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Adam J. Teitzman
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

Re: Docket No. 20210015-EI - Petition for rate increase by Florida Power Light & Company.

Dear Mr. Teitzman,

On behalf of Intervenors Florida Rising, League of United Latin American Citizens of Florida, and Environmental Confederation of Southwest Florida, Inc., I have enclosed the testimony and exhibits of Karl R. Rábago. Please file these documents in Docket No. 20210015-EI. Please contact me if there are any questions regarding this filing.

/s/ Bradley Marshall

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy and correct copy of the foregoing was served on this 21st day of June 2021, via electronic mail on:

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DATED this 21st day of June 2021.

/s/ Bradley Marshall
Attorney

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for rate increase)
by Florida Power & Light) **DOCKET NO. 20210015-EI**
Company)

DIRECT TESTIMONY

OF KARL R. RÁBAGO

ON BEHALF OF

FLORIDA RISING, INC.,

**LEAGUE OF UNITED LATIN AMERICAN
CITIZENS OF FLORIDA,**

AND

**ENVIRONMENTAL CONFEDERATION
OF SOUTHWEST FLORIDA, INC.**

June 21, 2021

1 **I. INTRODUCTION AND OVERVIEW**

2 **Q. Please state your name, business name, and address.**

3 A. My name is Karl R. Rábago. I am the principal of Rábago Energy LLC, a Colorado
4 limited liability company, located at 2025 E. 24th Avenue, Denver, Colorado.

5 **Q. On whose behalf are you appearing in this proceeding?**

6 A. I appear here in my capacity as an expert witness on behalf of Florida Rising, Inc.
7 (“FL Rising”), the League of United Latin American Citizens of Florida (“LULAC”),
8 and the Environmental Confederation of Southwest Florida, Inc. (“ECOSWF”).

9 **Q. Please summarize your experience and expertise in the field of electric utility
10 regulation.**

11 A. I have worked for more than 30 years in the electricity industry and related fields. I
12 am actively involved in a wide range of electric utility issues across the United States.
13 My previous employment experience includes Commissioner with the Public Utility
14 Commission of Texas, Deputy Assistant Secretary with the U.S. Department of
15 Energy, Vice President with Austin Energy, Executive Director of the Pace Energy
16 and Climate Center, Managing Director with the Rocky Mountain Institute, and
17 Director with AES Corporation, among others. A detailed resume is attached as
18 Exhibit KRR-1.

19 **Q. Have you ever testified before the Florida Public Service Commission
20 (“Commission”) or other regulatory agencies?**

21 A. I have submitted testimony before the Commission in the past in several proceedings,
22 including the Florida Energy Efficiency and Conservation Act (“FEECA”)
23 proceedings in 2014 (Docket Nos. 130199-EI, 130200-EI, 130201-EI, and 130202-
24 EI), the Florida Power & Light need determination case for the Okeechobee Plant
25 (Docket No. 150166-EI), the Gulf Power general rate case in 2017 (Docket No.

1 160186-EI), and the Duke Energy Florida “clean energy connection” program
2 application (Docket No. 20200176-EI). In the past six years, I have submitted
3 testimony, comments, or presentations in proceedings in Alabama, Arkansas,
4 Arizona, California, Colorado, Connecticut, District of Columbia, Florida, Georgia,
5 Guam, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts,
6 Michigan, Minnesota, Mississippi, Missouri, Nevada, New Hampshire, New York,
7 North Carolina, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Vermont, Virginia,
8 Washington, and Wisconsin. I have also testified before the U.S. Congress and have
9 been a participant in comments and briefs filed at several federal agencies and courts.
10 A listing of my previous testimony is attached as Exhibit KRR-2.

11 **Q. What is the purpose of your testimony?**

12 A. The purpose of my testimony is to share my evaluation of the proposal for rate
13 increases, resource investments, plant retirements, and other requests submitted by
14 Florida Power and Light (“the Company”) in this proceeding. I will address several
15 ways in which the financial burdens and hardships that the Company seeks to impose
16 on its customers and the environment can be lessened to ensure fair, just, and
17 reasonable rates flow from this proceeding.

18 **Q. How would you characterize, at a high level, the Company’s proposals in this
19 proceeding?**

20 A. The Company proposes rate changes and other actions that unnecessarily,
21 unreasonably, and unjustly seek to enrich its stockholders at the expense of its
22 customers and the environment. The Company’s application proposes a four-year rate
23 plan covering the years 2022-2025 and includes proposals for nearly \$2 billion in
24 additions to base revenue requirements due to capital spending in 2022 and after
25 accounting adjustment results in \$1.1 billion in new revenue requirements.¹ The

1 Company further proposes to add another \$616 million in revenue requirement
2 related to capital spending and an additional \$607 million in net revenue requirement
3 increases in 2023. A major factor driving rate and cost increases, and proposed
4 shareholder profits, is an unreasonable request for an 11.5% return on equity (“ROE”)
5 and an equity ratio of over 59%, at a time when industry ROEs are trending below
6 10% and the cost of debt is very low. In several other ways, the Company proposes to
7 make itself a haven for overearning, including proposals for authority to continue to
8 manipulate amortization schedules in order to ensure continued maximum earned
9 ROE; for an unearned ROE bonus for “performance;” for a significant reduction in
10 the compensation paid for cost-effective demand response incentives; for a massive
11 transmission project that is called the “North Florida Resiliency Connection,” which
12 will cost customers nearly \$722 million dollars and mostly be used to transfer excess
13 FPL energy to newly acquired Gulf Power customers, but not to reduce the excessive
14 20% reserve margin in the Company’s service territory; for massive spending on
15 rebuilding the large-scale electric transmission system in general; and even for a
16 reduction in the inverted block rate increase for very high users of electricity.

17 **Q. What law and regulatory precedent guides the Commission decision in this**
18 **matter?**

19 A. Under Florida law,² no utility may charge or receive, directly or indirectly, any rate
20 that is unfair, unjust, or unreasonable. No utility may make or give any undue or
21 unreasonable preference or advantage to any person or locality or subject any person
22 to undue or unreasonable prejudice or disadvantage. In short, Florida law charges the
23 Commission with approving only those rates that are fair, reasonable, and just. In
24 setting rates, the Commission must investigate and determine the actual legitimate
25 costs of utility investments actually used and useful in the public service.

1 **Q. What specific elements of the Company’s proposals do you address in this**
2 **testimony?**

3 A. My testimony focuses on a few key issues of greatest significance to FL Rising,
4 ECOSWF, and LULAC. Those are proposals by the Company to increase rates and
5 charges that the organizations and their members will have to pay for electric service
6 over the term of the proposed rates. The issues addressed are:

- 7 • The proposed return on equity.
- 8 • The proposed capital structure, particularly equity ratio.
- 9 • The proposal for a return on equity increase based on “performance.”
- 10 • Key proposals for new capital spending, including proposals to charge customers
11 for uneconomic and retired generation, especially considering financial risk and
12 forecast data.
- 13 • The proposal to continue and accelerate investment in risky fossil-fueled
14 generation.
- 15 • The proposal to further weaken demand response program incentives.
- 16 • The proposal to charge customers nearly \$3 million each year for political speech
17 conducted by the Edison Electric Institute (“EEI”).

18 My testimony summarizes these issues with findings and conclusions that the
19 Company’s proposed rates, charges, spending, and other actions fail to satisfy the
20 requirement for being fair, just, and reasonable.

21 **Q. Company witness Silagy asserts that the Company is an above average utility**
22 **whose customers pay below average bills due to low rates and low costs.³ Doesn’t**
23 **this rebut your assertion that Company proposals in this proceeding will result**
24 **in rates that are unjust, unfair, and unreasonable?**

25 A. No. Witness Silagy relies on misleading statistical sleight of hand to support his

1 assertions about low Company bills. He consistently bases his assertions on the
 2 completely unrealistic and false assumption that the average customer for every
 3 utility uses an average 1,000 kWh per month.⁴ When corrected for actual average
 4 usage and using Energy Information Administration (“EIA”) data on revenue per
 5 customer in 2019, FPL’s performance in terms of residential customer bills is
 6 decidedly below average when compared to other large investor-owned utilities.

7 **Table 1: Residential Rate Comparison**
 8 *Source: EIA Form EIA-861 Report (2019 data)*

Residential TCC-5	Revenue (\$/kWh) <i>EIA Rev Data</i>	Avg Monthly Use <i>EIA Data</i>	Monthly "Bill" (Rev/Cust/Mo) <i>Calculated</i>
Public Svc Co of Colorado	\$ 0.1109	614	\$ 68
Commonwealth Edison	\$ 0.1330	583	\$ 78
Niagara Mohawk	\$ 0.1254	624	\$ 78
Northern States Power - Minn	\$ 0.1362	615	\$ 84
Southern Calif Edison	\$ 0.1621	573	\$ 93
Public Svc Gas & Elec	\$ 0.1670	560	\$ 94
Consolidated Edison	\$ 0.2530	372	\$ 94
San Diego Gas & Elec	\$ 0.2578	384	\$ 99
Detroit Edison	\$ 0.1611	627	\$ 101
Consumers Energy	\$ 0.1585	646	\$ 102
Union Electric	\$ 0.1038	1057	\$ 110
Pacific Gas & Elec	\$ 0.2235	528	\$ 118
Florida Power & Light	\$ 0.1103	1119	\$ 123
Georgia Pwr	\$ 0.1210	1050	\$ 127
Duke Energy - SC	\$ 0.1148	1108	\$ 127
Duke Energy - NC	\$ 0.1183	1101	\$ 130
Arizona Public Svc	\$ 0.1360	978	\$ 133
Virginia Elec Power	\$ 0.1206	1107	\$ 134
Duke Energy - FL	\$ 0.1362	1065	\$ 145
Alabama Pwr	\$ 0.1341	1188	\$ 159
Average of Large IOUs	\$ 0.1492	795	\$ 109.85

19 In addition, the Company’s performance against indicators like heat rate, forced
 20 outage rate, and avoided non-fuel O&M, as well as conventional system-wide
 21 reliability metrics like SAIDI⁵ can likely be explained at least in part by the
 22 Company’s continued pattern of building power plants only to retire them before the
 23 end of their useful lives, build too many of them, and maintain an uneconomic and
 24 unreasonable 20% reserve margin. Not surprisingly, the Company’s generation
 25 overbuilding yields loss of load probability (“LOLP”) statistics that show uneconomic

1 excess as well. According to the Company, its LOLP in 2023 is such that an
2 occurrence of lost load is likely only once every 100,000+ years.⁶ At the very least,
3 the capital investment-driven revenue requirement burden imposed on customers as a
4 result of such spending should be evaluated for whether such costs outweigh the
5 purported operational and reliability benefits obtained. Finally, when the Company
6 asserts that long-run savings, in the form of Cumulative Present Value of Revenue
7 Requirements (“CPVRR”) numbers are significant, such benefits must be evaluated
8 in light of amortization period adjustments, early retirements, and issues of
9 intergenerational equity.⁷

10 **Q. You are implying that current impacts on actual residential customer bills**
11 **calculated from actual usage levels should be an important factor in evaluating**
12 **the Company’s performance and the rates, programs, adjustments, and**
13 **spending it is proposing. Why are current and actual bill impacts important?**

14 A. Current and actual residential bill impacts are not the only factor for consideration in
15 setting rates, to be sure, but they are critically important today and to the members
16 and organizations on whose behalf I am testifying. Some of the reasons that these
17 impacts are so important include:

- 18 • Florida and the nation are just beginning to emerge from a global pandemic that
19 has had profound impacts on household budgets in terms of both costs and
20 income. The recovery is far from complete and many customers are still hurting.
21 This is a poor time to inflict additional burdens through rate increases.
- 22 • Millions of Floridians live in poverty and in households where the average
23 income is so low that they face a significant energy burden that will be made
24 worse by the increases in bills proposed in this proceeding.⁸
- 25 • The way in which the Company proposes to implement the rate increases in this

1 case imposes more burden on low users of electricity than on high electricity
2 users. Low users of electricity in Florida are more likely to be low-income
3 customers, members of minority races or ethnic groups, or elderly, so the impacts
4 of the rate increases are felt most by those least able to bear the added burden.⁹
5 • Rate increases required to pay for polluting fossil-fueled power plants constitute a
6 significant opportunity cost for society and customers as well. Building new and
7 refurbishing old fossil plants consumes capital that could be directed toward
8 accelerating a clean energy transition. Of course, such plants represent long-run
9 costs and increasing risks of stranded costs as well.

10 **Q. Please summarize your recommendations based on your findings.**

11 A. Based on my review of the evidence relating to the topics previously listed, I
12 recommend that the Commission deny the Company's petition and direct it to refile
13 after having addressed the problems cited in this testimony. On the specific issues, I
14 offer the following recommendations to the Commission:

15 *Return on Equity and Capital Structure*

- 16 • The Commission should allow the Company to earn a return on equity of no more
17 than 10.00%, centered in a 200-basis point range of 9.00% to 11.00%.
- 18 • The Commission should deny the Company's proposal for a performance adder of
19 50 basis points on the return on equity.
- 20 • The Commission should allow the Company to adopt a capital structure with an
21 equity ratio no higher than 52.93%.

22 *Capital Spending and Plant Retirements*

- 23 • The Commission should deny the proposal to construct the four combustion
24 turbine units (Crist 4x0 CT – 938 MW) and require a full cost-effectiveness
25 analysis, including evaluation of non-fossil and non-generation alternatives,

1 including non-utility alternatives.

- 2 • The Commission should deny the proposal to construct the NFRC transmission
3 project and require a full cost-effectiveness analysis, including evaluation of non-
4 wires and non-utility solutions that can avoid or delay the need for the capacity
5 provided by the project.
- 6 • The Commission should deny the proposal to implement the hydrogen project.
- 7 • The Commission should deny the proposal to approve regulatory asset treatment
8 for remaining book balances on retired generation and require the Company to
9 conduct full cost-effectiveness evaluation for each proposed retirement and to
10 demonstrate that it is fair, just, and reasonable to charge customers the full cost of
11 facilities that are no longer used and useful.
- 12 • The Commission should deny the Company proposal to extend the amortization
13 periods for nuclear, combined cycle, solar, and other assets and the proposal to
14 continue the RSAM process for manipulating depreciation expenses and earnings.

