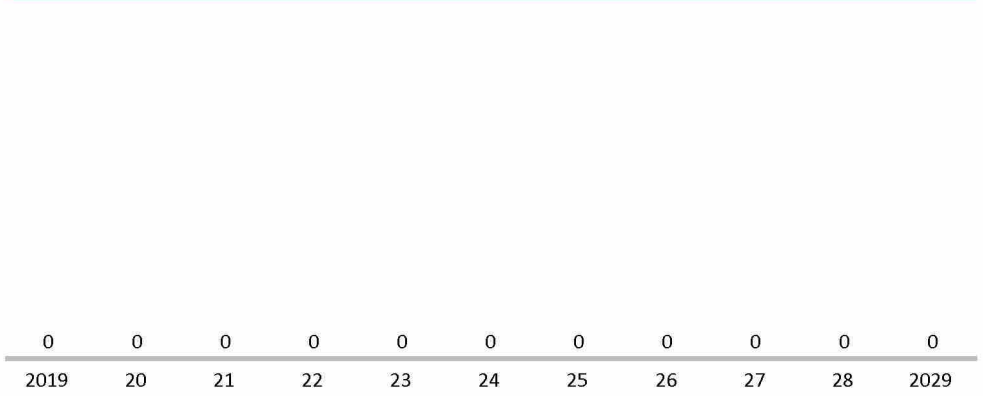
- Greenland CC replacement capacity project cost and schedule in line with IRP base case ($518M to be completed FY25)
- FY19-23 capacity and R&R spend based on current capital budget planning project list
- FY24-30 capacity and R&R spend based on current project list, with unspecified future spend added to bring each category in line with FY19-23 average
- Projects currently not on project list that could make up future spend include:
  - Resiliency / grid hardening investments
  - Grid modernization (e.g. AMS, remote monitoring and automation)
  - Communications infrastructure

SOURCE: JEA

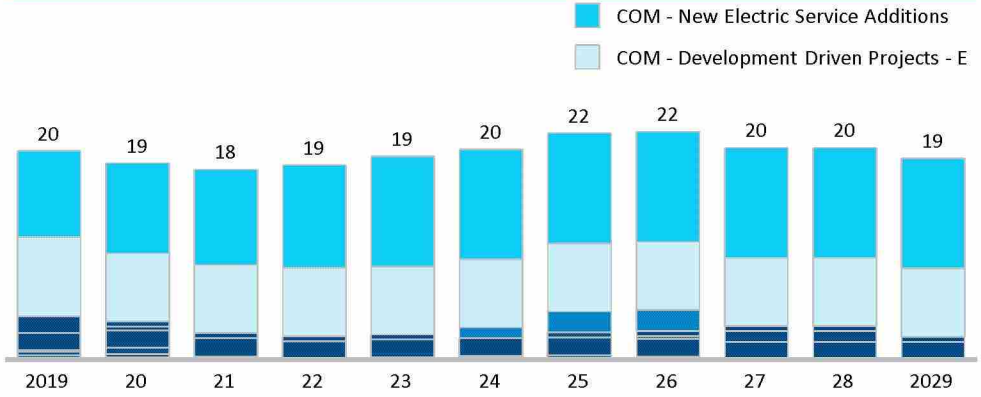
7 Breakdown of known capex spend: capacity

Large one-time project | Ongoing programs / spend | Smaller projects

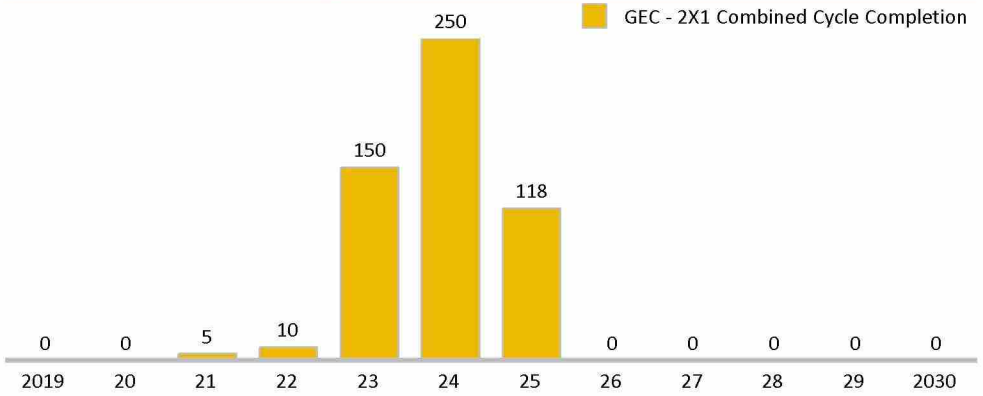
Electric Other – Capacity, top expenditures ($M)



