From: Sarah Brody <Sarah_Brody@mckinsey.com>
Sent: Thursday, March 7, 2019 9:10 PM
To: Zahn, Aaron F. - Managing Director/CEO
Cc: Anton Derkach; Aaron Bielenberg; Romero Aguero, Julio E. (Chief Inno. and Transformation Officer); Wannemacher, Ryan F. - Chief Financial Officer; Dykes, Melissa H. - President/COO; Crawford, Juli E. - Director Financial Planning & Analysis
Subject: RE: Mar 26 Board presentation

Team,

Our risk / legal team has reviewed the current draft of the Board document, and we have made some minor updates according to their suggestions. Please see attached for the updated version. One recommendation they made was to make sure all slides have a source. We were able to do that for every slide except the Jacksonville off-grid house slide, so would recommend that be attributed when you finalize.

Juli, could you please make sure David Goldberg has this version of the presentation for his communications edits?

Thanks,
Sarah

From: Zahn, Aaron F. - Managing Director/CEO <zahnaf@jea.com>
Sent: Wednesday, March 6, 2019 11:36 AM
To: Sarah Brody <Sarah_Brody@mckinsey.com>
Cc: Anton Derkach <anton_derkach@mckinsey.com>; Aaron Bielenberg <Aaron_Bielenberg@mckinsey.com>; Romero Aguero, Julio E. (Chief Inno. and Transformation Officer) <romeje@jea.com>; Wannemacher, Ryan F. - Chief Financial Officer <wannrf@jea.com>; Dykes, Melissa H. - President/COO <dykemh@jea.com>
Subject: [EXT]RE: Mar 26 Board presentation

Yes. That works. Thanks.

Aaron Zahn
Managing Director & Chief Executive Officer
Direct: (904) 665-4396
Mobile: (312) 286-1040
Fax: (904) 665-4238
Email: zahnaf@jea.com

From: Sarah Brody <Sarah_Brody@mckinsey.com>
Sent: Wednesday, March 6, 2019 9:22 AM

To: Zahn, Aaron F. - Managing Director/CEO <zahnaf@jea.com>
Cc: Anton Derkach <anton_derkach@mckinsey.com>; Aaron Bielenberg <Aaron_Bielenberg@mckinsey.com>; Romero Aguero, Julio E. (Chief Inno. and Transformation Officer) <romeje@jea.com>; Wannemacher, Ryan F. - Chief Financial Officer <wannrf@jea.com>; Dykes, Melissa H. - President/COO <dykemh@jea.com>
Subject: RE: Mar 26 Board presentation

Thanks Aaron, that makes sense. Attached is the draft presentation I would run by our legal team, knowing that there may be some changes in communication. If there are other slides we've shared with you and the SLT that you would want to include in the public presentation as assumptions backup, please let me know so we can run those by our team as well.

Sarah

From: Zahn, Aaron F. - Managing Director/CEO <zahnaf@jea.com>
Sent: Wednesday, March 6, 2019 8:59 AM
To: Sarah Brody <Sarah_Brody@mckinsey.com>
Cc: Anton Derkach <anton_derkach@mckinsey.com>; Aaron Bielenberg <Aaron_Bielenberg@mckinsey.com>; Romero Aguero, Julio E. (Chief Inno. and Transformation Officer) <romeje@jea.com>; Wannemacher, Ryan F. - Chief Financial Officer <wannrf@jea.com>; Dykes, Melissa H. - President/COO <dykemh@jea.com>
Subject: [EXT]RE: Mar 26 Board presentation

Sarah –
It would seem to me that the "Status Quo" case is locked now that we have the entire SLT consensus. Therefore, it would be appropriate for McKinsey to obtain risk / legal review at this time. Only changes on that case going forward will be around how to convey the message most clearly and concisely.
Thanks.

Aaron Zahn
Managing Director & Chief Executive Officer
Direct: (904) 665-4396
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Fax: (904) 665-4238
Email: zahnaf@jea.com

From: Sarah Brody <Sarah_Brody@mckinsey.com>
Sent: Tuesday, March 5, 2019 3:58 PM
To: Zahn, Aaron F. - Managing Director/CEO <zahnaf@jea.com>
Cc: Anton Derkach <anton_derkach@mckinsey.com>; Aaron Bielenberg <Aaron_Bielenberg@mckinsey.com>
Subject: Mar 26 Board presentation

Hi Aaron,

I talked with Juli about the Mar 26 Board presentation today, and she mentioned that you wanted to include some of the assumptions pages we have shared with the SLT. When you have a chance, can we walk through what you'd like to share if the idea is to include it as backup in the presentation? We will need to run by our risk / legal team since the presentation will be posted publicly on JEA's website.

Thanks,
Sarah

Sarah R. Brody, Ph.D
McKinsey & Company
Email: Sarah_Brody@mckinsey.com | Mobile: +1-202-247-1448

This email is confidential and may be privileged. If you have received it in error, please notify us immediately and then delete it. Please do not copy it, disclose its contents or use it for any purpose.
+==========+

Florida has a very broad Public Records Law. Virtually all written communications to or from State and Local Officials and employees are public records available to the public and media upon request. Any email sent to or from JEA's system may be considered a public record and subject to disclosure under Florida's Public Records Laws. Any information deemed confidential and exempt from Florida's Public Records Laws should be clearly marked. Under Florida law, e-mail addresses are public records. If you do not want your e-mail address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact JEA by phone or in writing.
+==========+
This email is confidential and may be privileged. If you have received it in error, please notify us immediately and then delete it. Please do not copy it, disclose its contents or use it for any purpose.
+==========+