15 *CDR/CILC Program and Energy Efficiency*

- 16 • The Commission should deny the Company proposal to reduce the compensation
17 rate for the CDR and CILC programs and order the Company to aggressively
18 pursue program enrollment growth.
- 19 • The Commission should order the Company to develop strong energy savings
20 targets even before the next FEECA proceeding and especially as a resource that
21 can avoid, reduce, or delay new generation, transmission, and distribution
22 infrastructure.
- 23 • The Commission order the Company to also develop specific targets for delivery
24 of comprehensive programs to low-income and other underserved customer
25 categories, such as small businesses as a pre-condition for any kind of

1 performance incentive.

2 • The Commission should direct the Company to stop relying on the RIM as the
3 primary screen for energy efficiency cost effectiveness and to instead use the
4 utility cost test for utility proposals as a pre-condition for any kind of performance
5 incentive.

6 • The Commission should direct the Company not to use a two-year payback screen
7 on energy efficiency programs evaluated for delivery to customers as a pre-
8 condition for any kind of performance incentive.

9 *Forcing Customers to Pay for EEI's Political Speech*

10 • The Commission should deny the Company proposal to recover EEI dues from
11 customers absent an evidentiary showing that the dues are entirely used to
12 advance the interests of customers and do not involve any form of political
13 speech.

14 **II. RETURN ON EQUITY AND CAPITAL STRUCTURE**

15 **Q. What amount does the Company propose it should receive as a return on equity**
16 **in this proceeding, and what fraction of the capital structure does it propose that**
17 **equity should comprise?**

18 A. The Company proposes a retail regulatory ROE midpoint for FPL of 11.5%, which
19 includes a “performance incentive” of 50 basis points.¹⁰ In 2023, the Company
20 proposes a revenue requirement increase to ensure that the earned ROE remains at
21 11.5% even as new capital investments are made.¹¹ The Company proposes an equity
22 ratio of 59.6%.¹²

23 **Q. How do the 11.5% ROE and 59.6% equity ratio requests square with experience**
24 **across the U.S.?**

25 A. The Edison Electric Institute’s (“EEI”) Annual Financial Review for 2020 reports that

1 across 2019 and 2020, equity comprised about 44% of capital structure while debt
2 constituted 56%.¹³ Regarding ROE, EEI reports:

3 For 2020, the average awarded ROE was 9.43%, continuing a negative trend.
4 By way of comparison, for 2019, the average awarded ROE was 9.64%. On
5 average, awarded ROE in 2020 was approximately 30 basis points lower than
6 the average requested ROE. Consistent with declining interest rates, average
7 awarded ROEs have been trending downward for the electric industry over the
8 past four decades. In addition, the increased use of adjustment and cost
9 recovery mechanisms, which arguably reduce risk of recovery for utilities,
10 have often been cited by commissions as contributing to lower authorized
11 ROEs. Going forward, it is reasonable to expect that ROEs will remain lower
12 due to the sustained low interest rate environment combined with current
13 economic conditions as a result of the pandemic.¹⁴

14 **Q. How does the Company justify a request so out of step with utility industry**
15 **conditions?**

16 A. The Company relies upon testimony by witness James M. Coyne to support a
17 proposal of an 11.0% ROE level and the additional testimony of witness Robert E.
18 Barrett for an inflator of 0.5% based on Company performance. Mr. Coyne’s
19 testimony uses four kinds of analysis, simply averaged, to support his proposal.¹⁵
20 Two of Mr. Coyne’s methods yielded ROEs that were relatively in line with the EEI
21 data—the DCF method yielded an ROE of 9.29%, and the Risk Premium method
22 yielded an ROE of 9.88%. Instead of reporting and averaging the awarded ROEs for
23 utilities in the proxy group of companies developed for the evaluation, Mr. Coyne
24 developed an “expected earnings” method that showed an average of 10.22%. Mr.
25 Coyne’s CAPM method resulted in an unbelievably high 14.17% ROE, which

1 distorted the average results. Simply averaging the DCF and Risk Premium
2 approaches results in a much more reasonable starting point of 9.585%, which is in
3 line with industry experience. Even adding in Mr. Coyne's expected earned ROE
4 results in an ROE of 9.79%.¹⁶ It is important to note that the recent Duke Energy
5 Florida general rate case resulted in a very reasonable ROE of 9.85%, which is well
6 aligned with these values, and the Commission order finding that this ROE resulted in
7 rates that were fair, just, and reasonable, was just issued on June 4, 2021.¹⁷

8 Mr. Coyne found the proposed 59.6% equity ratio was "the upper end" of a
9 range of actual common equity ratios for proxy group companies that ran from
10 46.91% to 58.95%.¹⁸ The proxy group midpoint, not counting the Company, is
11 52.93%, or about 6.67% lower than the Company's proposed ratio. Mr. Coyne
12 tautologically justifies the Company's equity ratio by referencing the large amount of
13 capital investment the Company plans to make. In addition, Mr. Coyne believes the
14 higher equity ratio is justified by the risk associated with nuclear plant assets and
15 storms.¹⁹

16 **Q. Mr. Coyne also asserts that the Company faces more risks that other companies**
17 **and that this should be a factor in awarding a higher ROE.²⁰ Do you agree with**
18 **his testimony on this issue?**

19 A. No. Mr. Coyne stretches logic and reason to paint a picture of the Company as a risky
20 utility operating in a risky environment and therefore needing a high ROE to attract
21 capital. First, he points to the Company's excessive capital investment program as
22 creating a risk, noting that the Company's capital expenditures to net utility plant
23 ratio is the highest by far among the proxy companies and 1.46 times higher than the
24 proxy group median. This is a reason to both decrease the ROE and the capital spend,
25 not increase both. Second, Mr. Coyne finds the Company's ownership of nuclear

1 generating assets a relative risk increaser, even though the majority of companies in
2 the proxy group have nuclear assets in their generation mix, and to the same general
3 degree. Mr. Coyne finds the Company's exposure to severe weather another risk
4 increaser. Setting aside the irony of the Company's history of greenhouse gas
5 emissions and efforts to expand its fossil generation fleet even in this proceeding, the
6 fact is that the Company benefits from a legislated cost recovery account that ensures
7 timely and full recovery of prudently incurred storm recovery costs. With the storm
8 hardening mandate and the storm recovery cost mechanism, even though severe
9 weather is likely for Florida, the Company's exposure to financial threats as a result is
10 largely in the Company's hands. Mr. Coyne also finds that the Company is choosing
11 to take on additional risk with its proposal for a multi-year rate plan. As I point out in
12 this testimony, the multi-year rate plan does not create a significant negative financial
13 risk for the Company or its shareholders. In all, Mr. Coyne fails to make a case for a
14 higher ROE for the Company based on risk.

15 **Q. How does the Company justify the performance adder of 50 additional basis**
16 **points of ROE on all rate base for the next four years?**

17 A. Company witness Barrett provides a list of reasons why he believes the Company
18 should be allowed to earn 50 extra basis points of earnings on its rate base, including
19 the massive new investments proposed.²¹ These reasons relate to things that have
20 happened in the past and are not conditioned on any future performance. These
21 reasons are not indexed against performance criteria set out prior to the activities.
22 And, as previously stated, many of the cited reasons could well be the secondary
23 result of excessive plant investments and early retirements of uneconomic plants and
24 unwise prior investment decisions. Mr. Barrett cites low operating costs—which
25 would be expected with a younger generation fleet. Mr. Barrett cites reduced

1 emissions, which are related to replacing coal units with new gas units—which
2 constitute the majority of the Company’s generation and would be expected to have
3 higher efficiency rates than gas plants at utilities that never invested in coal or retired
4 such plants years ago. The development of new solar plants in very recent years has
5 also had a small impact on past emissions rates. The young fleet of generation, which
6 resulted in ballooning rate base and merely average resulting customer bills, likely
7 drives good reliability numbers, as does overbuilding to a 20% reserve margin. But
8 the capital cost of these performance metrics was not analyzed.

9 **Q. Are you opposed to ROE adders based on superior performance?**

10 A. Absolutely not. But given the burdens imposed on customers because of increased
11 rates, such rewards to shareholders must be conditioned on meeting identified
12 performance objectives set out in advance, with performance measured against clear
13 and objective metrics. In addition, the Company must demonstrate net benefits to
14 customers against total costs and must demonstrate that actions it took resulted in the
15 realization of the benefits. The Company’s proposed basis for the ROE enhancement
16 is simply too subjective.

17 **Q. What ROE do you recommend that the Commission approve for the Company?**

18 A. I would recommend an ROE based on the average of Mr. Coyne’s method excluding
19 the outlier CAPM model he applied, and when adjusting for gradualism and flotation
20 costs, I recommend an ROE of no more than 10.00% and without any performance
21 adder. Company witness Barrett provides a list of reasons why he believes the
22 Company should be allowed to earn 50 extra basis points of earnings on its rate base,
23 including the massive new investments proposed.²² These reasons relate to things that
24 have happened in the past and are not conditioned on any future performance. These
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19 realization of the benefits. The Company’s proposed basis for the ROE enhancement
20 is simply too subjective.

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22 A. I would recommend an ROE based on the average of Mr. Coyne’s method excluding
23 the outlier CAPM model he applied, and when adjusting for gradualism and flotation
24 costs, I recommend an ROE at 10.00% and without any performance adder.

25 **Q. What equity ratio do you recommend that the Commission approve?**

1 A. I recommend an equity ratio aligned with the midpoint of the proxy group, at 52.93%.
2 There is no good reason to support a higher equity ratio and over-earning by the
3 Company at the expense of rate payers, especially in an era of consistently low cost of
4 debt.

5 **Q. What are the impacts of the adjustments to ROE and equity ratio you would**
6 **propose in terms of revenue requirement?**

7 A. Because of the large rate base in place and the significant proposals for rate base
8 growth, the impact of a lower ROE and equity ratio would be great for residential
9 customers. The Company indicates that for every reduction of 10 basis points (1/100th
10 of a percent), the revenue requirement is reduced by three-quarters of one percent
11 (0.75%).²³ This means that adjustments to the ROE and equity ratio to make them
12 more just and reasonable can significantly reduce the rate impact of proposed
13 spending and investment by the Company. Moreover, when the unreasonable
14 spending proposals by the Company are eliminated and ROE and equity ratio are
15 corrected, the Commission could actually order a decrease in customer rates for FPL
16 customers.

17 **Q. Have you quantified the revenue requirement reductions that can result from**
18 **the setting of more reasonable values for the Company's ROE and equity ratio?**

19 A. Yes. When the Company revenue requirement is recalculated with only the equity
20 ratio changed to 52.93%, the revenue requirement drops by \$316 million dollars
21 (28.5%) with the Reserve Surplus Amortization Mechanism ("RSAM") in place, and
22 a similar amount without the RSAM. As I will testify later, the Commission should
23 deny the Company proposal to continue the RSAM for several reasons, so it is
24 important to note that simply adjusting the equity ratio to a more reasonable 52.93%
25 produces revenue requirement savings that are far greater than the short-term savings

1 (with long-term consequences) created by the RSAM.

2 When both a more reasonable 52.93% equity ratio cap and 10.0% ROE cap are used,
 3 the revenue requirement falls by more than 70% from the Company request, or \$793
 4 million, to \$315 million under the RSAM, and to \$520 million without the RSAM.

5 Finally, it is worth noting that if the Commission were simply grant the
 6 Company the same ROE as awarded to Duke Energy Florida (9.85%), the revenue
 7 requirement with the RSAM would fall by more than half of the FPL request, or \$580
 8 million, to \$529 million with the RSAM, and by \$589 million to \$722 million without
 9 the RSAM.

10 Table 2: Revenue Requirement with Changes in Equity Ratio and ROE

Scenario	Equity Ratio	ROE	Revenue Requirement	Savings vs. FPL Proposal	Percent Reduction
<i>With RSAM</i>					
As Requested by FPL	59.60%	11.50%	\$ 1,108,442	\$ -	0.0%
Rábago Recommended Not-to-Exceed Equity Ratio	52.93%	11.50%	\$ 792,101	\$ (316,341)	-28.5%
Rábago Recommended Not-to-Exceed Equity Ratio & ROE	52.93%	10.00%	\$ 315,614	\$ (792,828)	-71.5%
Recommended Equity Ratio w Duke ROE	52.93%	9.85%	\$ 267,966	\$ (840,476)	-75.8%
FPL Request Equity Ratio w Duke ROE	59.60%	9.85%	\$ 528,925	\$ (579,517)	-52.3%
<i>Without RSAM</i>					
As Requested by FPL	59.60%	11.50%	\$ 1,310,999	\$ -	0.0%
Recommended Not-to-Exceed Equity Ratio Rábago	52.93%	11.50%	\$ 995,336	\$ (315,663)	-24.1%
Recommend Not-to-Exceed Rábago	52.93%	10.00%	\$ 519,875	\$ (791,124)	-60.3%
Recommended Equity Ratio w Duke ROE	52.93%	9.85%	\$ 473,123	\$ (837,876)	-63.9%
FPL Request Equity Ratio w Duke ROE	59.60%	9.85%	\$ 722,019	\$ (588,980)	-44.9%

21 **III. CAPITAL SPENDING AND PLANT RETIREMENTS**

22 **Q. What kinds of significant capital spending does the Company propose?**

23 A. The Company proposes to build several new plants, including new fossil-fired plants
 24 and to convert or upgrade additional fossil-fired power plants during the rate period.