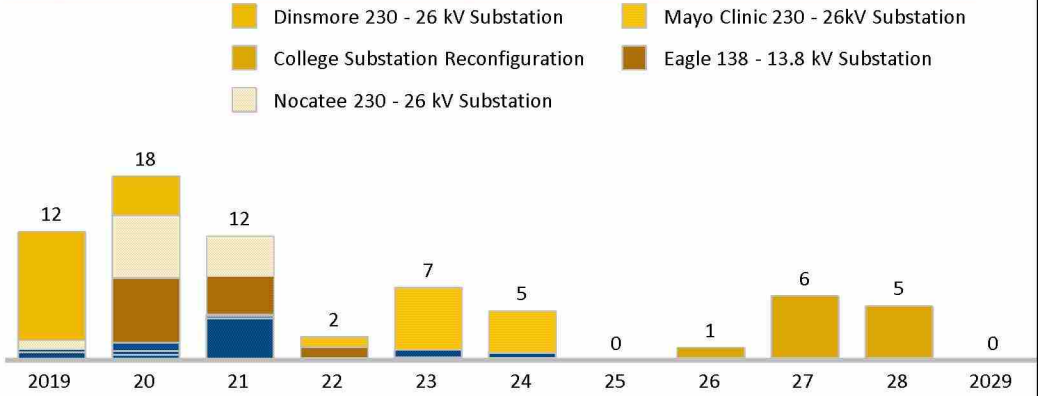
Electric Distribution – Capacity, top expenditures ($M)



Expanded Generation - Capacity, top expenditures ($M)



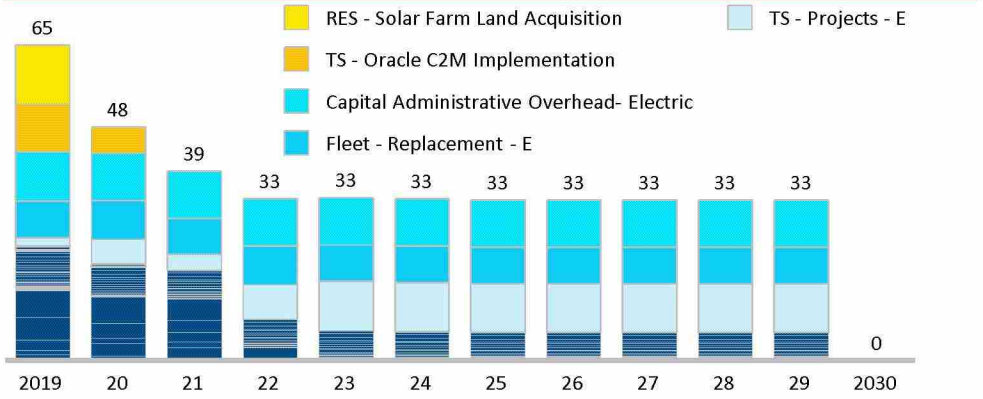
Electric System Substation 7 Transmission – Capacity, top expenditures ($M)