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

August 8, 2005

Energy Policy Act of 2005

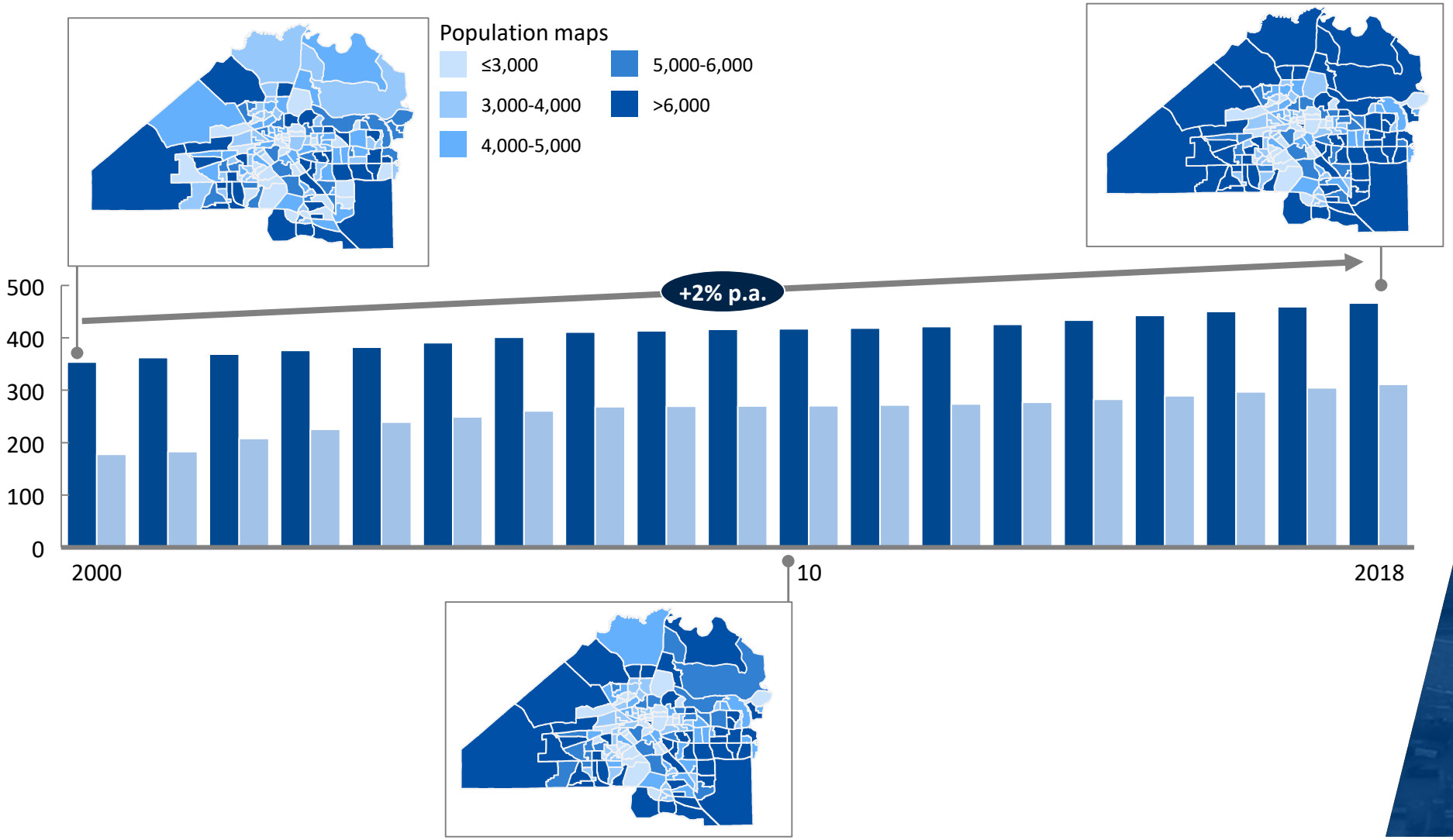
Energy Efficiency - 2000’s technology trend

- Tax incentives for energy efficiency technology
- Exempted fluids used in gas fracking from Clean Air Act, Clean Water Act, Safe Drinking Water Act, and CERCLA
- Additional incentives for solar, wind and renewables

SOURCE: EPA

Since 2000, JEA has added the city of Tallahassee to its customer load…

Customer growth, thousand electric customers



JEA has increased its electric customer base by **112,000 customers** since 2000 – equivalent to the city of Tallahassee's utility customer base (121,000 customers)

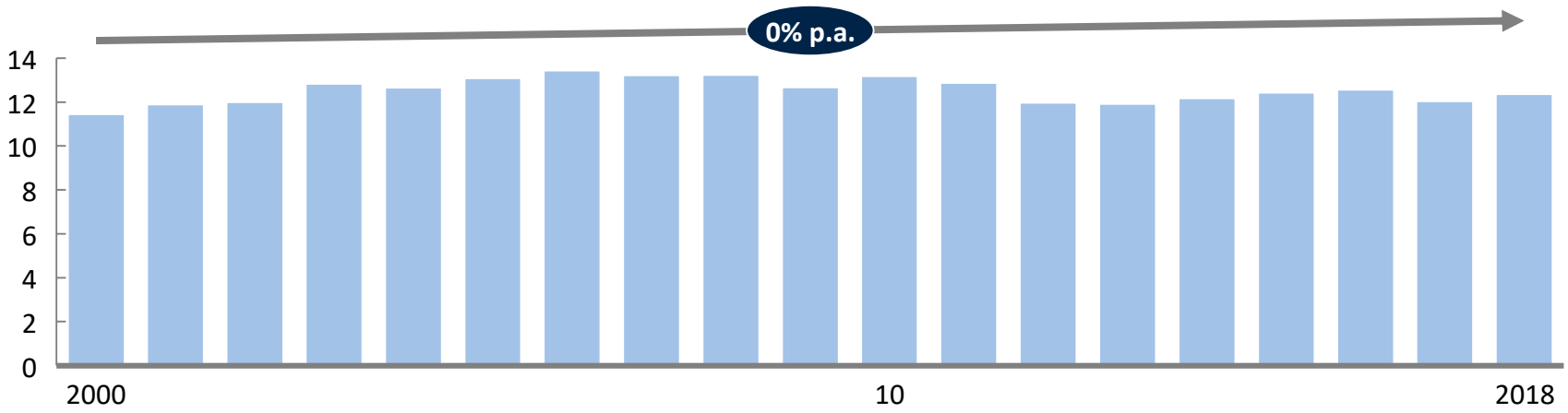
Water has increased even faster (3% annual customer growth)