25

Results of the Current Step 3 Analyses

FPL Area Retirements / Additions	Gulf Area Retirements / Additions	Year	FPL Area Resource Additions	Gulf Area Resource Additions	RM%
1,043 MW Solar OUC PPA (100 MW) Indianiown PPA (330 MW)	---	2021	--	--	*
Manatee & Smaller Batteries (469 MW), DBEC (1,163 MW), Manatee 1&2 (1,618 MW), Scherer 4 (634 MW)	NFRC Line Crist 4x0 CT (938 MW) 149 MW Solar	2022	447 MW Solar	--	25.5
---	Shell PPA (885 MW)	2023	372.5 MW Solar	372.5 MW Solar	21.6
---	Daniel 1&2 (502 MW)	2024	521.5 MW Solar	372.5 MW Solar	20.0
---	Crist 4 (75 MW), Pea Ridge (12 MW)	2025	521.5 MW Solar	372.5 MW Solar	20.1
---	---	2026	894 MW Solar	74.5 MW Solar	20.0
Broward South (4 MW)	Crist 5 (75 MW)	2027	968.5 MW Solar	--	20.0
---	Lansing Smith A (32 MW)	2028	1,192 MW Solar	--	20.0
---	---	2029	1,043 MW Solar, 3 x 100 MW Battery	149 MW Solar	20.0
---	Perdido 1&2 (3 MW)	2030	968.5 MW Solar, 1 x 100 MW Battery	223.5 MW Solar 3 x 100 MW Battery	20.0
Step 3 CPVRR Cost =				81,942	
FPL Stand-Alone + Gulf in Step 2 CPVRR =				82,230	
CPVRR Cost Difference from Step 2 =				(288)	

Notes:

CPVRR costs are in million \$ and are discounted at 7.52% from 2020-2068 (Gulf Step 2 CPVRR was re-calculated with a 7.52% discount rate)

The recalculated CPVRR for Gulf in Step 2 is \$7,474M (Not including NFRC line costs)

Cost of the NFRC line project was omitted from these CPVRR calculations because that cost is the same in Steps 2 and 3

* - Each system (FPL and Gulf) has its own separate reserve margin in 2021

Results of

While new solar facilities are expected to result in net savings over their useful lives, the Company proposes amortization adjustments for these plants that will extend the time over which customers will be on the hook for revenue requirements as well as the total cost they will have to pay to the utility. The Company proposes that customers also pay for the book balance value of uneconomic power plants that the Company constructed in the past and now seeks to retire—plants that will no longer be used and useful in public service. Company witness Sim set out the incremental plant build (including the North Florida Resiliency Connection (“NFRC”)) and retirement plans in his testimony, reflecting some \$82 billion in Cumulative Present Value Revenue Requirements (“CPVRR”) out to the year 2068.²⁴

Q. Do you have any concerns about how the Company justifies its proposals?

A. Witness Sim used a computer model to generate the plans and provided summary outputs like the table above. The proposal to add nearly a gigawatt (938 MW) of new combustion turbines at the Crist site in 2022 has not been reviewed in any prior

1 proceeding but appears to have been necessitated by the fact that the new NFRC line
2 creates a new single-contingency risk relating to power transfers from the FPL service
3 territory to the Gulf Power service territory.²⁵ The acceleration of the commissioning
4 date for those plants adds about \$60 million in CPVRR that customers will have to
5 pay.²⁶ In addition, the Company seeks the Commission's approval for a Solar Base
6 Rate Adjustment mechanism to recover about \$560 million in costs associated with
7 about 1,800 MW of new solar facilities to be built in 2024 and 2025.²⁷ The Company
8 is also proposing costly upgrades to existing combined cycle units (including Lansing
9 Smith) and conversion of coal units at the Crist facility. These projects have not been
10 subject to any review in any other proceeding prior to this case.²⁸ Finally, the
11 Company proposes to spend an additional \$65 million on a hydrogen project aimed at
12 making hydrogen with solar energy to be blended with methane gas to burn in a
13 power plant starting in 2023.²⁹ Taken together, these proposals are about the
14 Company moving ahead with large and expensive projects which add to rates and
15 without transparent planning processes and meaningful opportunities to review costs
16 and alternatives. The computer modeling processes are essentially black box
17 exercises and even though the model identified optimal in-service dates of 2024 and
18 2025 for the new gas plants, the Company accelerated the timetable and the pollution
19 from those plants without any additional analysis or consideration of alternatives.³⁰
20 Cost-effectiveness analysis was not performed on the proposed plant additions.³¹ The
21 fact that the timetable was accelerated to mitigate the risk of a failure of the NFRC
22 line raises serious questions about the wisdom of building yet another large
23 transmission line in a storm-prone state. More solar generation means more clean
24 energy, but the use of a base rate adjustment mechanism limits prudence review to
25 after-the-fact review that will not occur in the context of a full rate case. The proposal

1 to use a cost cap in the adjustment mechanism creates an incentive to maximize
2 spending under the cap. The hydrogen pilot project seems an expensive first step that
3 should be subject to a more transparent review process.

4 **Q. Do you have any additional comments to offer about the Company's proposed**
5 **hydrogen project?**

6 A. Yes. At one point in my career, I led the U.S. DOE hydrogen program, and
7 subsequently at the Houston Advanced Research Center, I led a hydrogen
8 demonstration project. Since that time, I have stayed abreast of hydrogen energy
9 technology and market developments. Hydrogen is an interesting energy carrier
10 option for specialized market and technology segments, but it is not a reasonable or
11 economic option for large-scale energy systems and facilities like gigawatt-scale
12 power plants. The Company's so-called "Green Hydrogen" project is interesting as an
13 academic exercise but not as an electric utility project in light of the immense amount
14 of technical and industrial research and development that remains to be done before
15 huge amounts of electricity, paid for by captive monopoly customers, are diverted to
16 what is essentially a fuels production research project. Current technologies for
17 electrolysis are extravagantly expensive and consume huge amounts of electricity,
18 meaning the net energy value of the hydrogen is negative and the total system costs of
19 producing hydrogen to blend into a fossil methane pipeline and plant amounts to the
20 application of a luxury energy carrier to a commodity energy construct.
21 Demonstrating that bulk quantities of hydrogen inefficiently generated through
22 energy-intense electrolysis processes can be combusted in a facility designed for
23 fossil methane combustion is not a prudent use of customer dollars at a time when so
24 many customers face extreme household financial challenges.
25 Hydrogen is much better suited to distributed energy resource applications and is

1 already cost-effective in many such applications—the Company should focus on
2 identifying those opportunities. A less expensive and more cost-effective overall
3 option for the Company’s customers and a more responsible use of customer revenues
4 would be participation in research consortiums focused on deployment and
5 demonstration of small-scale hydrogen energy projects. Rather than going down a
6 path of overbuilding the generation fleet and inefficiently consuming valuable solar
7 facility production, the Company should focus on exploiting hydrogen’s strengths as
8 an energy carrier for distributed energy resource applications.

9 **Q. What are your concerns about the way that the Company proposes to handle**
10 **plant retirements?**

11 A. My first concern is that the Company is proposing, as shown in the figure reproduced
12 from Company witness Sim’s testimony above, thousands of MW worth of plant
13 retirements over the period 2021 through 2030 and that in each case, the Company is
14 also proposing that any undepreciated book value remaining on those plants will be
15 converted into a regulatory asset spread over 10 years to be collected from customers
16 in rates even though the plants are not generating a single unit of energy. That is,
17 customers will be forced to pay for costs associated with plants that are not used and
18 useful for public service, were demonstrably uneconomic when retired, and may well
19 have been unreasonable investments when first constructed. According to the
20 testimony of Company witness Fuentes, these costs for retired plant will create \$110
21 million in amortization expense in 2022 and \$120 million in expense in 2023, and in
22 each year for many years after.³² The amount of such expenses will increase as more
23 plants are retired, and the unamortized balances will earn a return for the Company
24 each year. My second concern is what the volume of plant retirements says about the
25 Company’s planning processes and its approach to seeking least cost pathways to

1 providing service to customers.

2 **Q. Are you opposed to the retirement of uneconomic generation plants?**

3 A. Absolutely not. My concern is with the incentives the Company faces to constantly
4 refresh its rate base with new generation plants if the Company never faces any real
5 financial consequences for building power plants that become obsolete or
6 uneconomic long before the end of their useful lives. Again, this is also an issue of
7 planning and the aggressive pursuit of new plant construction without serious
8 consideration of more cost-effective options. The Company should bear some of the
9 risk associated with costs of uneconomic resources, especially if those costs arise due
10 to poor planning decisions or insufficient consideration of cost-effective alternatives.

11 **Q. Do you have any other concerns with the creation of regulatory assets and
12 amortization of remaining book value of retired plants?**

13 A. Yes. The Company has proposed that the Commission approve a continuation of the
14 highly lucrative RSAM, which creates an amortization reserve that can be treated like
15 a bank account to record debits or credits to depreciation expense to maximize returns
16 for shareholders. So, while the Company proposes an ROE range of 10.5% to 12.5%
17 with a midpoint at 11.5%,³³ by manipulating depreciation expenses with the proposed
18 RSAM, it is really setting itself up for grossly overearning at a guaranteed 12.5%
19 return in each year of the proposed multi-year rate plan.³⁴ And the RSAM approach
20 potentially creates additional problems for customers down the road. A key
21 component of the RSAM is the adjustment of depreciation rates through the extension
22 of asset depreciation lives. In this case, the Company proposes a 33% extension to the
23 useful life the St. Lucie nuclear plant, for which a license extension has not yet been
24 granted; a 25% increase in the useful life of combined cycle plants, based on the
25 experience with exactly one combined cycle plant operating in Oklahoma;³⁵ and other

1 adjustments. This creates the potential of even greater remaining book value when a
2 plant becomes uneconomic, adding more to customer costs for plants that are not used
3 and useful. Alternatively, a large remaining book value could unreasonably delay the
4 cost-effective retirement of uneconomic plants.

5 **Q. What do you recommend the Commission do regarding the Company’s capital**
6 **spending and plant retirement proposals?**

7 A. The overarching flaw in the Company’s capital spending and plant retirements
8 proposals is the lack of transparent, objective, and comprehensive cost-effectiveness
9 evaluation—the proposals are not adequately justified. Therefore, I recommend that:

- 10 • The Commission should deny the proposal to construct the four combustion
11 turbine units (Crist 4x0 CT – 938 MW) and require a full cost-effectiveness
12 analysis, including evaluation of non-fossil and non-generation alternatives,
13 including non-utility alternatives.
- 14 • The Commission should deny the proposal to construct the NFRC transmission
15 project and require a full cost-effectiveness analysis, including evaluation of non-
16 wires and non-utility solutions that can avoid or delay the need for the capacity
17 provided by the project.
- 18 • The Commission should deny the proposals for upgrades and conversions of
19 existing plants Lansing Smith and Crist (among others) and require a full
20 • cost-effectiveness analysis, including evaluation of non-fossil and non-generation
21 alternatives, including non-utility alternatives.
- 22 • The Commission should deny the proposal to implement the hydrogen project.
- 23 • The Commission should deny the proposal to approve regulatory asset
24 treatment for remaining book balances on retired generation and require the
25 Company to conduct full cost-effectiveness evaluation for each proposed

- 1 retirement and to demonstrate that it is fair, just, and reasonable to charge
2 customers the full cost of facilities that are no longer used and useful.
- 3 • The Commission should deny the Company proposal to extend the amortization
4 periods for nuclear, combined cycle, solar, and other assets and the proposal to
5 continue the RSAM process for manipulating depreciation expenses and earnings.

6 **IV. EFFICIENT ENERGY USE AND THE COMMERCIAL/INDUSTRIAL**
7 **DEMAND REDUCTION (“CDR”) PROGRAM AND**
8 **COMMERCIAL/INDUSTRIAL LOAD CONTROL (“CILC”) PROGRAM**
9 **COMPENSATION**

10 **Q. What is the Company proposing regarding the compensation rates for load**
11 **reductions achieved through the CDR and CILC programs?**

12 A. The Company, through its witness Steven R. Sim, is proposing a 33% reduction in the
13 compensation rate paid to commercial and industrial customers for making load
14 available for interruption or reduction to reduce system demand.³⁶ While the witness
15 provides charts and tables and many words of testimony, the bottom line is that the
16 Company unnecessarily proposes to undercut a cost-effective and valuable demand
17 response program based on the false premise that a ratepayer impact measure
18 (“RIM”) analysis provides any information about program cost-effectiveness at the
19 current compensation level.

20 **Q. Why do you say that the proposed compensation reduction is unreasonable?**

21 A. The problems with the specific proposal to reduce CDR and CILC compensation
22 levels are several. First, Company witness Sim inaccurately asserts that the RIM
23 analysis is a cost-effectiveness evaluation. It is not. In fact, even under a RIM
24 approach, the compensation level could be set at \$8.45—only slightly lower than the
25 current level—and still pass.³⁷ Second, Mr. Sim incorrectly asserts that the Total

1 Resource Cost test, under which the cost-effectiveness of the CDR program is an
2 astounding 49.36, does not account for utility costs.³⁸ It does.³⁹ Third, the Company
3 proposal will therefore likely reduce current and future participation in the demand
4 response programs and result in the need for more expensive peaking resources like
5 the four combustion turbines the Company proposes to add in 2022 without the
6 benefit of full evaluation of demand response alternatives. As pointed out by Mr. Sim,
7 the CDR and CILC programs have summer peak load capacity value of 814 MW,⁴⁰
8 while the benefit of integrating the FPL and Gulf Power service territories involving
9 expensive construction of the NFRC is only one-fourth as great, or 200 MW of
10 summer peak, out the year 2050.⁴¹ Fourth, the Company proposal marks another
11 disappointing chapter in the Company's war on cost-effective energy efficiency
12 program development and implementation.

13 **Q. What do you recommend regarding the compensation rate for the CDR and**
14 **CILC programs?**

15 A. The Commission should deny the Company proposal to reduce the compensation rate
16 for the CDR and CILC programs and order the Company to aggressively pursue
17 program enrollment growth.