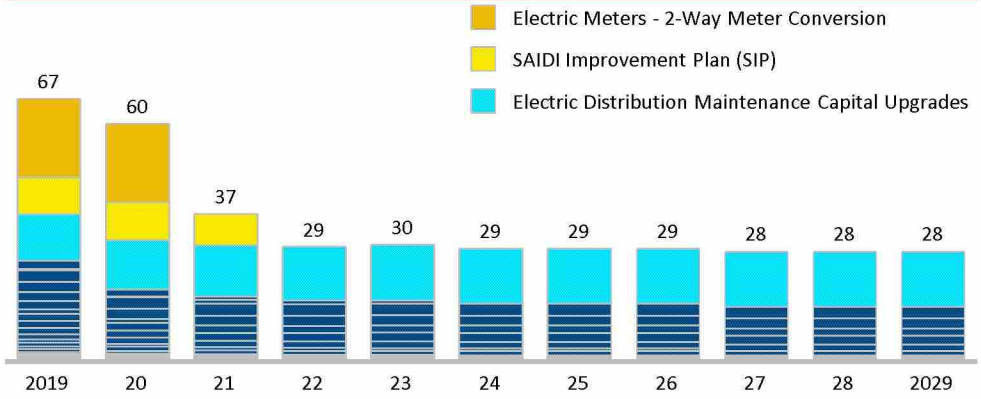
7 Breakdown of known capex spend: R&R

Large one-time project | Ongoing programs / spend | Smaller projects

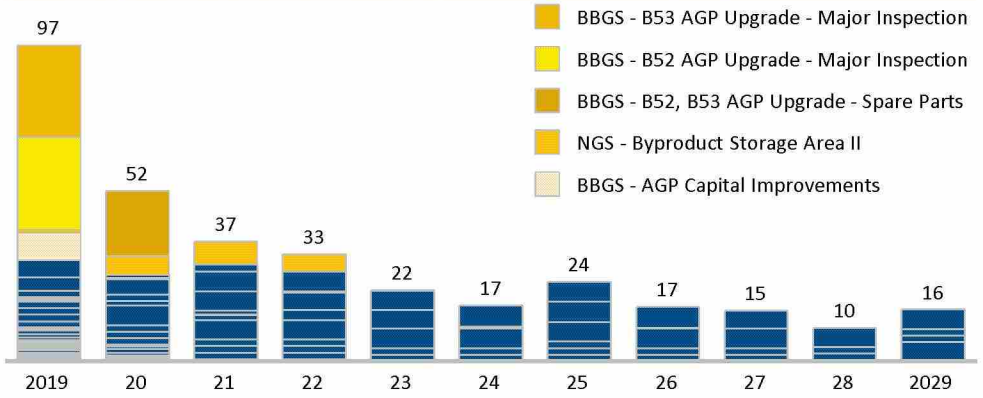
Electric Other – R&R, top expenditures ($M)[1]



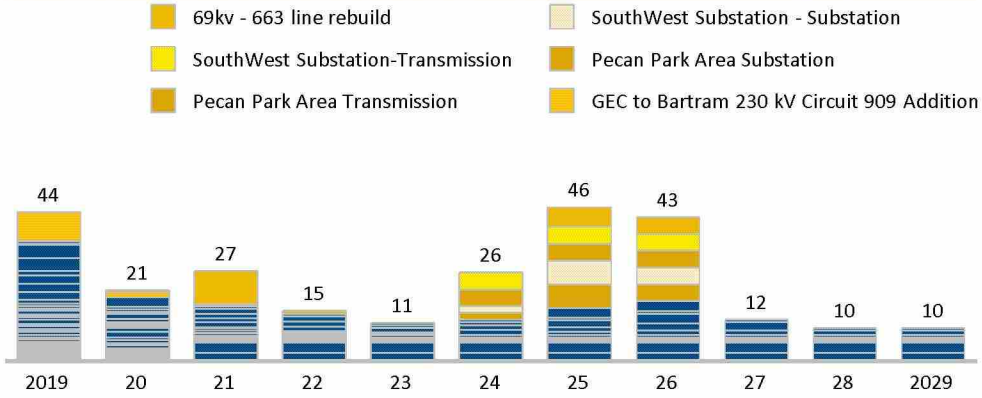
Electric Distribution – R&R, top expenditures ($M)



Electric System Generation – R&R, top expenditures ($M)