1 Based on distribution capacity spend per customer (7-10k new customers annually, $18-20M in distribution capacity spending)

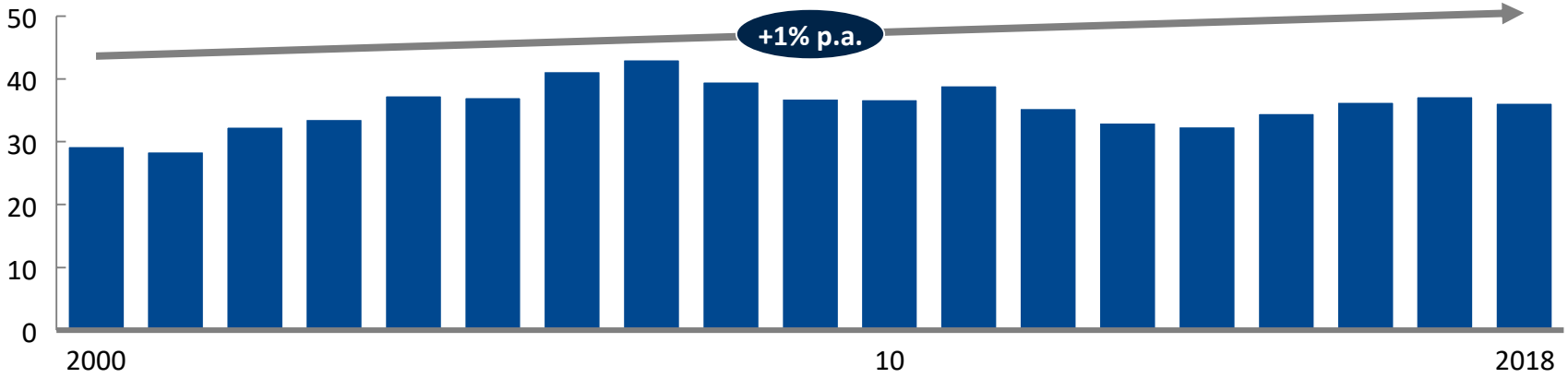
SOURCE: JEA annual reports, Experian, US Census data

…Without changing energy sales

Energy sales, million MWh



Water sales, M kGal



Energy sales have remained flat, and have declined since 2007

Each new customer adds **~$2,500** in energy capital costs and **$100-200** / year in ongoing operating costs[1], contributing to rising costs

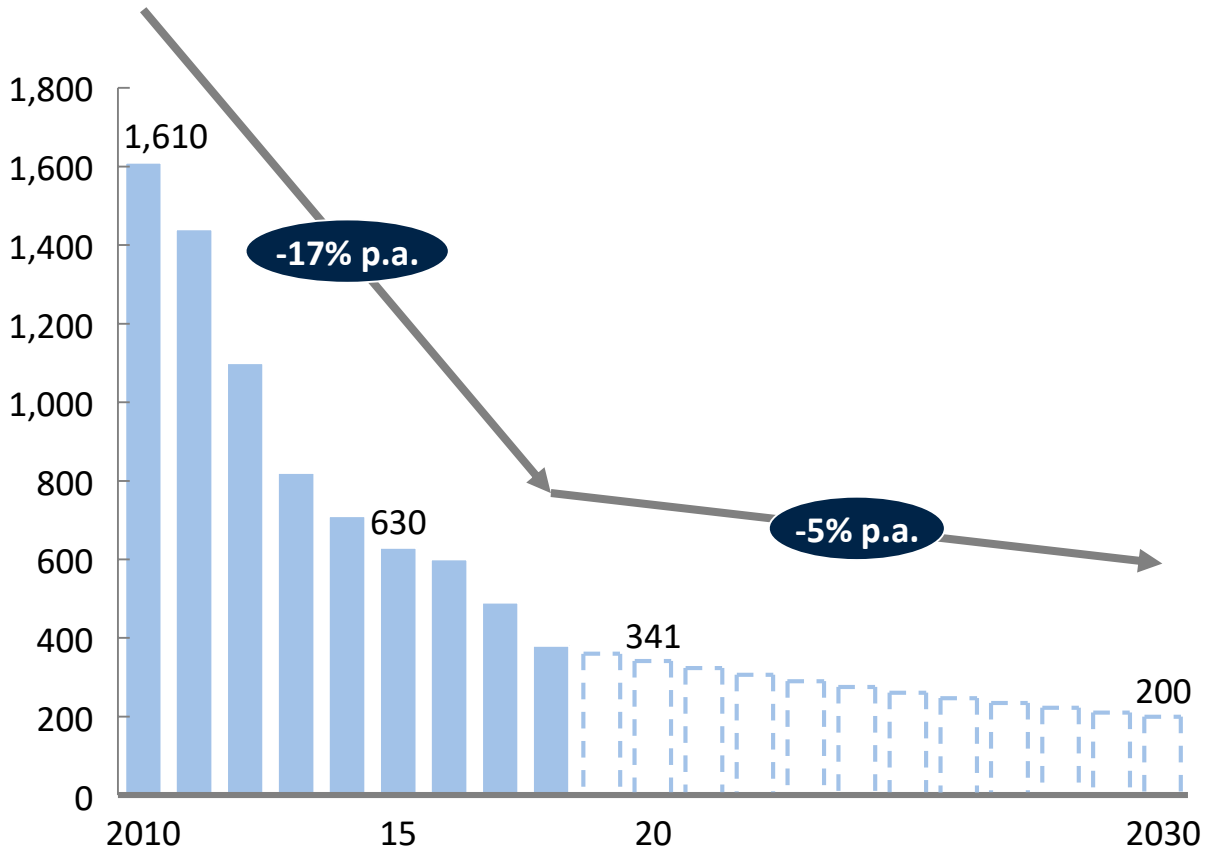
Water sales have been affected by weather, water efficiency, and customer behavior, but have sustained growth