18 **Q. How has the Company performed in developing and delivering energy efficiency**
19 **in Florida?**

20 A. Thanks in large part to the flawed and unreasonable approaches to utilization of the
21 energy efficiency resource in Florida advanced by the Company, Florida now stands
22 in a below-average position in energy efficiency among all the states. The national
23 expert organization American Council for an Energy-Efficient Economy ("ACEEE")
24 issued a report in January 2021 that characterizes Florida's energy efficiency
25 performance as "Unrealized Potential,"⁴² and notes that the state of Florida has fallen

1 to 27th place in the nation in energy efficiency performance as of 2020. Indeed,
2 among 52 of the nation's largest electric investor-owned utilities, the Company ranks
3 51st. Given the energy efficiency opportunities that the Company has chosen to ignore
4 and disserve in reducing system costs and reducing or avoiding costly generation and
5 infrastructure spending, these facts stand as clear rebuttal to the Company's assertion
6 that it deserves a 50 basis-point increase in its allowed ROE based on performance.
7 More importantly, by ignoring and underperforming in energy efficiency, the
8 Company is increasing rates, bills, and energy burdens for all its customers.

9 **Q. What are the major problems with the Company's approach to energy efficiency**
10 **in general?**

11 A. In addition to the ill-conceived proposal to slash the compensation rates for the CDR
12 and CILC programs, the Company has failed to realize the potential of energy
13 efficiency in several other ways as well. The small number of energy efficiency
14 programs offered to residential customers is about one-third the national average and
15 means that the Company does not have a range of efficiency options available to its
16 customers,⁴³ and while Florida utilities do offer specific income-qualified energy
17 efficiency programs, there is no mandated level of spending and savings.⁴⁴ Large
18 percentages of Florida households are energy burdened, some severely so, and
19 average burdens are higher for customers that are Black, Latinx, and elderly.⁴⁵ The
20 ACEEE white paper on Florida's energy efficiency performance points to the flaws
21 inherent in the state being the only state that still relies primarily on RIM analysis to
22 screen efficiency programs, applies an arbitrary two-year payback screen to eliminate
23 the most cost-effective measures, and continues the counter-productive practice of
24 treating all energy savings as lost revenues.⁴⁶ Fortunately, these problems can be
25 fixed with leadership by the Company. Indeed, there may even be an opportunity for

1 the Company to earn an increased ROE and generate savings for all customers
2 through aggressive pursuit of cost-effective energy efficiency.

3 **Q. What do you recommend that the Commission do regarding the Company's**
4 **proposal to reduce compensation rates for CDR and CILC programs and the**
5 **Company's general approach to energy efficiency?**

6 A. The Commission should deny the Company's CDR and CILC compensation
7 reduction proposal. In addition, only when FPL becomes an efficiency leader, not one
8 of the worst energy efficiency performers in the nation, will it be appropriate to
9 consider performance incentives. It is no coincidence that FPL employs so little
10 energy efficiency that despite low rates, FPL customers currently have higher-than-
11 average electric bills, and even higher still if FPL's proposed rate increase is
12 approved.

13 **V. PROPOSAL TO REQUIRE CUSTOMERS TO PAY FOR EEI'S POLITICAL**
14 **SPEECH THROUGH RATES**

15 **Q. Does the Company seek to charge customers for EEI dues through rates?**

16 A. Yes. The Company proposes to charge customers nearly \$2.8 million dollars per year
17 for dues the Company pays for membership in EEI.⁴⁷

18 **Q. Why is that an issue of concern?**

19 A. EEI is the nation's largest investor-owned utility trade association and a highly
20 political organization that directly and indirectly conducts and funds a wide range of
21 policy and political activities across the U.S.⁴⁸ By requiring customers to pay for its
22 membership in EEI, the Company is forcing customers to fund those political and
23 policy activities as a condition of electric service whether they agree with the
24 positions taken by EEI or not. If the Commission were to approve the proposed rates
25 including the dues payment, it would be infringing on customers' rights to speak on

1 such policy issues as they choose.

2 **Q. EEI does conduct some activities that are not related to policy or political**
3 **advocacy. How can the Commission know what use is made of dues the**
4 **Company pays to EEI?**

5 A. It cannot, and neither can customers. The Company provides no evidence in the
6 record as to how EEI dues are used and whether the dues support funding activities
7 that provide benefits to the Company's customers.

8 **Q. Doesn't the Company remove lobbying expenses from the amount proposed for**
9 **recovery?**

10 A. The Company asserts that it has removed lobbying expenses from the total amount of
11 dues charged,⁴⁹ but this does not fully address the forced speech issue. EEI uses dues
12 to conduct political and policy advocacy work that is not strictly classified as
13 lobbying and it also funds other organizations that do the same.

14 **Q. What is the remedy for the fact that dues paid by the Company to EEI are used**
15 **to conduct policy and political advocacy?**

16 A. The Commission should deny the Company proposal to recover EEI dues from
17 customers absent an evidentiary showing that the dues are entirely used to advance
18 the interests of customers and do not involve any form of political or policy speech.

19 **Q. Does that conclude your testimony?**

20 A. Yes.

21

22

23

24

25

¹ Company witness Bores direct at p. 23, lines 4-12.

² Fla. Stat. §§ 366.03, 366.06 (2019).

³ Company witness Silagy direct at p. 23-25.

⁴ Company response to LULAC-ECOSWF-FL Rising Int 1-1.

⁵ Silagy at p. 5-9.

⁶ Company response to LULAC-ECOSWF-FL Rising Int 1-21. Calculated as $(1 / .0000009 \text{ days/year}) = 111,111$ years.

⁷ Silagy at p. 25, line 17 – p. 26, line 6.

⁸ See Exhibit KRR-3, *Spotlight on Poverty & Opportunity – Florida*, available at:

<https://spotlightonpoverty.org/states/florida/>.

⁹ Exhibit KRR-4, National Consumer Law Center, *Utility Rate Design: How Mandatory Monthly Customer Fees Cause Disproportionate Harm*, 2015, available at:

https://www.nclc.org/images/pdf/energy_utility_telecom/rate_design/FL-FINAL2.pdf.

¹⁰ Silagy at p. 35, lines 1-5.

¹¹ Bores at p. 35, line 20 – p. 36, line 5.

¹² Coyne at p. 84, line 13-14.

¹³ Exhibit KRR-5, Edison Electric Institute, 2020 Financial Review, at p. 65, available at:

https://www.eei.org/issuesandpolicy/Finance%20and%20Tax/Financial_Review/FinancialReview_2020.pdf.

(“EEI Financial Review”)

¹⁴ Exhibit KRR-5 at p. 70.

¹⁵ Coyne at p. 65, Figure 15.

¹⁶ *Id.*

¹⁷ *In re: Petition for limited proceeding to approve 2021 settlement agreement, including general base rate increases, by Duke Energy Florida, LLC*, Docket No. 20210016-EI, Order No. PSC-2021-0202-AS-EI at 3 (Fla. P.S.C. June 4, 2021).

¹⁸ Coyne at p. 85, line 6-17.

¹⁹ *Id.* at p. 85, line 22 – p. 86, line 4.

²⁰ Coyne at pp. 66-82.

²¹ Barrett at pp. 49-56.

²² Barrett at pp. 49-56.

²³ Company response to LULAC-ECOSWF-FL Rising Int 1-4.

²⁴ Sim Exhibit SRS-12.

²⁵ See Sim at p. 64, lines 9-11, “Approximately 98% of the total flow of energy between the two utility systems is projected to be from FPL to Gulf which benefits Gulf’s customers.”

²⁶ Sim at p. 56, line 14 – p. 57, line 6.

²⁷ Valle at pp. 7- 19.

²⁸ Sim at Exhibit SRS-7.

²⁹ Valle at pp. 24-26.

³⁰ Company responses to SACE Int 1-8, 1-10, 1-13.

³¹ Company response to SACE Int 1-7.

³² Fuentes Exhibit F-4

³³ Petition by FPPL for Base Rate Increase and Rate Unification at p. 2.

³⁴ See Company response to OPC Int 1-15. The Company has earned the absolute maximum approved ROE each of the past three years through use of the RSAM. Even as millions of its customers struggled under the weight of the COVID pandemic in 2020, the Company was still able to pay \$230 million in net dividends to its holding company and New York shareholders. See Company response to OPC Int 1-14.

³⁵ Company response to FIPUG Int 1-7.

³⁶ Sim at pp. 17-33.

³⁷ Company response to FRF Int 1-2.

³⁸ See Sim at p. 20, fn. 10.

³⁹ See T. Woolf, et al., *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources*, National Energy Screening Project (Aug. 2020) at Appendix E. 3, available at: https://www.nationalenergyscreeningproject.org/wp-content/uploads/2020/08/NSPM-DERs_08-24-2020.pdf.

⁴⁰ Sim at p. 17, fn. 9.

⁴¹ Sim at Exhibit SRS-4 at p. 1.

⁴² Exhibit KRR-6, D, York & C. Cohn, *Unrealized Potential: Expanding Energy Efficiency Opportunities for Utility Customers in Florida*, ACEEE (Jan. 2021), available at: <https://www.aceee.org/white-paper/2021/01/unrealized-potential-expanding-energy-efficiency-opportunities-utility>.

⁴³ *Id.* at p. 5, Figure 4.

⁴⁴ *Id.* at p. 5.

⁴⁵ *Id.*

⁴⁶ *Id.* at pp. 6-10.

⁴⁷ MFR 3, Sched. C-15, line 11.

⁴⁸ See Energy and Policy Institute, *Paying for Utility Politics: How Utility Ratepayers are Forced to Fund the Edison Electric Institute and Other Political Organizations* (May 2017), available at: <https://www.energyandpolicy.org/wp-content/uploads/2017/05/Ratepayers-funding-Edison-Electric-Institute-and-other-organizations.pdf>.

⁴⁹ MFR 3, Sched. C-15, Note 1; Company response to OPC Int 1-75 2d Supp.

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Nationally recognized leader and innovator in electricity and energy law, policy, and regulation. Experienced as a regulatory expert, utility executive, research and development manager, sustainability leader, senior government official, educator, and advocate. Successful track record of working with U.S. Congress, state legislatures, governors, regulators, city councils, business leaders, researchers, academia, and community groups. Nationally recognized speaker on energy, environment, and sustainable development matters. Managed staff as large as 250; responsible for operations of research facilities with staff in excess of 600. Developed and managed budgets in excess of \$300 million. Law teaching experience at Pace University Elisabeth Haub School of Law, University of Houston Law Center, and U.S. Military Academy at West Point. Military veteran.

Employment

RÁBAGO ENERGY LLC

Principal: July 2012—Present. Consulting practice dedicated to providing business sustainability, expert witness, and regulatory advice and services to organizations in the clean and advanced energy sectors. Prepared and submitted testimony in more than 30 states and 100 electricity and gas regulatory proceedings. Recognized national leader in development and implementation of award-winning “Value of Solar” alternative to traditional net metering. Additional information at www.rabagoenergy.com.

- Chairman of the Board, Center for Resource Solutions (1997-present). CRS is a not-for-profit organization based at the Presidio in California. CRS developed and manages the Green-e Renewable Electricity Brand, a nationally and internationally recognized branding program for green power and green pricing products and programs. Past chair of the Green-e Governance Board.
- Director, Solar United Neighbors (2018-present).

PACE ENERGY AND CLIMATE CENTER, PACE UNIVERSITY ELISABETH HAUB SCHOOL OF LAW

Senior Policy Advisor: September 2019—September 2020. Part-time advisor and staff member. Provide expert witness, project management, and business development support on electric and gas regulatory and policy issues and activities.

Executive Director: May 2014—August 2019. Leader of a team of professional and technical experts and law students in energy and climate law, policy, and regulation. Secured funding for and managed execution of regulatory intervention, research, market development support, and advisory services. Taught Energy Law. Provided learning and development opportunities for law students. Additional activities:

- Former Director, Alliance for Clean Energy – New York (2018-2019).
- Former Director, Interstate Renewable Energy Council (IREC) (2012-2018).
- Former Co-Director and Principal Investigator, Northeast Solar Energy Market Coalition (2015-2017). The NESEMC was a US Department of Energy’s SunShot Initiative Solar Market Pathways project. Funded under a cooperative agreement between the US DOE and Pace University, the NESEMC worked to harmonize solar market policy and advance supportive policy and regulatory practices in the northeast United States.

Karl R. Rábago

AUSTIN ENERGY – THE CITY OF AUSTIN, TEXAS

Vice President, Distributed Energy Services: April 2009—June 2012. Executive in 8th largest public power electric utility serving more than one million people in central Texas. Responsible for management and oversight of energy efficiency, demand response, and conservation programs; low-income weatherization; distributed solar and other renewable energy technologies; green buildings program; key accounts relationships; electric vehicle infrastructure; and market research and product development. Executive sponsor of Austin Energy’s participation in an innovative federally-funded smart grid demonstration project led by the Pecan Street Project. Led teams that successfully secured over \$39 million in federal stimulus funds for energy efficiency, smart grid, and advanced electric transportation initiatives. Additional activities included:

- Director, Renewable Energy Markets Association. REMA is a trade association dedicated to maintaining and strengthening renewable energy markets in the United States.
- Membership on Pedernales Electric Cooperative Member Advisory Board. Invited by the Board of Directors to sit on first-ever board to provide formal input and guidance on energy efficiency and renewable energy issues for the nation’s largest electric cooperative.

THE AES CORPORATION

Director, Government & Regulatory Affairs: June 2006—December 2008. Director, Global Regulatory Affairs, provided regulatory support and group management to AES’s international electric utility operations on five continents. Managing Director, Standards and Practices, for Greenhouse Gas Services, LLC, a GE and AES venture committed to generating and marketing greenhouse gas credits to the U.S. voluntary market. Government and regulatory affairs manager for AES Wind Generation. Managed a portfolio of regulatory and legislative initiatives to support wind energy market development in Texas, across the United States, and in many international markets.

JICARILLA APACHE NATION UTILITY AUTHORITY

Director: 1998—2008. Located in New Mexico, the JANUA was an independent utility developing profitable and autonomous utility services that provide natural gas, water utility services, low income housing, and energy planning for the Nation. Authored “First Steps” renewable energy and energy efficiency strategic plan with support from U.S. Department of Energy.