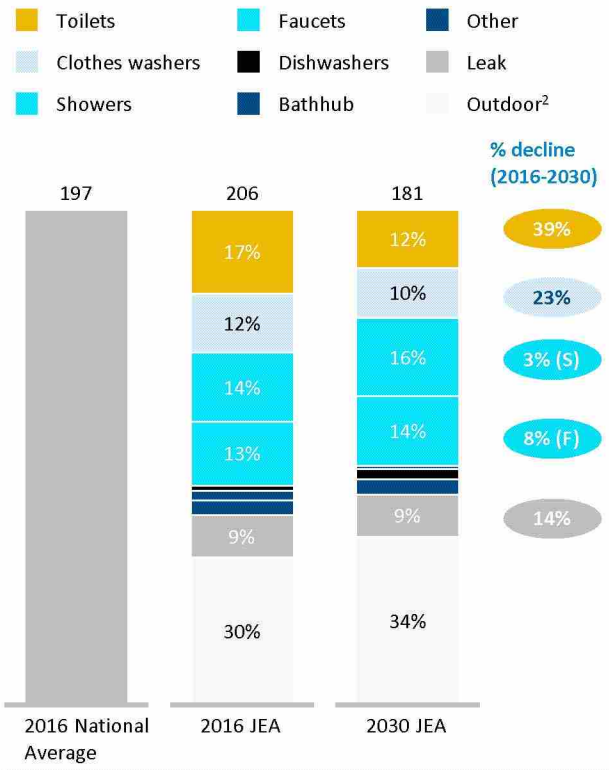
Electric Substation and Transmission – R&R, top expenditures ($M)



1 General Administration Office Building removed from energy forecast ($2, 33, and 15M in 2019 – 2021 respectively)

9 In the absence of action taken by JEA, water efficiency gains will continue to take place through replacement of indoor appliances

Average daily household use, gphd



Natural adoption of more efficient technology which meets standards will lead to significant efficiency gains

Main drivers	Relevant specifications
Toilets	Old = 3.5 gpf Efficient = 1.6 gpf V. Efficient = 1.28 gpf New efficiency standard effective in 1994
Clothes washers[1]	Old = 41 gpl Efficient = 22.4 gpl New efficiency standard effective in 2011
Showers/faucets	Old = 2.75 gpm Efficient = 2.5 gpm V. Efficient = 2 (shower) / 1.5 (faucet) gpm New efficiency standards effective in 1994
Dishwashers	Old = 14 gpc Efficient = 6.5 (standard) / 4.5 (compact) gpc V. Efficient = 5.8 (standard) / 4.0 (compact) gpc New efficiency standard effective in 2010
Additional	Outdoor remains constant Leak declines with tech and new home adoption

Appliance mix

1 Assumes standard washer to remain consistent with relative impact in report 2 Outdoor use assumed constant barring incentive or behavioral change

SOURCE: Handbook of Water Use and Conservation, Amy Vickers, May 2001; Residential End Uses of Water, Version 2, Water Research Foundation, 2016; EIA; NRDC

9 Drivers of water savings

New Regulatory Standards and Flows

Types of use	Pre-Regulatory Flow[1]	New Standard (maximum)	Federal Standard	Year effective	WaterSense/Energy Star Current Specification+
Toilets	3.5 gpf 	1.6 gpf	U.S. Energy Policy Act	1994	**1.28 gpf**
Clothes washers	41 gpl (14.6 WF)	~26.6 gpl (9.5 WF) 	Energy Independence and Security Act of 2007	2011	**~22.4 gpl (8.0 WF)**
Showers	2.75 gpm 	2.5 gpm at 80 psi 	U.S. Energy Policy Act	1994	**2.0 gpm at 20 psi**
Faucets	2.75 gpm 	2.5 gpm at 80 psi (1.5 gpm) 	U.S. Energy Policy Act	1994	**1.5 gpm at 60 psi**
Dishwashers	14.0 gpc 	6.5 gpc for standard; 4.5 gpc for compact 	Energy Independence and Security Act of 2007	2010	**5.8 gpc for standard; 4.0 gpc for compact**