1 Based on distribution capacity spend per customer (7-10k new customers annually, $18-20M in distribution capacity spending) and additional materials & supplies spend / new customer

Distributed Generation (2010's tech trend)

- Solar growth increasing in JEA territory 67% CAGR since FY 14
- >$2.5MM of Net Income lost to distributed generation annually

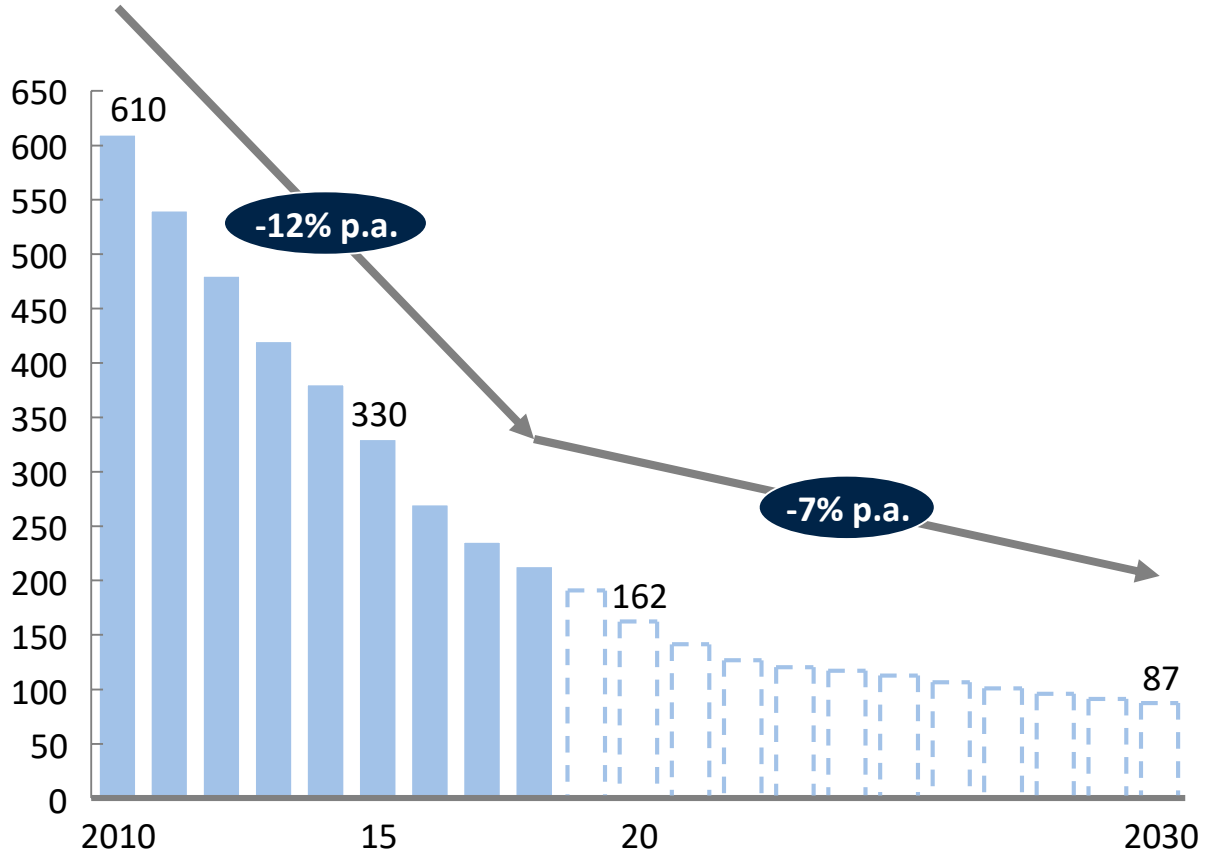
Solar module pricing, $/kW



Distributed Storage & iDER (2020's tech trend)

- Similar cost / performance trends to DG
- DG + Storage will be at cost parity with utility by ~2025

Li-ion battery pack costs, $/kWh



DRAFT 12/9/2020

SOURCE: PV pricing trends: historical, recent, and near-term projections, DOE; NREL PV system pricing trends; 2018 storage cost forecast model