HOUSTON ADVANCED RESEARCH CENTER

Group Director, Energy and Buildings Solutions: December 2003—May 2006. Leader of energy and building science staff at a mission-driven not-for-profit contract research organization based in The Woodlands, Texas. Responsible for developing, maintaining and expanding upon technology development, application, and commercialization support programmatic activities, including the Center for Fuel Cell Research and Applications; the Gulf Coast Combined Heat and Power Application Center; and the High-Performance Green Buildings Practice. Secured funding for major new initiative in carbon nanotechnology applications in the energy sector.

- President, Texas Renewable Energy Industries Association. As elected president of the statewide business association, led and managed successful efforts to secure and implement significant expansion of the state’s renewable portfolio standard as well as other policy, regulatory, and market development activities.
- Director, Southwest Biofuels Initiative. Established the Initiative as an umbrella structure for a number of biofuels related projects.

Karl R. Rábago

- Member, Committee to Study the Environmental Impacts of Windpower, National Academies of Science National Research Council. The Committee was chartered by Congress and the Council on Environmental Quality to assess the impacts of wind power on the environment.
- Advisory Board Member, Environmental & Energy Law & Policy Journal, University of Houston Law Center.

CARGILL DOW LLC (NOW NATUREWORKS, LLC)

Sustainability Alliances Leader: April 2002—December 2003. Integrated sustainability principles into all aspects of a ground-breaking bio-based polymer manufacturing venture. Responsible for maintaining, enhancing and building relationships with stakeholders in the worldwide sustainability community, as well as managing corporate and external sustainability initiatives.

- Successfully completed Minnesota Management Institute at University of Minnesota Carlson School of Management, an alternative to an executive MBA program that surveyed fundamentals and new developments in finance, accounting, operations management, strategic planning, and human resource management.

ROCKY MOUNTAIN INSTITUTE

Managing Director/Principal: October 1999—April 2002. Co-authored “Small Is Profitable,” a comprehensive analysis of the benefits of distributed energy resources. Provided consulting and advisory services to help business and government clients achieve sustainability through application and incorporation of Natural Capitalism principles.

- President of the Board, Texas Ratepayers Organization to Save Energy. Texas R.O.S.E. is a non-profit organization advocating low-income consumer issues and energy efficiency programs.
- Co-Founder and Chair of the Advisory Board, Renewable Energy Policy Project-Center for Renewable Energy and Sustainable Technology. REPP-CREST was a national non-profit research and internet services organization.

CH2M HILL

Vice President, Energy, Environment and Systems Group: July 1998—August 1999. Responsible for providing consulting services to a wide range of energy-related businesses and organizations, and for creating new business opportunities in the energy industry for an established engineering and consulting firm. Completed comprehensive electric utility restructuring studies for the states of Colorado and Alaska.

PLANERGY

Vice President, New Energy Markets: January 1998—July 1998. Responsible for developing and managing new business opportunities for the energy services market. Provided consulting and advisory services to utility and energy service companies.

ENVIRONMENTAL DEFENSE FUND

Energy Program Manager: March 1996—January 1998. Managed renewable energy, energy efficiency, and electric utility restructuring programs. Led regulatory intervention activities in Texas and California. In Texas, played a key role in crafting Deliberative Polling processes. Participated in national environmental and energy advocacy networks, including the Energy Advocates Network, the National Wind Coordinating Committee, the NCSL Advisory Committee on Energy, and the PV-COMPACT Coordinating Council. Frequently appeared before the Texas Legislature, Austin City Council, and regulatory commissions on electric restructuring issues.

Karl R. Rábago

UNITED STATES DEPARTMENT OF ENERGY

Deputy Assistant Secretary, Utility Technologies: January 1995–March 1996. Manager of the Department's programs in renewable energy technologies and systems, electric energy systems, energy efficiency, and integrated resource planning. Supervised technology research, development and deployment activities in photovoltaics, wind energy, geothermal energy, solar thermal energy, biomass energy, high-temperature superconductivity, transmission and distribution, hydrogen, and electric and magnetic fields. Managed, coordinated, and developed international agreements. Supervised development and deployment support activities at national laboratories. Developed, advocated, and managed a Congressional budget appropriation of approximately \$300 million.

STATE OF TEXAS

Commissioner, Public Utility Commission of Texas. May 1992–December 1994. Appointed by Governor Ann W. Richards. Regulated electric and telephone utilities in Texas. Co-chair and organizer of the Texas Sustainable Energy Development Council. Vice-Chair of the National Association of Regulatory Utility Commissioners (NARUC) Committee on Energy Conservation. Member and co-creator of the Photovoltaic Collaborative Market Project to Accelerate Commercial Technology (PV-COMPACT).

LAW TEACHING

Professor for a Designated Service: Pace University Elisabeth Haub School of Law, 2014-2019. Non-tenured member of faculty. Taught Energy Law. Supervised a student intern practice.

Associate Professor of Law: University of Houston Law Center, 1990–1992. Full time, tenure track member of faculty. Courses taught: Criminal Law, Environmental Law, Criminal Procedure, Environmental Crimes Seminar, Wildlife Protection Law.

Assistant Professor: United States Military Academy, West Point, New York, 1988–1990. Member of the faculty in the Department of Law. Honorably discharged in August 1990, as Major in the Regular Army. Courses taught: Constitutional Law, Military Law, and Environmental Law Seminar.

LITIGATION

Trial Defense Attorney and Prosecutor, U.S. Army Judge Advocate General's Corps, Fort Polk, Louisiana, January 1985–July 1987. Assigned to Trial Defense Service and Office of the Staff Judge Advocate.

NON-LEGAL MILITARY SERVICE

Armored Cavalry Officer, 2d Squadron 9th Armored Cavalry, Fort Stewart, Georgia, May 1978–August 1981. Served as Logistics Staff Officer (S-4). Managed budget, supplies, fuel, ammunition, and other support for an Armored Cavalry Squadron. Served as Support Platoon Leader for the Squadron (logistical support), and as line Platoon Leader in an Armored Cavalry Troop. Graduate of Airborne and Ranger Schools. Special training in Air Mobilization Planning and Nuclear, Biological and Chemical Warfare.

Karl R. Rábago

Formal Education

LL.M., Environmental Law, Pace University School of Law, 1990: Curriculum designed to provide breadth and depth in study of theoretical and practical aspects of environmental law. Courses included: International and Comparative Environmental Law, Conservation Law, Land Use Law, Seminar in Electric Utility Regulation, Scientific and Technical Issues Affecting Environmental Law, Environmental Regulation of Real Estate, Hazardous Wastes Law. Individual research with Hudson Riverkeeper Fund, Garrison, New York.

LL.M., Military Law, U.S. Army Judge Advocate General's School, 1988: Curriculum designed to prepare Judge Advocates for senior level staff service. Courses included: Administrative Law, Defensive Federal Litigation, Government Information Practices, Advanced Federal Litigation, Federal Tort Claims Act Seminar, Legal Writing and Communications, Comparative International Law.

J.D. with Honors, University of Texas School of Law, 1984: Attended law school under the U.S. Army Funded Legal Education Program, a fully funded scholarship awarded to 25 or fewer officers each year. Served as Editor-in-Chief (1983–84); Articles Editor (1982–83); Member (1982) of the Review of Litigation. Moot Court, Mock Trial, Board of Advocates. Summer internship at Staff Judge Advocate's offices. Prosecuted first cases prior to entering law school.

B.B.A., Business Management, Texas A&M University, 1977: ROTC Scholarship (3–yr). Member: Corps of Cadets, Parson's Mounted Cavalry, Wings & Sabers Scholarship Society, Rudder's Rangers, Town Hall Society, Freshman Honor Society, Alpha Phi Omega service fraternity.

Karl R. Rábago

Selected Publications

- “Distributed Generation Law,” contributing author, American Bar Association Environment, Energy, and Resources Section (August 2020)
- “National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources,” contributing author, National Energy Screening Project (August 2020)
- “Achieving 100% Renewables: Supply-Shaping through Curtailment,” with Richard Perez, Marc Perez, and Morgan Putnam, PV Tech Power, Vol. 19 (May 2019).
- “A Radical Idea to Get a High-Renewable Electric Grid: Build Way More Solar and Wind than Needed,” with Richard Perez, The Conversation, online at <http://bit.ly/2YjnM15> (May 29, 2019).
- “Reversing Energy System Inequity: Urgency and Opportunity During the Clean Energy Transition,” with John Howat, John Colgan, Wendy Gerlitz, and Melanie Santiago-Mosier, National Consumer Law Center, online at www.nclc.org (Feb. 26, 2019).
- “Revisiting Bonbright’s Principles of Public Utility Rates in a DER World,” with Radina Valova, The Electricity Journal, Vol. 31, Issue 8, pp. 9-13 (Oct. 2018).
- “Achieving very high PV penetration – The need for an effective electricity remuneration framework and a central role for grid operators,” Richard Perez (corresponding author), Energy Policy, Vol. 96, pp. 27-35 (2016).
- “The Net Metering Riddle,” Electricity Policy.com, April 2016.
- “The Clean Power Plan,” Power Engineering Magazine (invited editorial), Vol. 119, Issue 12 (Dec. 2, 2015)
- “The ‘Sharing Utility:’ Enabling & Rewarding Utility Performance, Service & Value in a Distributed Energy Age,” co-author, 51st State Initiative, Solar Electric Power Association (Feb. 27, 2015)
- “Rethinking the Grid: Encouraging Distributed Generation,” Building Energy Magazine, Vol. 33, No. 1 Northeast Sustainable Energy Association (Spring 2015)
- “The Value of Solar Tariff: Net Metering 2.0,” The ICER Chronicle, Ed. 1, p. 46 [International Confederation of Energy Regulators] (December 2013)
- “A Regulator’s Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation,” co-author, Interstate Renewable Energy Council (October 2013)
- “The ‘Value of Solar’ Rate: Designing an Improved Residential Solar Tariff,” Solar Industry, Vol. 6, No. 1 (Feb. 2013)
- “Jicarilla Apache Nation Utility Authority Strategic Plan for Energy Efficiency and Renewable Energy Development,” lead author & project manager, U.S. Department of Energy First Steps Toward Developing Renewable Energy and Energy Efficiency on Tribal Lands Program (2008)
- “A Review of Barriers to Biofuels Market Development in the United States,” 2 Environmental & Energy Law & Policy Journal 179 (2008)
- “A Strategy for Developing Stationary Biodiesel Generation,” Cumberland Law Review, Vol. 36, p.461 (2006)
- “Evaluating Fuel Cell Performance through Industry Collaboration,” co-author, Fuel Cell Magazine (2005)
- “Applications of Life Cycle Assessment to NatureWorks™ Polylactide (PLA) Production,” co-author, Polymer Degradation and Stability 80, 403-19 (2003)

Karl R. Rábago

- “An Energy Resource Investment Strategy for the City of San Francisco: Scenario Analysis of Alternative Electric Resource Options,” contributing author, Prepared for the San Francisco Public Utilities Commission, Rocky Mountain Institute (2002)
- “Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size,” co-author, Rocky Mountain Institute (2002)
- “Socio-Economic and Legal Issues Related to an Evaluation of the Regulatory Structure of the Retail Electric Industry in the State of Colorado,” with Thomas E. Feiler, Colorado Public Utilities Commission and Colorado Electricity Advisory Panel (April 1, 1999)
- “Study of Electric Utility Restructuring in Alaska,” with Thomas E. Feiler, Legislative Joint Committee on electric Restructuring and the Alaska Public Utilities Commission (April 1, 1999)
- “New Markets and New Opportunities: Competition in the Electric Industry Opens the Way for Renewables and Empowers Customers,” EEBA Excellence (Journal of the Energy Efficient Building Association) (Summer 1998)
- “Building a Better Future: Why Public Support for Renewable Energy Makes Sense,” Spectrum: The Journal of State Government (Spring 1998)
- “The Green-e Program: An Opportunity for Customers,” with Ryan Wisner and Jan Hamrin, Electricity Journal, Vol. 11, No. 1 (January/February 1998)
- “Being Virtual: Beyond Restructuring and How We Get There,” Proceedings of the First Symposium on the Virtual Utility, Kluwer Press (1997)
- “Information Technology,” Public Utilities Fortnightly (March 15, 1996)
- “Better Decisions with Better Information: The Promise of GIS,” with James P. Spiers, Public Utilities Fortnightly (November 1, 1993)
- “The Regulatory Environment for Utility Energy Efficiency Programs,” Proceedings of the Meeting on the Efficient Use of Electric Energy, Inter-American Development Bank (May 1993)
- “An Alternative Framework for Low-Income Electric Ratepayer Services,” with Danielle Jaussaud and Stephen Benenson, Proceedings of the Fourth National Conference on Integrated Resource Planning, National Association of Regulatory Utility Commissioners (September 1992)
- “What Comes Out Must Go In: The Federal Non-Regulation of Cooling Water Intakes Under Section 316 of the Clean Water Act,” Harvard Environmental Law Review, Vol. 16, p. 429 (1992)
- “Least Cost Electricity for Texas,” State Bar of Texas Environmental Law Journal, Vol. 22, p. 93 (1992)
- “Environmental Costs of Electricity,” Pace University School of Law, Contributor–Impingement and Entrainment Impacts, Oceana Publications, Inc. (1990)

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(as of 30 May 2021)