Key

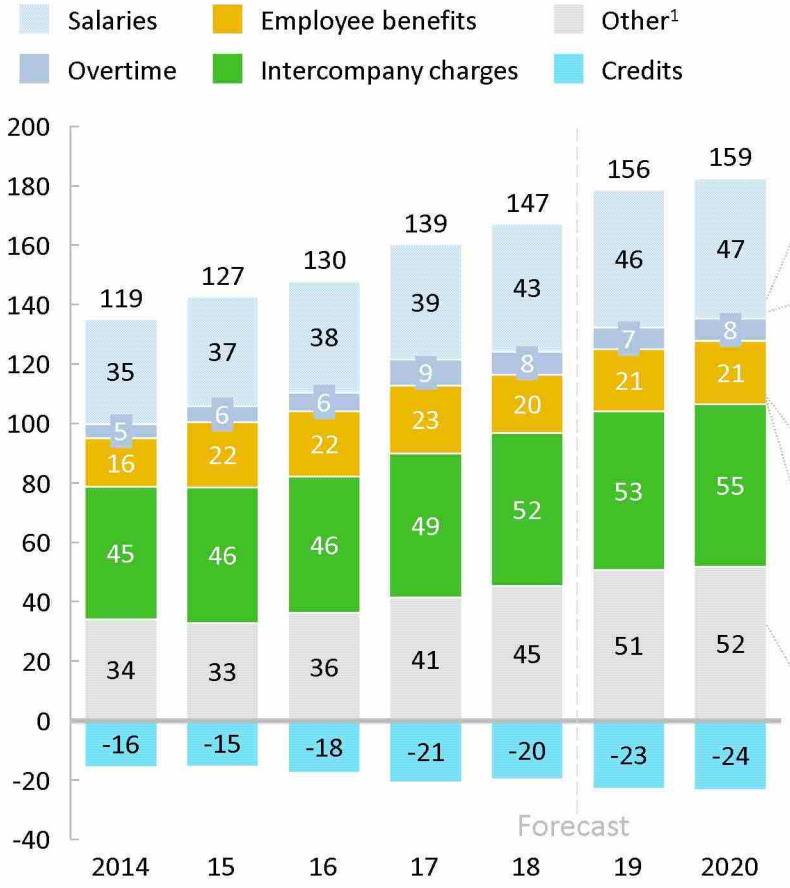
- Gpf: gallons per flush
- Gpl: gallons per load
- Gpc: gallons per cycle
- W.F: Water factor or gallons per cycle per cubic feet capacity of the washer

1 Average estimated gallons per load and water factor

Source: Handbook of Water Use and Conservation, Amy Vickers; WaterSense

10 Water opex breakdown and assumptions

Yearly energy opex breakdown, $M



CAGR 2014-20 and drivers

4.3%	▪ One-time increase 2018 (hiring) ▪ CBA negotiated XX-XX
6.6%	▪ Storm recovery Increase 2017 ▪ XX 2019-2020
3.8%	▪ Reduction in pension liability 2018 ▪ Increased health care costs throughout
3.0%	▪ Increased allocation starting 2017
6.1%	▪ 10+% growth 16-19 driven by increased professional services, supplemental workforce spend
6.0%	▪ xx

CAGR 2021-2030 and assumptions

5%	▪ Recent average historical growth (18-20)
5%	▪ Tracks with salary growth
6%	▪ Tracks with salary growth with 1% adder to account for healthcare costs
5%	▪ Historical growth (using 2012-20)
4%	▪ 2012-18 historical growth (outsized outage impact 2019-20)
6%	▪ Tracks with salary and benefits growth