February 6, 2019

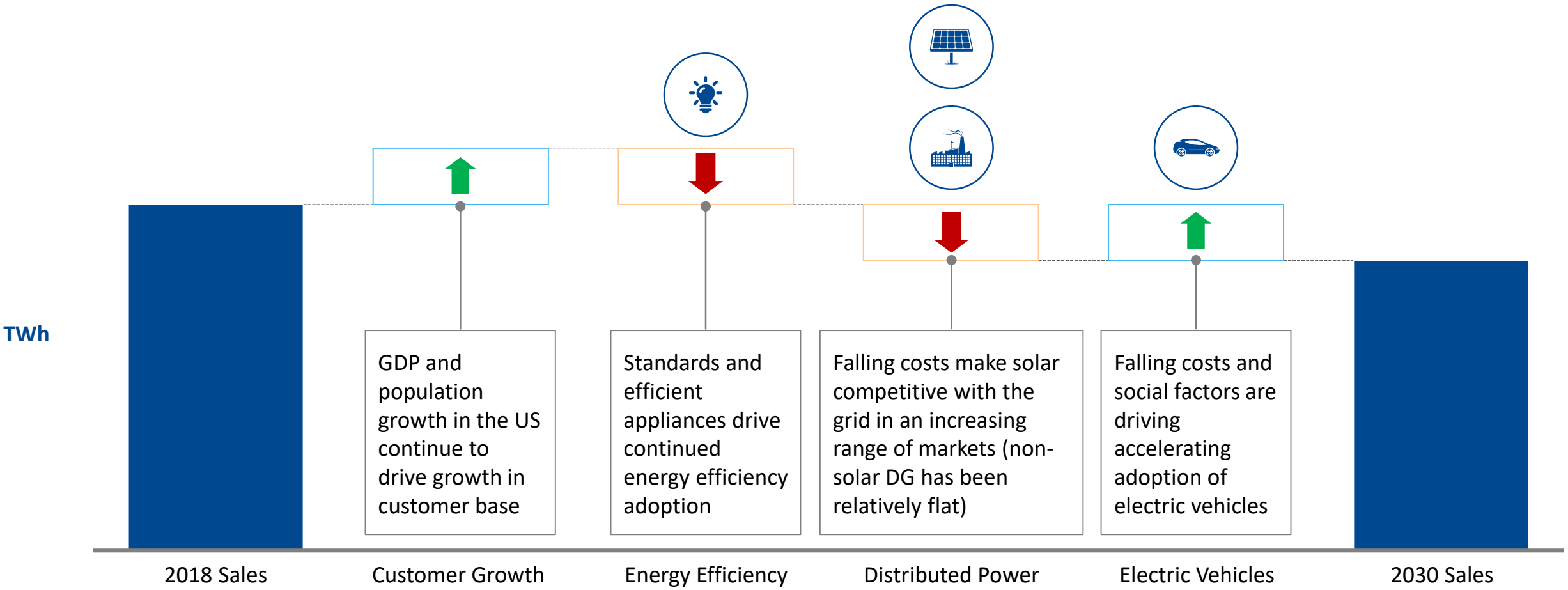
Southside Jacksonville

- Built 1993
- 1,900 sq ft
- 3 bedrooms
- 2 bathrooms

- Estimated value: $250,000

National trends may likely impact JEA substantially by 2030

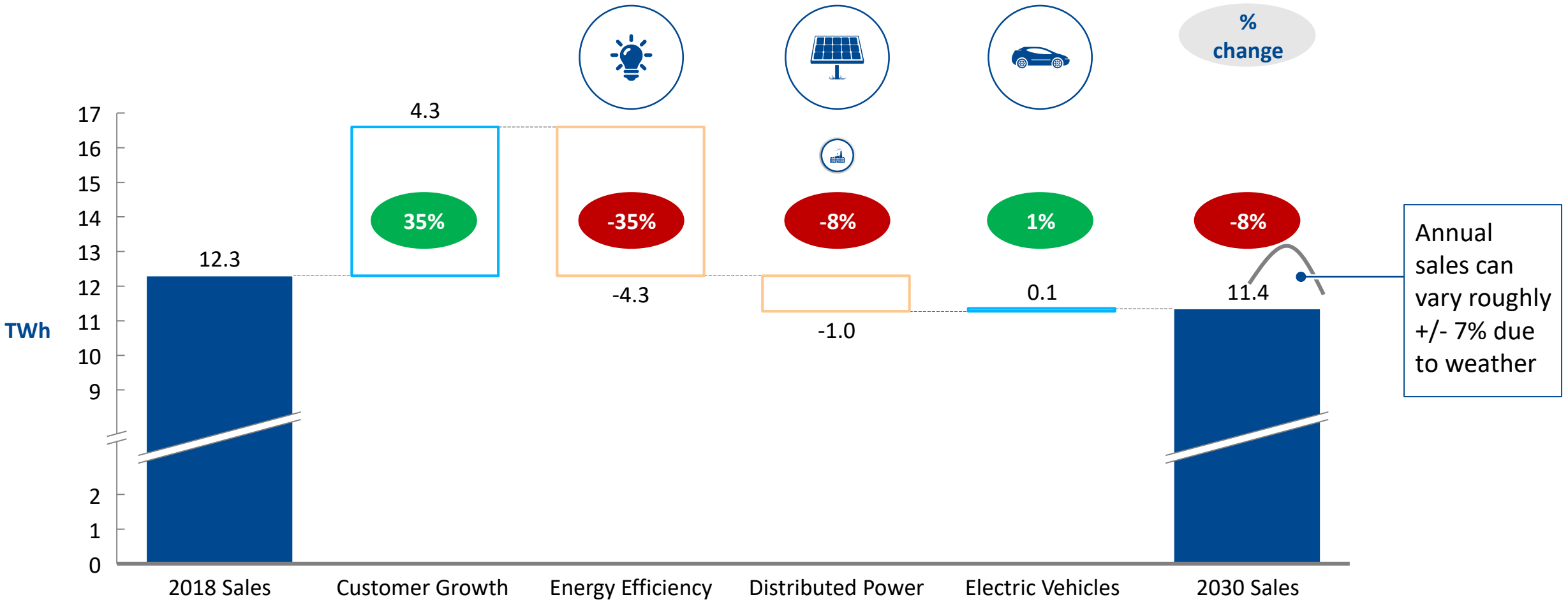
2030 JEA energy sales drivers



SOURCE: Moody’s, JEA forecasts, EPA, GTM, 2018 Storage cost model, 2018 EV growth model