Date	Proceeding	Case/Docket #	On Behalf Of:
Dec. 21, 2012	VA Electric & Power Special Solar Power Tariff	Virginia SCC Case # PUE-2012-00064	Southern Environmental Law Center
May 10, 2013	Georgia Power Company 2013 IRP	Georgia PSC Docket # 36498	Georgia Solar Energy Industries Association
Jun. 23, 2013	Louisiana Public Service Commission Re-examination of Net Metering Rules	Louisiana PSC Docket # R-31417	Gulf States Solar Energy Industries Association
Aug. 29, 2013	DTE (Detroit Edison) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17302	Environmental Law and Policy Center
Sep. 5, 2013	CE (Consumers Energy) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17301	Environmental Law and Policy Center
Sep. 27, 2013	North Carolina Utilities Commission 2012 Avoided Cost Case	North Carolina Utilities Commission Docket # E-100, Sub. 136	North Carolina Sustainable Energy Association
Oct. 18, 2013	Georgia Power Company 2013 Rate Case	Georgia PSC Docket # 36989	Georgia Solar Energy Industries Association
Nov. 4, 2013	PEPCO Rate Case (District of Columbia)	District of Columbia PSC Formal Case # 1103	Grid 2.0 Working Group & Sierra Club of Washington, D.C.
Apr. 24, 2014	Dominion Virginia Electric Power 2013 IRP	Virginia SCC Case # PUE-2013-00088	Environmental Respondents
Apr. 25, 2014	North Carolina Utilities Commission 2014 Avoided Cost Case - Direct	North Carolina Utilities Commission Docket # E-100, Sub. 140	Southern Alliance for Clean Energy
May 7, 2014	Arizona Corporation Commission Investigation on the Value and Cost of Distributed Generation	Arizona Corporation Commission Docket # E-00000J-14-0023	Rábago Energy LLC (invited presentation and workshop participation)
Jun. 2, 2014	North Carolina Utilities Commission 2014 Avoided Cost Case – Response (Corrected)	North Carolina Utilities Commission Docket # E-100, Sub. 140	Southern Alliance for Clean Energy
Jun. 20, 2014	North Carolina Utilities Commission 2014 Avoided Cost Case – Rebuttal	North Carolina Utilities Commission Docket # E-100, Sub. 140	Southern Alliance for Clean Energy
Jul. 23, 2014	Florida Energy Efficiency and Conservation Act, Goal Setting – FPL, Duke, TECO, Gulf	Florida PSC Docket # 130199-EI, 130200-EI, 130201-EI, 130202-EI	Southern Alliance for Clean Energy

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Sep. 19, 2014	Ameren Missouri's Application for Authorization to Suspend Payment of Solar Rebates	Missouri PSC File No. ET-2014-0350, Tariff # YE-2014-0494	Missouri Solar Energy Industries Association
Aug. 6, 2014	Appalachian Power Company 2014 Biennial Rate Review	Virginia SCC Case # PUE-2014-00026	Southern Environmental Law Center (Environmental Respondents)
Aug. 13, 2014	Wisconsin Public Service Corp. 2014 Rate Application	Wisconsin PSC Docket # 6690-UR-123	RENEW Wisconsin and Environmental Law & Policy Center
Aug. 28, 2014	WE Energies 2014 Rate Application	Wisconsin PSC Docket # 05-UR-107	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 18, 2014	Madison Gas & Electric Company 2014 Rate Application	Wisconsin PSC Docket # 3720-UR-120	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 29, 2014	SOLAR, LLC v. Missouri Public Service Commission	Missouri District Court Case # 14AC-CC00316	SOLAR, LLC
Jan. 28, 2016 (date of CPUC order)	Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs, etc.	California PUC Rulemaking 14-07-002	The Utility Reform Network (TURN)
Mar. 20, 2015	Orange and Rockland Utilities 2015 Rate Application	New York PSC Case # 14-E-0493	Pace Energy and Climate Center
May 22, 2015	DTE Electric Company Rate Application	Michigan PSC Case # U-17767	Michigan Environmental Council, NRDC, Sierra Club, and ELPC
Jul. 20, 2015	Hawaiian Electric Company and NextEra Application for Change of Control	Hawai'i PUC Docket # 2015-0022	Hawai'i Department of Business, Economic Development, and Tourism
Sep. 2, 2015	Wisc. PSCo Rate Application	Wisconsin PSC Case # 6690-UR-124	ELPC
Sep. 15, 2015	Dominion Virginia Electric Power 2015 IRP	Virginia SCC Case # PUE-2015-00035	Environmental Respondents
Sep. 16, 2015	NYSEG & RGE Rate Cases	New York PSC Cases 15-E-0283, -0285	Pace Energy and Climate Center
Oct. 14, 2015	Florida Power & Light Application for CCPN for Lake Okeechobee Plant	Florida PSC Case 150196-EI	Environmental Confederation of Southwest Florida
Oct. 27, 2015	Appalachian Power Company 2015 IRP	Virginia SCC Case # PUE-2015-00036	Environmental Respondents

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Nov. 23, 2015	Narragansett Electric Power/National Grid Rate Design Application	Rhode Island PUC Docket No. 4568	Wind Energy Development, LLC
Dec. 8, 2015	State of West Virginia, et al., v. U.S. EPA, et al.	U.S. Court of Appeals for the District of Columbia Circuit Case No. 15-1363 and Consolidated Cases	Declaration in Support of Environmental and Public Health Intervenors in Support of Movant Respondent-Intervenors' Responses in Opposition to Motions for Stay
Dec. 28, 2015	Ohio Power/AEP Affiliate PPA Application	PUC of Ohio Case No. 14-1693-EL-RDR	Environmental Law and Policy Center
Jan. 19, 2016	Ohio Edison Company, Cleveland Electric Illuminating Company, and Toledo Edison Company Application for Electric Security Plan (FirstEnergy Affiliate PPA)	PUC of Ohio Case No. 14-1297-EL-SSO	Environmental Law and Policy Center
Jan. 22, 2016	Northern Indiana Public Service Company (NIPSCO) Rate Case	Indiana Utility Regulatory Commission Cause No. 44688	Citizens Action Coalition and Environmental Law and Policy Center
Mar. 18, 2016	Northern Indiana Public Service Company (NIPSCO) Rate Case – Settlement Testimony	Indiana Utility Regulatory Commission Cause No. 44688	Joint Intervenors – Citizens Action Coalition and Environmental Law and Policy Center
Mar. 18, 2016	Comments on Pilot Rate Proposals by MidAmerican and Alliant	Iowa Utility Board NOI-2014-0001	Environmental Law and Policy Center
May 27, 2016	Consolidated Edison of New York Rate Case	New York PSC Case No. 16-E-0060	Pace Energy and Climate Center
June 21, 2016	Federal Trade Commission: Workshop on Competition and Consumer Protection Issues in Solar Energy	Invited workshop presentation	Pace Energy and Climate Center
Aug. 17, 2016	Dominion Virginia Electric Power 2016 IRP	Virginia SCC Case # PUE-2016-00049	Environmental Respondents
Sep. 13, 2016	Appalachian Power Company 2016 IRP	Virginia SCC Case # PUE-2016-00050	Environmental Respondents
Oct. 27, 2016	Consumers Energy PURPA Compliance Filing	Michigan PSC Case No. U-18090	Environmental Law & Policy Center, "Joint Intervenors"

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Oct. 28, 2016	Delmarva, PEPCO (PHI) Utility Transformation Filing – Review of Filing & Utilities of the Future Whitepaper	Maryland PSC Case PC 44	Public Interest Advocates
Dec. 1, 2016	DTE Electric Company PURPA Compliance Filing	Michigan PSC Case No. U-18091	Environmental Law & Policy Center, “Joint Intervenors”
Dec. 16, 2016	Rebuttal of Unitil Testimony in Net Energy Metering Docket	New Hampshire Docket No. DE 16-576	New Hampshire Sustainable Energy Association (“NHSEA”)
Jan. 13, 2017	Gulf Power Company Rate Case	Florida Docket No. 160186-EI	Earthjustice, Southern Alliance for Clean Energy, League of Women Voters-Florida
Jan. 13, 2017	Alpena Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18089	Environmental Law & Policy Center, “Joint Intervenors”
Jan. 13, 2017	Indiana Michigan Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18092	Environmental Law & Policy Center, “Joint Intervenors”
Jan. 13, 2017	Northern States Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18093	Environmental Law & Policy Center, “Joint Intervenors”
Jan. 13, 2017	Upper Peninsula Power Company PURPA Compliance Filing	Michigan PSC Case No. U-18094	Environmental Law & Policy Center, “Joint Intervenors”
Mar. 10, 2017	Eversource Energy Grid Modernization Plan	Massachusetts DPU Case No. 15-122/15-123	Cape Light Compact
Apr. 27, 2017	Eversource Rate Case & Grid Modernization Investments	Massachusetts DPU Case No. 17-05	Cape Light Compact
May 2, 2017	AEP Ohio Power Electric Security Plan	PUC of Ohio Case No. 16-1852-EL-SSO	Environmental Law & Policy Center
Jun. 2, 2017	Vectren Energy TDSIC Plan	Indiana URC Cause No. 44910	Citizens Action Coalition & Valley Watch
Jul. 28, 2017	Vectren Energy 2016-2017 Energy Efficiency Plan	Indiana URC Cause No. 44645	Citizens Action Coalition
Jul. 28, 2017	Vectren Energy 2018-2020 Energy Efficiency Plan	Indiana URC Cause No. 44927	Citizens Action Coalition
Aug. 1, 2017	Interstate Power & Light (Alliant) 2017 Rate Application	Iowa Utilities Board Docket No. RPU-2017-0001	Environmental Law & Policy Center, Iowa Environmental Council, Natural Resources Defense Council, and Solar Energy Industries Assoc.

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Aug. 11, 2017	Dominion Virginia Electric Power 2017 IRP	Virginia SCC Case # PUR-2017-00051	Environmental Respondents
Aug. 18, 2017	Appalachian Power Company 2017 IRP	Virginia SCC Case # PUR-2017-00045	Environmental Respondents
Aug. 23, 2017	Pennsylvania Solar Future Project	PA Dept. of Environmental Protection - Alternative Ratemaking Webinar	Pace Energy and Climate Center
Aug. 25, 2017	Niagara Mohawk Power Co. d/b/a National Grid Rate Case	New York PSC Case # 17-E-0238, 17-G-0239	Pace Energy and Climate Center
Sep. 15, 2017	Niagara Mohawk Power Co. d/b/a National Grid Rate Case	New York PSC Case # 17-E-0238, 17-G-0239	Pace Energy and Climate Center
Oct. 20, 2017	Missouri PSC Working Case to Explore Emerging Issues in Utility Regulation	Missouri PSC File No. EW-2017-0245	Renew Missouri
Nov. 21, 2017	Central Hudson Gas & Electric Co. Electric and Gas Rates Cases	New York PSC Case # 17-E-0459, -0460	Pace Energy and Climate Center
Jan. 16, 2018	Great Plains Energy, Inc. Merger with Westar Energy, Inc.	Missouri PSC Case # EM-2018-0012	Renew Missouri Advocates
Jan. 19, 2018	U.S. House of Representatives, Energy and Commerce Committee	Hearing on "The PURPA Modernization Act of 2017," H.R. 4476	Rábago Energy LLC
Jan. 29, 2018	Joint Petition of Electric Distribution Companies for Approval of a Model SMART Tariff	Massachusetts D.P.U. Case No. 17-140	Boston Community Capital Solar Energy Advantage Inc. (Jointly authored with Sheryl Musgrove)
Feb. 21, 2018	Joint Petition of Electric Distribution Companies for Approval of a Model SMART Tariff	Massachusetts D.P.U. Case No. 17-140 - Surrebuttal	Boston Community Capital Solar Energy Advantage Inc. (Jointly authored with Sheryl Musgrove)
Apr. 6, 2018	Narragansett Electric Co., d/b/a National Grid Rate Case Filing	RI PUC Docket No. 4770	New Energy Rhode Island ("NERI")
Apr. 25, 2018	Narragansett Electric Co., d/b/a National Grid Power Sector Transformation Plan	Rhode Island PUC Docket No. 4780	New Energy Rhode Island ("NERI")

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Apr. 26, 2018	U.S. EPA Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 82 Fed. Reg. 48,035 (Oct. 16, 2017) – “Clean Power Plan”	U.S. EPA Docket No. EPA-HQ-OAR-2016-0592	Karl R. Rábago
May 25, 2018	Orange & Rockland Utilities, Inc. Rate Case Filing	New York PSC Case Nos. 18-E-0067, 18-G-0068	Pace Energy and Climate Center
Jun. 15, 2018	Orange & Rockland Utilities, Inc. Rate Case Filing	New York PSC Case Nos. 18-E-0067, 18-G-0068 – Rebuttal Testimony	Pace Energy and Climate Center
Aug. 10, 2018	Dominion Virginia Electric Power 2018 IRP	Virginia SCC Case # PUR-2018-00065	Environmental Respondents
Sep. 20, 2018	Consumers Energy Company Rate Case	Michigan PSC Case No. U-20134	Environmental Law & Policy Center
Sep. 27, 2018	Potomac Electric Power Co. Notice to Construct Two 230 kV Underground Circuits	District of Columbia Public Service Commission Formal Case No. 1144	Solar United Neighbors of D.C.
Sep. 28, 2019	Arkansas Public Service Commission Investigation of Policies Related to Distributed Energy Resources	Arkansas PSC Docket No. 16-028-U	Arkansas Audubon Society & Arkansas Advanced Energy Association
Nov. 7, 2018	DTE Detroit Edison Rate Case	Michigan PSC Case No. U-20162	Natural Resources Defense Council, Michigan Environmental Council, Sierra Club
Mar. 26, 2019	Guam Power Authority Petition to Modify Net Metering	Guam PUC Docket GPA 19-04	Micronesia Renewable Energy, Inc.
Apr. 4, 2019	Community Power Network & League of Women Voters of Florida v. JEA	Circuit Court Duval County of Florida Case No. 2018-CA-002497 Div: CV-D	Earthjustice
Apr. 16, 2019	Dominion Virginia Electric Power 2018 IRP – Compliance Filing	Virginia SCC Case # PUR-2018-00065	Environmental Respondents
Apr. 25, 2019	Georgia Power 2019 IRP	Georgia PSC Docket No. 42310	GSEA & GSEIA
May 10, 2019	NV Energy NV GreenEnergy 2.0 Rider	Nevada PUC Docket Nos. 18-11015, 18-11016	Vote Solar