1 Interest, contracts & contingencies, city services, other services & charges, materials & supplies

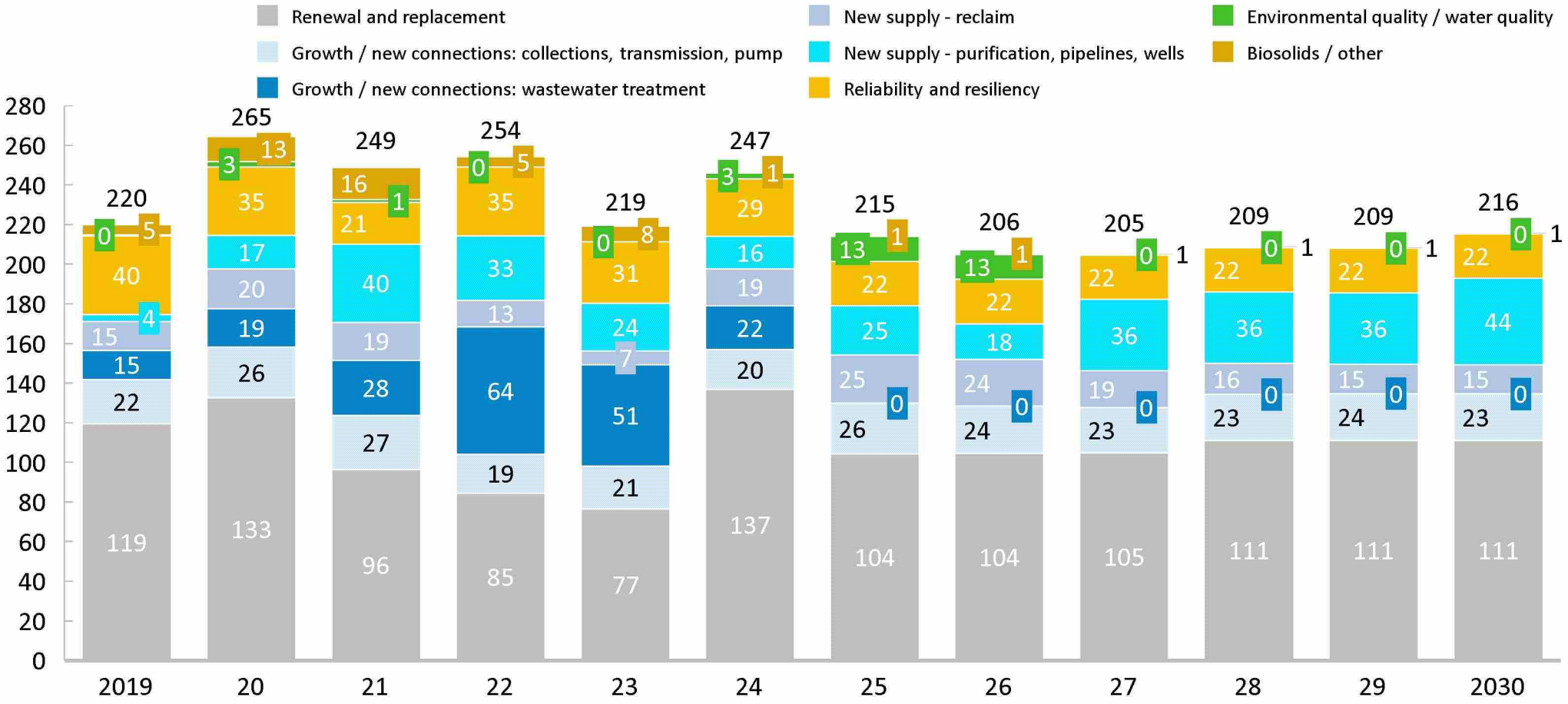
2 Expected to fall in line with historic trends (e.g., barring one-time events)

SOURCE: JEA

The following "Baseline Conversation" financial projections are presented solely for JEA Board of Directors planning and action. They are not a projection of future financial performance and, as such, should not be relied upon by present or prospective JEA bond investors to purchase or sell any security or to make an investment decision. The projections are merely a mathematical representation of a hypothetical case for change. Actual results are likely to differ materially from this business case. Use of this presentation not in its entirety could result in material financial harm to the company.