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

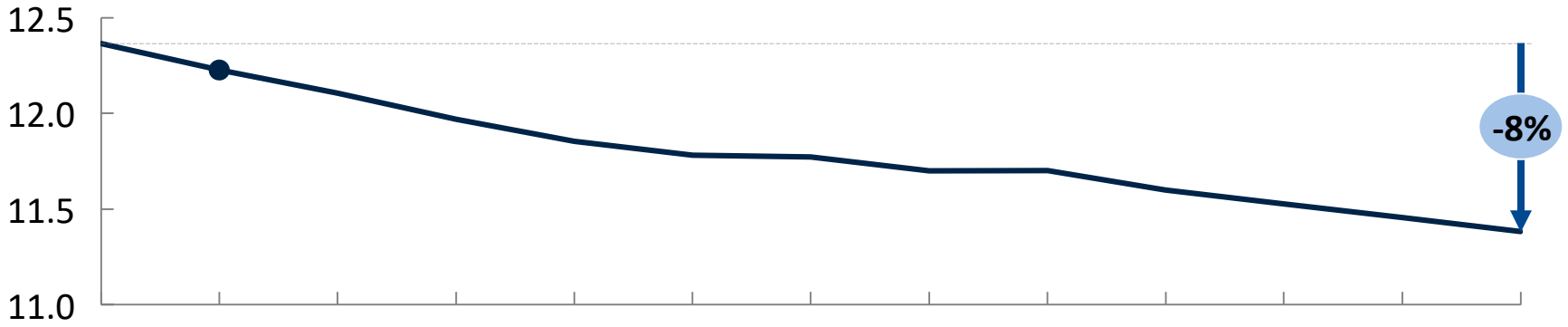
2030 JEA projected energy sales, TWh



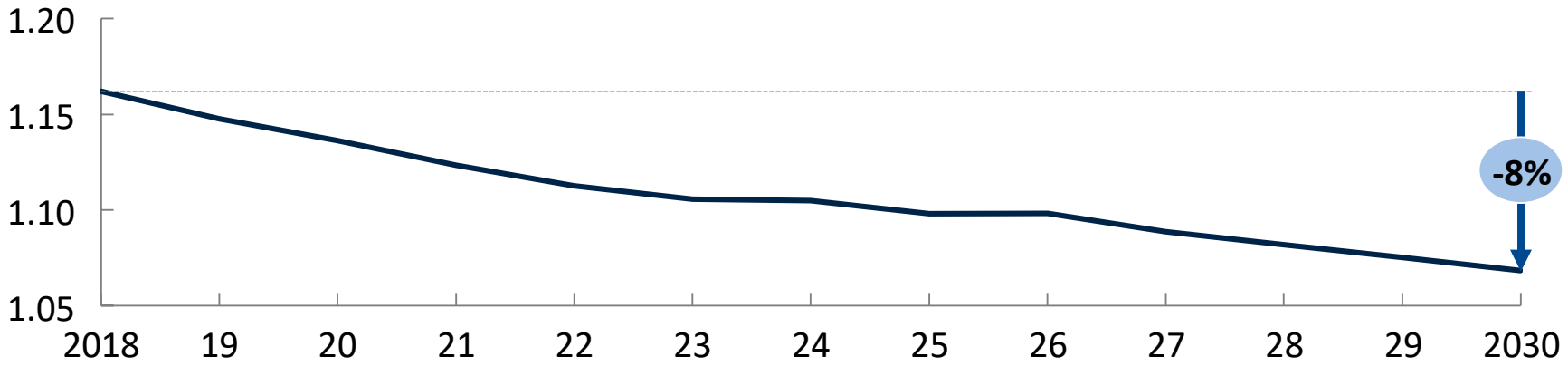
SOURCE: Moody's, JEA forecasts, EPA, GTM, 2018 Storage cost model, 2018 EV growth model

Because of JEA's current energy rate structure, lower sales lead directly to lower revenues

Sales, MWh



Revenue, $B

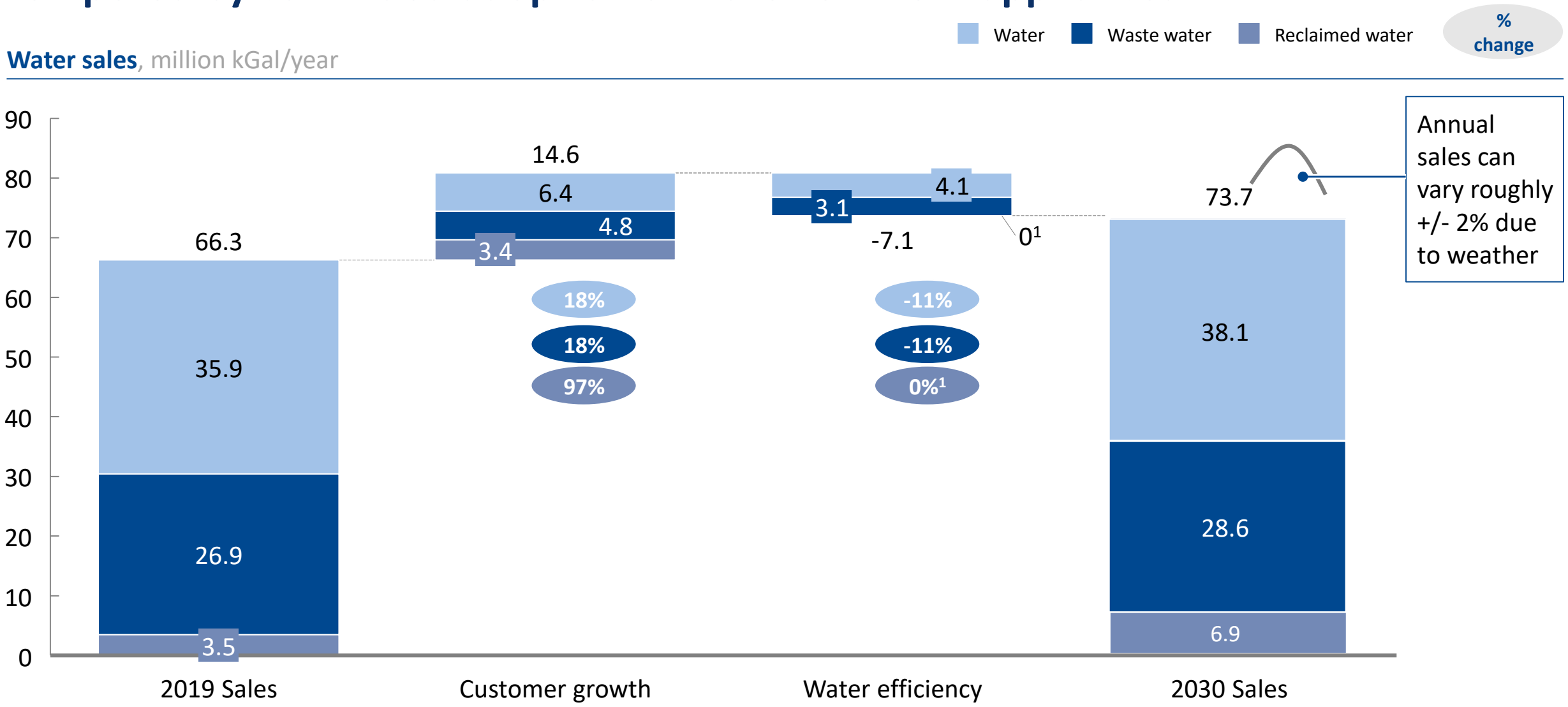


- 87% of energy revenues come from variable (per kWh) charges, meaning a decline in sales leads directly to a decline in revenue
- Of this 87%, only 35% of variable revenue is tied to variable costs (fuel charges) which decline in proportion to lost revenue

SOURCE: JEA forecast

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

Water sales, million kGal/year



1 No change as water efficiency applies to indoor use water

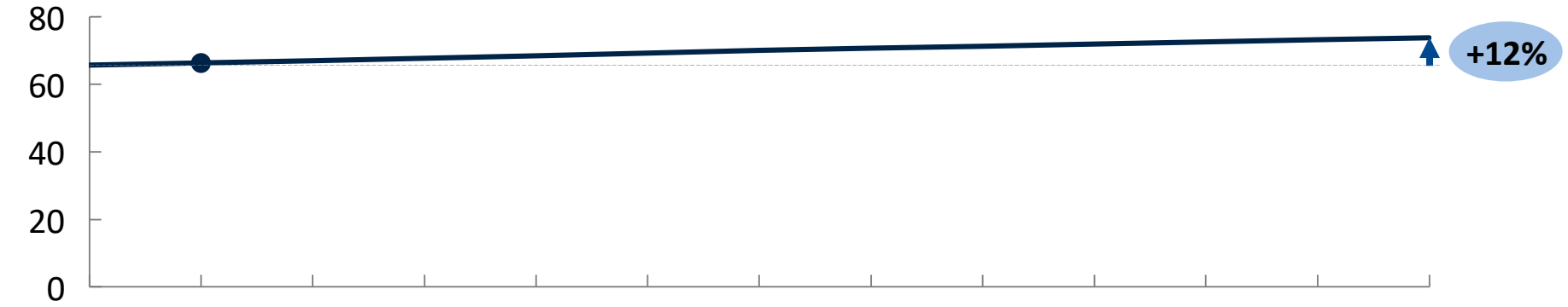
DRAFT 12/9/2020

SOURCE: JEA forecast

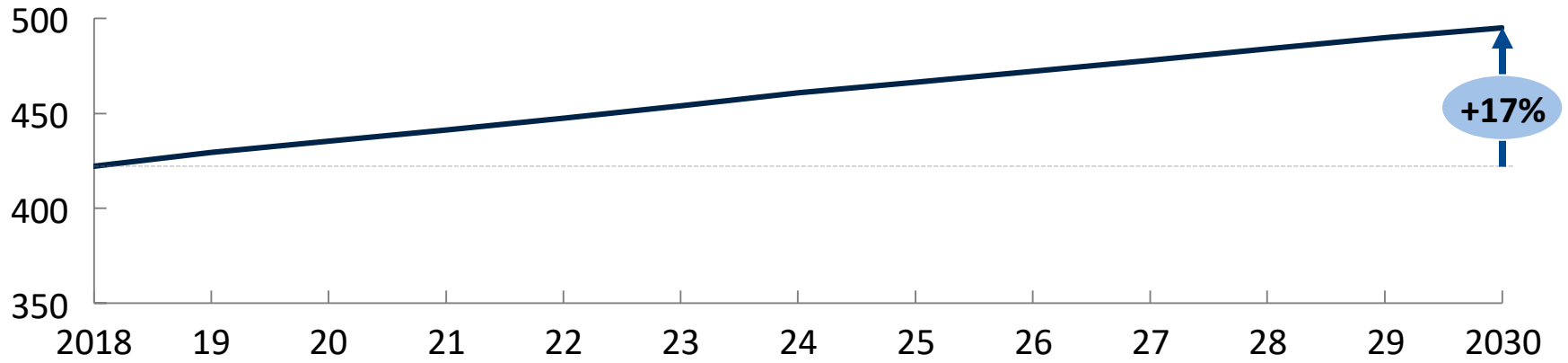
Water rate structures allow revenue to grow even faster than sales

@Sarah: do we want 2031 on here?