11 Water capex breakdown

Yearly water capex, $M



SOURCE: JEA

11 Water capex breakdown and assumptions

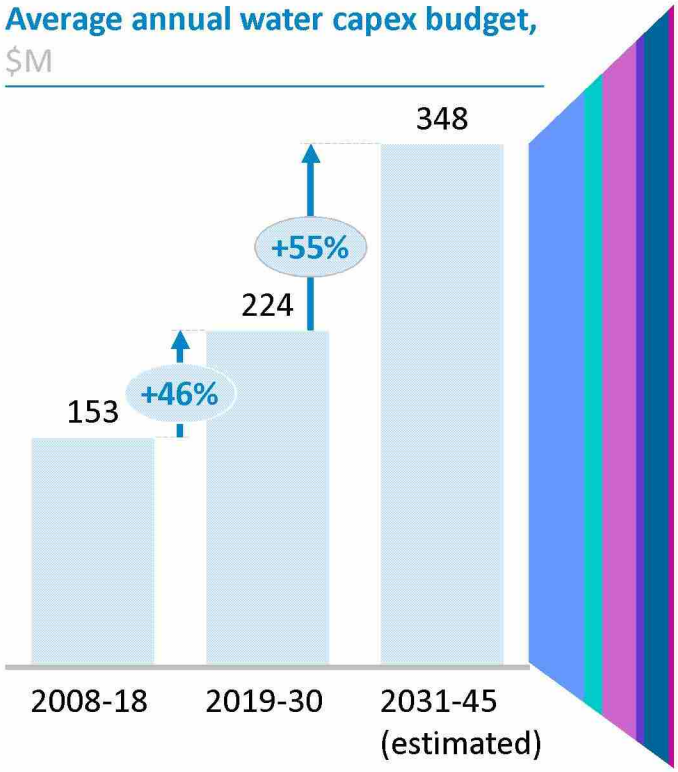
Category	2019-24 assumptions	2025-2030 assumptions	Total 2019-2030 spend, $M, % of total
Renewal and replacement	Project list categorized previously by Capital Budget Planning	Average yearly spend for 2019-24 assumed for all years	1,293 — 48%
Growth / new connections – wastewater treatment	Major expansions (Greenland, Southwest, Nassau)	No additional wastewater treatment expansion assumed needed	279 — 10%
Growth / new connections – collection, transmission, pump	Project list categorized by Capital Budget Planning	Average yearly spend for 2019-24 assumed for all years	199 — 7%
New supply – reclaim (including storage, new connections)	Project list categorized by capital budget planning	Project list from Planning added to forecast	205 — 8%
New supply – purification, pipelines, wells, other	TWMP, Rivertown, Nocatee South Water Repump; purified water phase 2 ($18/gal; 1MGD, FY20-22)	Purified water project (phase 3 = 10 MGD (FY25-30), $200M); 3rd River Crossing - $75M (FY30-34)	327 — 12%
Resiliency and reliability	Previously categorized by CBP	Average yearly spend for 2019-24 assumed for all years	325 — 12%
Environmental quality / water quality	Highlands Alternative Treatment project	Buckman BNR phase 2	32 — 1%
Biosolids and other	Buckman biosolids conversion upgrades and replacements	Buckman biosolids conversion upgrades and replacements	53 — 2%
			2,713

SOURCE: JEA

11 Post 2030 water capex needs

DIRECTIONAL COST ESTIMATES

Average annual water capex budget, $M



	Major system priorities	Potential spend 2031-45, $M
Centralization[1]	▪ Phase-out septic tanks in Duval County	2,000
Supply challenges[2]	▪ Proactively address supply challenges on South Grid	293
Growth and quality[3]	▪ Connect and serve new customers, while improving environmental quality of water treatment	698
Maintenance and resiliency[4]	▪ Maintain condition of existing infrastructure; improve resiliency to adverse events	2,223

Not funded

1 Estimate to provide services to 35 identified areas in Duval County
2 Includes 3rd river crossing ($92m, $8M funded in 2030) and 1 additional installment of phase 3 water purification at $200M per installment
3 Includes identified future ww treatment plants ($200m), ww treatment water quality improvement installations (10 installations at $15m each), normal course distribution / collections capacity expansion (assume same yearly spend as 2019-30)
4 Includes normal course R&R and resiliency (same yearly spend as 2019-30), expansion of large diameter pipe program to all pipes ($200m)

SOURCE: JEA