Sales, MWh



Revenue, $, thousands

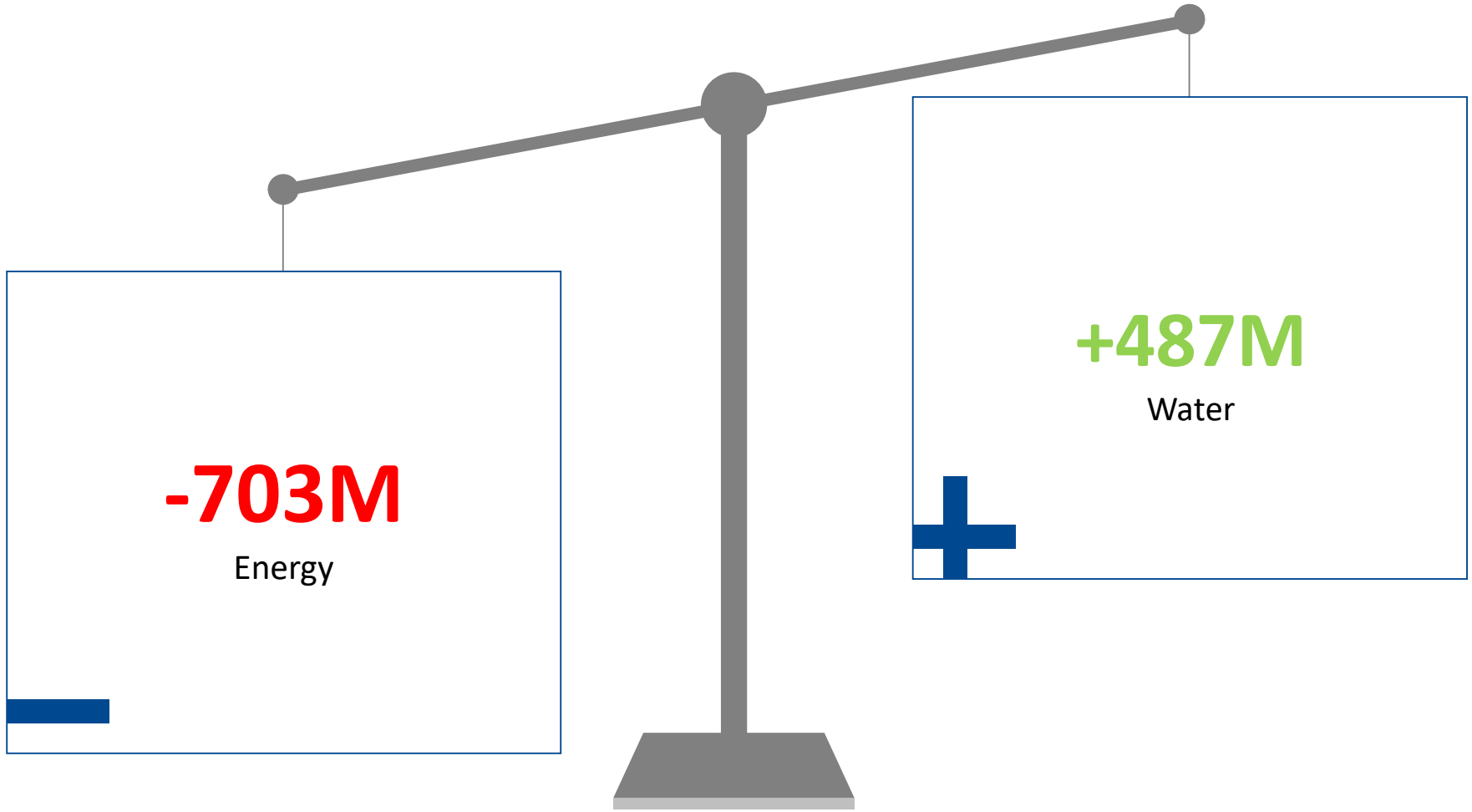


- 43% of water / wastewater revenue comes from a fixed monthly charge, which increases with each customer JEA adds to the system
- Sales growth is affected by water efficiency and declining use per customer, but this only affects the variable portion of JEA's water / wastewater revenue
- This rate structure keeps revenues stable and lessens the impact of declining customer use

SOURCE: JEA forecast

Over the period, energy revenue loss may likely outpace water / ww revenue gain

Cumulative revenue loss / gain over 2019-30 compared with 2018, $M



- Over the 10 year period, revenue losses from energy outpace revenue gains from water by over $200M – and this imbalance will only grow past 2030
- Water's comparative growth cannot be counted on to keep JEA financially healthy – the time is now to think about new solutions and new ways of measuring the business

SOURCE: JEA forecast

New metrics are needed to measure JEA financial performance in an era of flat to declining sales on the energy side

From…

"How much does it cost to produce product?"

Example metrics:

- Cost per MWh
- Cost per kgal

Why it's problematic:

- Unit costs give a good indictor of one aspect of financial performance, but taken in isolation can be affected by large swings in production outside of JEA's control (e.g. due to weather)
- Cost is only part of JEA's financial picture – changes in revenue need to be accounted for as well

To

"How can we sustain financial health of the businesses?"

Example metrics

- Earnings per customer
- Free cash flow
- Revenue per customer
- Revenue at risk per customer

Why it makes sense

- Earnings show a more complete view of financial health – for example, JEA could still be healthy if costs decline in line with revenues
- The per-customer view provides visibility into targeted strategies to improve financial health – for example, new revenue opportunities per customer
- Other industries provide examples of metrics JEA and other utilities can and should start measuring – telcos, for example, started measuring customer lifetime value in the era of deregulation and varied product offerings

What should the metric targets be? Are there other metrics we should be tracking?

DRAFT 12/9/2020

SOURCE: JEA

Additional detail on the telecom industry

Meant to be additional presenter talking points, not necessarily a slide in the final presentation

- Telco providers (e.g., AT&T, Verizon) have started to look at costs on a "per unit of production" basis, e.g., per minute, per GB, and revenue on a "per customer" or "per account" basis, rather than at an aggregate level, because of the increased actionability afforded by "per unit" metrics

- In terms of an overall picture, earnings per customer is sometimes used but customer lifetime value is far more popular – which essentially estimates all future customer cash flows discounted by the cost of capital – because it allows the business to factor in 2 components that are absolutely game-changing for telco providers: customer acquisition cost and churn propensity
  - The move to customer lifetime value and other customer-centric metrics is a result of both deregulation, which introduced customer choice, and proliferation of new technologies, which allowed telco provides to offer a diverse suite of products and contracts
  - Customer choice is not (yet) relevant for utilities in Florida, but the ability to offer a diverse set of products and services is gaining relevance

- Going forward, many telcos are aspiring to adopt metrics that taken an ROI view (e.g., revenue earned per dollar spent), but so far this has not yet become mainstream

SOURCE: expert interviews

Next steps

- How do the revenue projections shown here impact JEA financially:
  - If JEA operates no differently than it operates today?
  - If JEA takes all potential actions within its current charter agreement?
- Share findings in the May 28 Board meeting

Appendix

Energy Sales assumptions

		Key metric	2019	CAGR 2019-2030	2030	Source / rationale
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 ($)	60,476	3.7%	93,258	Moody's Duval county forecast
Energy efficiency		Residential efficiency (MWh/customer/yr)	12.5	-0.8%	11.3	Appliance-level adoption assumptions
		Commercial efficiency (MWh/customer/yr)	77.5	-1.0%	68.8	Appliance-level adoption assumptions
		Industrial efficiency (MWh/$M GDP)	57.8	-1.1%	50.4	JEA customer forecast
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
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
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

SOURCE: JEA, Moody's, Energy Efficiency model (2018), GTM, EPA, EIA RECS 2015, CBECS 2012, Pathways database, NREL,

Water Sales assumptions

	Key metric	2019	CAGR 2019-2030	2030	Source / rationale
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
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
Base rate	Base rate in 2019 ($/kGal)	Water: $4.65 / Sewer: $9.16 / Reclaim: $4.47			Calculation based on yield per product

1 Customer growth assumption applied as aggregate growth across classes

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