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May 24, 2019	Consolidated Edison of New York Electric and Gas Rate Cases – Misc. Issues	New York PSC Case Nos. 19-E-0065, 19-G-0066	Pace Energy and Climate Center
May 24, 2019	Consolidated Edison of New York Electric and Gas Rate Cases – Low- and Moderate-Income Panel	New York PSC Case Nos. 19-E-0065, 19-G-0066	Pace Energy and Climate Center
May 30, 2019	Connecticut DEEP Shared Clean Energy Facility Program Proposal	Connecticut Department of Energy and Environmental Protection Docket No. 19-07-01	Connecticut Fund for the Environment
Jun. 3, 2019	New Orleans City Council Rulemaking to Establish Renewable Portfolio Standards	New Orleans City Council Docket No. UD-19-01	National Audubon Society and Audubon Louisiana
Jun. 14, 2019	Consolidated Edison of New York Electric and Gas Rate Cases – Rebuttal Testimony	New York PSC Case Nos. 19-E-0065, 19-G-0066	Pace Energy and Climate Center
Jun. 24, 2019	Program to Encourage Clean Energy in Westchester County Pursuant to Public Service law Section 74-a; Staff Investigation into a Moratorium on New Natural Gas Services in the Consolidated Edison Company of New York, Inc. Service Territory	New York PSC Case Nos. 19-M-0265, 19-G-0080	Earthjustice and Pace Energy and Climate Center
Jul. 12, 2019	Application of Virginia Electric and Power Company for the Determination of the Fair Rate of Return on Common Equity	Virginia SCC Case # PUR-2019-00050	Virginia Poverty Law Center
Jul. 15, 2019	New Orleans City Council Rulemaking to Establish Renewable Portfolio Standards – Reply Comments	New Orleans City Council Docket No. UD-19-01	National Audubon Society and Audubon Louisiana
Aug. 1, 2019	Interstate Power and Light Company – General Rate Case	Iowa Utilities Board Docket No. RPU-2019-0001	Environmental Law & Policy Center and Iowa Environmental Council
Aug. 19, 2019	Consolidated Edison of New York Electric and Gas Rate Cases – Surrebuttal	New York PSC Case Nos. 19-E-0065, 19-G-0066	Pace Energy and Climate Center
Aug. 21, 2019	Connecticut Department of Energy and Environmental Protection and Public Utility Regulatory Authority Joint Proceeding on the Value of Distributed Energy Resources - Comments	Connecticut DEEP/PURA Docket No. 19-06-29	Connecticut Fund for the Environment and Save Our Sound

Testimony Submitted by Karl R. Rábago

(as of 30 May 2021)

Sep. 10, 2019	Interstate Power and Light Company – General Rate Case - Rebuttal	Iowa Utilities Board Docket No. RPU-2019-0001	Environmental Law & Policy Center and Iowa Environmental Council
Sep. 18, 2019	Connecticut Department of Energy and Environmental Protection and Public Utility Regulatory Authority Joint Proceeding on the Value of Distributed Energy Resources – Comments and Response to Draft Study Outline	Connecticut DEEP/PURA Docket No. 19-06-29	Connecticut Fund for the Environment, Save Our Sound, E4theFuture, NE Clean Energy Council, NE Energy Efficiency Partnership, and Acadia Center
Sep. 20, 2019	Connecticut Department of Energy and Environmental Protection and Public Utility Regulatory Authority Joint Proceeding on the Value of Distributed Energy Resources – Participation in Technical Workshop 1	Connecticut DEEP/PURA Docket No. 19-06-29 http://www.ctn.state.ct.us/ctnplayer.asp?odID=16715	Connecticut Fund for the Environment and Save Our Sound
Oct. 4, 2019	Connecticut Department of Energy and Environmental Protection and Public Utility Regulatory Authority Joint Proceeding on the Value of Distributed Energy Resources – Participation in Technical Workshop 2	Connecticut DEEP/PURA Docket No. 19-06-29 http://www.ctn.state.ct.us/ctnplayer.asp?odID=16766	Connecticut Fund for the Environment and Save Our Sound
Oct. 15, 2019	Electronic Consideration of the Implementation of the Net Metering Act (KY SB 100)	Kentucky Public Service Commission Case No. 2019-00256	Kentuckians for the Commonwealth & Mountain Association for Community Economic Development
Oct. 15, 2019	New Orleans City Council Rulemaking to Establish Renewable Portfolio Standards – Comments on City Council Utility Advisors’ Report	New Orleans City Council Docket No. UD-19-01	National Audubon Society and Audubon Louisiana, Vote Solar, 350 New Orleans, Alliance for Clean Energy, PosiGen, and Sierra Club
Oct. 17, 2019	Indiana Michigan Power Co. General Rate Case	Michigan Public Service Company Case No. U-20359	Environmental Law & Policy Center, The Ecology Center, the Solar Energy Industries Association, and Vote Solar
Dec. 4, 2019	Alabama Power Company Petition for Certificate of Convenience and Necessity	Alabama Public Service Commission Docket No. 32953	Energy Alabama and Gasp, Inc.
Dec. 5, 2019	In the Matter of Net Metering and the Implementation of Act 827 of 2015	Arkansas Public Service Commission Docket No. 16-027-R	National Audubon Society and Arkansas Advanced Energy Association

Testimony Submitted by Karl R. Rábago

(as of 30 May 2021)

Dec. 6, 2019	Proposed Revisions to Vermont Public Utility Commission Rule 5.100	Vermont Public Utility Commission Case No. 19-0855-RULE	Renewable Energy Vermont ("REV")
Jan. 15, 2020	General Rate Case	Washington Utilities and Transportation Commission Docket Nos. UE-190529 & UG-190530	Puget Sound Energy
Feb. 11, 2020	Application of Entergy Arkansas, LLC for a Proposed Tariff Amendment: Solar Energy Purchase Option – Direct Testimony	Arkansas Public Service Commission Docket No. 19-042-TF	Arkansas Advanced Energy Association
Mar. 17, 2020	Application of Entergy Arkansas, LLC for a Proposed Tariff Amendment: Solar Energy Purchase Option – Surrebuttal Testimony	Arkansas Public Service Commission Docket No. 19-042-TF	Arkansas Advanced Energy Association
Jun. 16, 2020	PECO Energy Default Supply Plan V – Direct Testimony	Pennsylvania Public Utility Commission Docket No. P-2020-3019290	Environmental Respondents / Earthjustice
Jun. 24, 2020	Consumers Energy Company General Rate Case – Direct Testimony	Michigan Public Service Commission Case No. U-20697	Joint Clean Energy Organizations / Environmental Law & Policy Center
Jul. 14, 2020	Consumers Energy Company General Rate Case – Rebuttal Testimony	Michigan Public Service Commission Case No. U-20697	Joint Clean Energy Organizations / Environmental Law & Policy Center
July 23, 2020	PECO Energy Default Supply Plan V – Surrebuttal Testimony	Pennsylvania Public Utility Commission Docket No. P-2020-3019290	Environmental Stakeholders / Earthjustice
Sept. 15, 2020	Dominion Virginia Electric Power 2020 IRP – Direct Testimony	Virginia SCC Case # PUR-2020-00035	Environmental Respondents
Sept. 18, 2020	Avoided Cost Proceeding for Georgia Power – Direct Testimony	Georgia Public Service Commission Docket No. 4822	Georgia Solar Energy Industries Association, Inc.
Sept. 29, 2020	Madison Gas and Electric – General Rate Case – Affidavit in Opposition to Electric Rates Settlement	Wisconsin Public Service Commission Docket No. 3270-UR-123	Sierra Club
Sept. 30, 2020	Madison Gas and Electric – General Rate Case – Gas Rates	Wisconsin Public Service Commission Docket No. 3270-UR-123	Sierra Club
Oct. 2, 2020	Duke Energy Florida Petition for Approval of Clean Energy Connect Program	Florida Public Service Commission Docket No. 20200176-EI	League of United Latin American Citizens of Florida

Testimony Submitted by Karl R. Rábago

(as of 30 May 2021)

Sept. 30, 2020	Madison Gas and Electric – General Rate Case – Gas Rates	Wisconsin Public Service Commission Docket No. 3270-UR-123	Sierra Club
Oct. 2, 2020	Duke Energy Florida Petition for Approval of Clean Energy Connect Program	Florida Public Service Commission Docket No. 20200176-EI	League of United Latin American Citizens of Florida
Oct. 2, 2020	Ameren Illinois – Investigation re: Calculation of Distributed Generation Rebates	Illinois Commerce Commission Docket No. 20-0389	Joint Solar Parties
Dec. 9, 2020	Arkansas – In the Matter of a Rulemaking to Adopt an Evaluation, Measurement, and Verification Protocol and Propose M&V Amendments to the Commission’s Rules for Conservation and Energy Efficiency Programs; In the Matter of the Continuation, Expansion, and Enhancement of Public Utility Energy Efficiency Programs in Arkansas	Arkansas Public Service Commission Docket Nos. 10-100-R, 13-002-U	Arkansas Advanced Energy Association
Dec. 22, 2020	Appalachian Power Company 2020 Virginia Clean Economy Act Compliance Plan	Virginia SCC Case No. PUR-2020-00135	Environmental Respondent
Jan. 4, 2021	Dominion Virginia Electric Power Company Clean Economy Compliance Plan	Virginia SCC Case No. PUR-2020-00134	Environmental Respondent
Feb. 5, 2021	Ameren Illinois – Investigation re: Calculation of Distributed Generation Rebates - Rebuttal	Illinois Commerce Commission Docket No. 20-0389	Joint Solar Parties
Feb. 15, 2021	Kentucky Power Company General Rate Case	Kentucky Public Service Commission Case No. 2020-00174	Joint Intervenors – Mountain Association, Kentuckians for the Commonwealth, Kentucky Solar Energy Society
Mar. 2, 2021	Dominion Virginia Electric Power Company Rider RGGI Proposal	Virginia SCC Case No. PUR-2020-00169	Environmental Respondent
Mar. 5, 2021	Kentucky Utilities Company and Louisville Gas and Electric Company General Rate Cases	Kentucky Public Service Commission Case Nos. 2020-00349, 2020-00350	Joint Intervenors – Mountain Association, Kentuckians for the Commonwealth, Kentucky Solar Energy Society
Apr. 5, 2021	Docket to Review the Efficacy and Fairness of the Net Metering and Interconnection Rules – Comments	Mississippi Public Service Commission Docket No. 2021-AD-19	Entegrity Energy Partners, LLC & Audubon Delta / National Audubon Society

Testimony Submitted by Karl R. Rábago

(as of 30 May 2021)

Apr. 13, 2021	Petition of Guam Power Authority for Creation of a New Energy Storage Rate – Comments of Micronesia Renewable Energy, Inc.	Guam Public Utilities Commission Docket No. 20-09	Micronesia Renewable Energy, Inc.
May 25, 2021	Petition of Episcopal Diocese of Rhode Island for Declaratory Judgment on Transmission System Costs and Related “Affected System Operator” Studies	Rhode Island Public Utility Commission Docket No. 4981	Episcopal Diocese of Rhode Island

SPOTLIGHT ON POVERTY & OPPORTUNITY



FLORIDA

STATE GOVERNMENT

GOVERNOR RON DESANTIS (R)

STATE SENATE: 17 DEMOCRATS, 23 REPUBLICANS

STATE HOUSE: 46 DEMOCRATS, 71 REPUBLICANS

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[DATA](#)

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PARTICIPATION IN FEDERAL PROGRAMS

Adults and children receiving welfare (TANF):	72,904
Children receiving food stamps (SNAP):	1,412,090
EITC recipients:	2,110,000
Families receiving child care subsidies:	62,500
Households receiving federal rental assistance:	214,000
Households receiving LIHEAP (Low Income Home Energy Assistance Program):	117,791
Number of children enrolled in Medicaid and CHIP:	2,451,411
Number of women and children receiving WIC (Women, Infants and Children supplemental nutrition program):	450,624
Participants in all Head Start programs:	39,655

ASSETS

Asset poverty rate:	26.70%
Average college graduate debt:	\$24,664
Unbanked households:	6.00%

POVERTY BY DEMOGRAPHIC

Child poverty rate:	20.00%
<hr/>	
Number of Asian and Pacific Islander children below 200% poverty:	35,000
<hr/>	
Number of Black and Hispanic children below 200% poverty:	1,248,000
<hr/>	
Number of Hispanic children below 200% poverty:	716,000
<hr/>	
Percent of single-parent families with related children that are below poverty:	29%
<hr/>	
Senior poverty rate:	10.20%
<hr/>	
Women in poverty:	13.70%

FAMILY

Children in foster care:	24,641
<hr/>	
Number of households with grandparents responsible for grandchildren under age 18	499,113
<hr/>	
Percent of children in immigrant families:	33%
<hr/>	
Percent of children living in single parent families:	39%
<hr/>	

Teen birth rate per 1,000 population ages 15-19: **18.20%**

ECONOMIC WELL-BEING

Extreme poverty rate: **8.00%**

Food insecurity: **13.40%**

Minimum Wage: **\$8.56**

Number of Black and Hispanic children living in families where no parent has full-time, year-round employment: **700,000**

Number of Hispanic children living in families where no parent has full-time, year-round employment: **363,000**

Percent of individuals who are uninsured: **13.00%**

Percent of jobs that are low-wage: **27.00%**

Percent of working families under 200% of the poverty line: **37.70%**

Poverty rate: **14.00%**

Unemployment rate: **3.30%**

EDUCATION

High school graduation rate:	82.30%
------------------------------	---------------

Percent of adult population with at least a high school degree:	87.40%
---	---------------

Percent of college graduates with debt:	50%
---	------------

Percent of population over age 25 with at least a four year college degree:	30.40%
---	---------------

Percent of teens ages 16 to 19 not attending school and not working:	7%
--	-----------

HOUSING

Home foreclosure rate:	1.32%
------------------------	--------------

Homeless people:	33,559
------------------	---------------

Households paying more than 50% of income on housing:	769,400
---	----------------

Percent renters:	35%
------------------	------------

Total households:	7,905,832
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JUSTICE SYSTEM

Incarcerated persons per 100,000 residents	466
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Number of youth residing in juvenile justice and
correctional facilities:

2,712

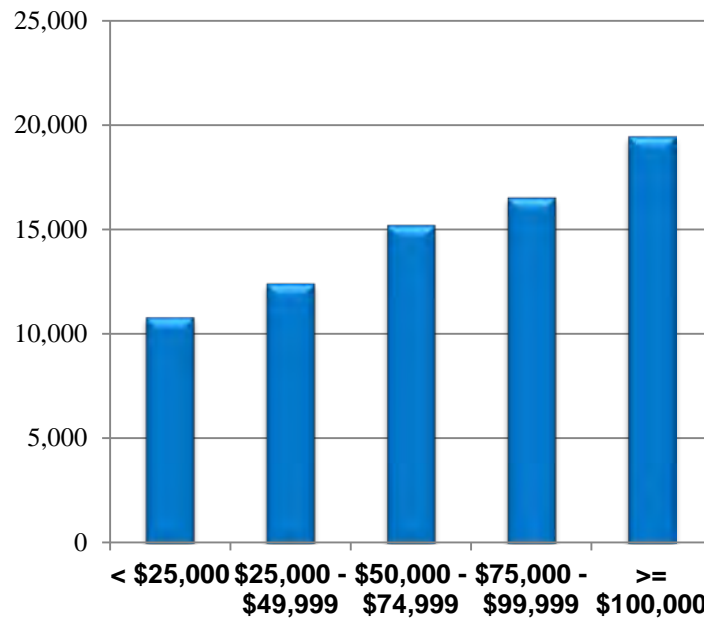
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UTILITY RATE DESIGN: HOW MANDATORY MONTHLY CUSTOMER FEES CAUSE DISPROPORTIONATE HARM

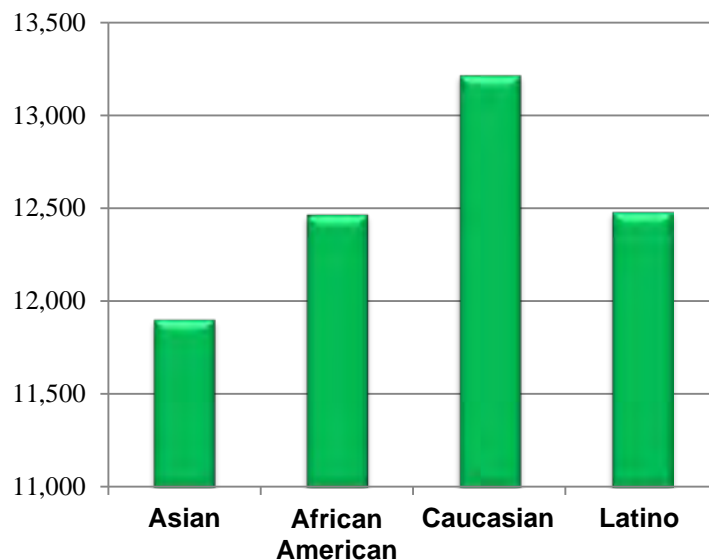
U.S. REGION: FL

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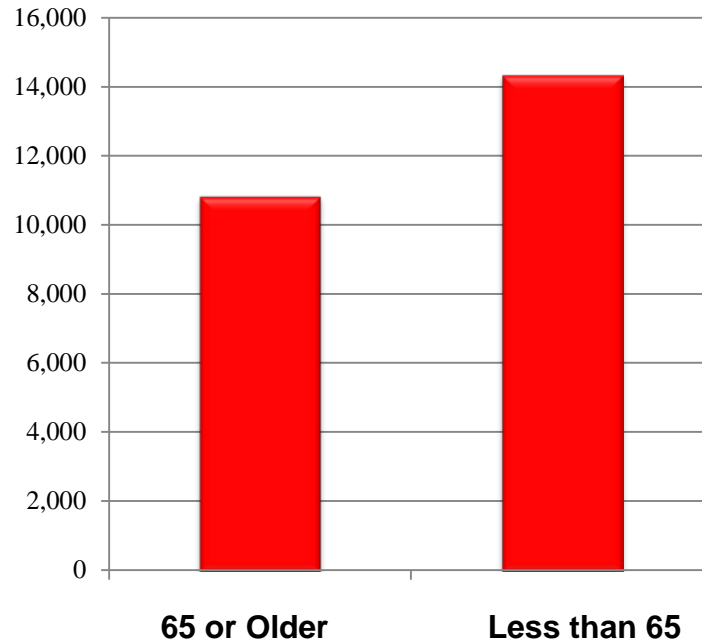
Median 2009 Residential Electricity Usage (KWH), by Income



Median 2009 Residential Electricity Usage (KWH), by Race/Ethnicity



Median 2009 Residential Electricity Usage (KWH), by Age



2009 Residential Energy Consumption by Income, Race/Ethnicity, & Age

HOUSEHOLD INCOME	MEDIAN ELECTRICITY USAGE (KWH)
< \$25,000	10,819
\$25,000 - \$49,999	12,419
\$50,000 - \$74,999	15,215
\$75,000 - \$99,999	16,536
>=\$100,000	19,467

HOUSEHOLD RACE	MEDIAN ELECTRICITY USAGE (KWH)
Asian	11,905
African American	12,469
Caucasian	13,219
Latino	12,483

HOUSEHOLD AGE	MEDIAN ELECTRICITY USAGE (KWH)
65 years or older	10,834
Less than 65 years	14,346

Source: U.S. Energy Information Administration's Residential Energy Consumption Survey, 2009 (most recent data available)

For questions, contact John Howat: jhowat@nclc.org | 617-542-8010

Industry Financial Performance

Income Statement

- Energy Operating Revenues declined 1.7% versus last year. Nationwide electricity demand fell 2.9% as COVID-19 restrictions depressed commercial and industrial load. Mild winter weather also constrained energy demand for heating. With people homebound from March through year-end, residential electricity demand gained about 1%. The average retail price of electricity nationwide also rose about 1%, according to EIA data. Only 10 of the 44 utilities included in EEI's industry consolidated data experienced revenue growth in 2020.
- Falling coal and natural gas prices drove Total Energy Operating Expenses down 11.2%. Total Electric Generation Cost was almost 10% lower; its two components, electric fuel expense and cost of purchased power, each showed declines across nearly all companies who report these metrics. Growth in zero-fuel-cost renewable generation may also have contributed to lower fuel expense. Gas Cost fell almost 21%; it was sharply lower for nearly all companies.
- Operations and Maintenance (O&M) costs rose 1.2%, roughly the same as 2019's 1.0% increase. Utilities are benefitting from smart-grid investment productivity and have worked hard to constrain O&M-related expenses in recent years; that focus continued during the pandemic as a means of addressing revenue declines. But these costs are also driven by essential reliability needs. Of the 42 utilities who report O&M as a line item, 25 reported a decline and year-to-year comparisons varied widely.
- Depreciation & Amortization (D&A) expenses rose 7.5%. This metric increased for 41 of the 44 constituent companies, reflecting the industry's ongoing widespread and diverse investments in new clean generation, transmission, distribution and grid modernization.
- Operating Income rose less than 1%. Lower fuel costs and the industry's cost management efforts partly offset lower revenue and higher Depreciation and Amortization expenses. Operating Income rose for 20 companies and declined for the other 24.
- Total Other Recurring and Non-Recurring Revenue show the influence of a few company-specific situations. Together, these metrics added \$3.5 billion to consolidated pre-tax income compared to last year.

- Interest Expense rose only 2.2%, less than last year's 8.2%. This was the result of declines at a few large utilities and falling interest rates during the year. Most companies had slightly higher interest costs due to rising levels of long-term debt required to finance capital spending.
- The large jump in Asset Write-downs and offsetting decline in Other Non-Recurring Expenses were driven by actions at just a few companies. These two items together had little impact on the year-to-year change in consolidated industry figures.
- Net income Before Taxes increased 9.4%. Net Income rose 4.2% as Provision for Taxes jumped 25.7%. These figures are driven by the industry's largest companies and mask a wide variation in company-specific results. Pre-Tax Income rose at 19 companies and declined at 25. Net Income likewise rose at 20 and fell at 24. The year-to-year change in both metrics showed considerable variation across companies.
- The industry's Common Dividend payments rose 5.8% versus 2019. Utilities' reliable stock dividends offer a welcome source of income for savings-oriented investors, especially given the near-zero short-term rates and meager bond yields available during 2020.

Consolidated Income Statement

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

12 Months Ended

(\$ Millions)	12/31/2020	12/31/2019r	% Change
Energy Operating Revenues	\$351,085	\$357,127	(1.7%)
Energy Operating Expenses			
Total Electrical Generation Cost	80,661	89,208	(9.6%)
Gas Cost	11,986	15,112	(20.7%)
Total Energy Operating Expenses	92,647	104,320	(11.2%)
Revenues less energy operating expenses	258,438	252,807	2.2%
Other Operating Expenses			
Operations & Maintenance	93,907	92,824	1.2%
Depreciation & Amortization	56,966	52,979	7.5%
Taxes (not income) - Total	21,075	20,428	3.2%
Other Operating Expenses	15,390	16,091	(4.4%)
Total Operating Expenses	279,986	286,641	(2.3%)
Operating Income	71,099	70,486	0.9%
Other Recurring Revenue			
Partnership Income	2,329	1,621	43.7%
Allowance for Equity Funds Used for Construction	2,027	1,801	12.5%
Other Revenue	9,869	4,625	113.4%
Total Other Recurring Revenue	14,226	8,047	76.8%
Non-Recurring Revenue			
Gain on Sale of Assets	566	3,049	(81.4%)
Other Non-Recurring Revenue	-	117	(100.0%)
Total Non-Recurring Revenue	566	3,167	(82.1%)
Interest Expense	27,178	26,583	2.2%
Other Expenses	453	149	203.3%
Asset Writedowns	8,657	3,470	149.5%
Other Non-Recurring Expenses	7,518	13,034	(42.3%)
Total Non-Recurring Expenses	16,175	16,504	(2.0%)
Net Income Before Taxes	42,085	38,463	9.4%
Provision for Taxes	3,336	2,653	25.7%
Dividends on Preferred Stock of Subsidiary	-	-	NM
Other Minority Interest Expense	-	-	NM
Minority Interest Expense	-	-	NM
Trust Preferred Security Payments	-	-	NM
Other After-tax Items	-	-	NM
Total Minority Interest and Other After-tax Items	-	-	NM
Net Income Before Extraordinary Items	38,749	35,810	8.2%
Discontinued Operations	(122)	1,243	(109.8%)
Change in Accounting Principles	-	-	NM
Early Retirement of Debt	-	-	NM
Other Extraordinary Items	-	-	NM
Total Extraordinary Items	(122)	1,243	(109.8%)
Net Income	38,627	37,053	4.2%
Preferred Dividends Declared	597	376	58.8%
Other Preferred Dividends after Net Income	2	2	0.0%
Other Changes to Net Income	(3)	(3)	0.0%
Net Income Attributable to Noncontrolling Interests	(533)	60	NA
Net Income Available to Common	38,558	36,612	5.3%
Common Dividends	29,503	27,876	5.8%

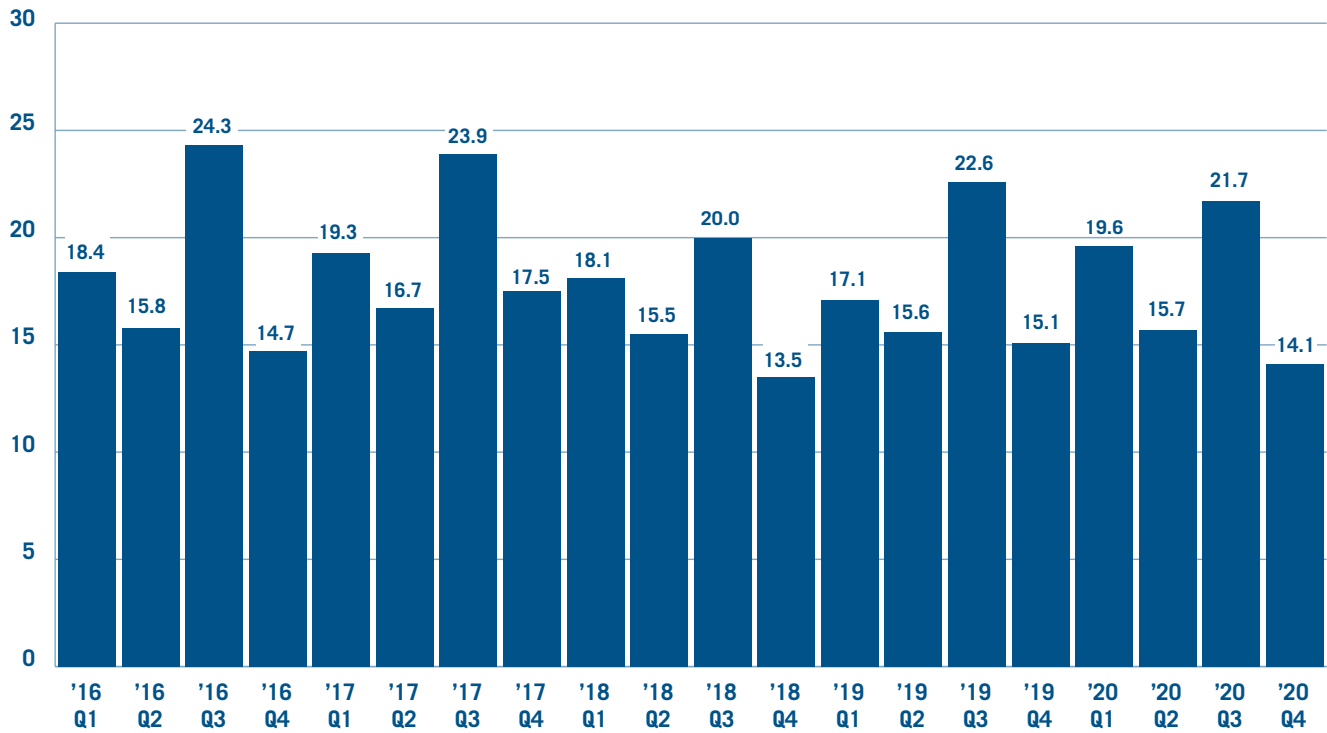
r = revised NM = not meaningful

Source: S&P Global Market Intelligence and EEI Finance Department.

Quarterly Net Operating Income

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)

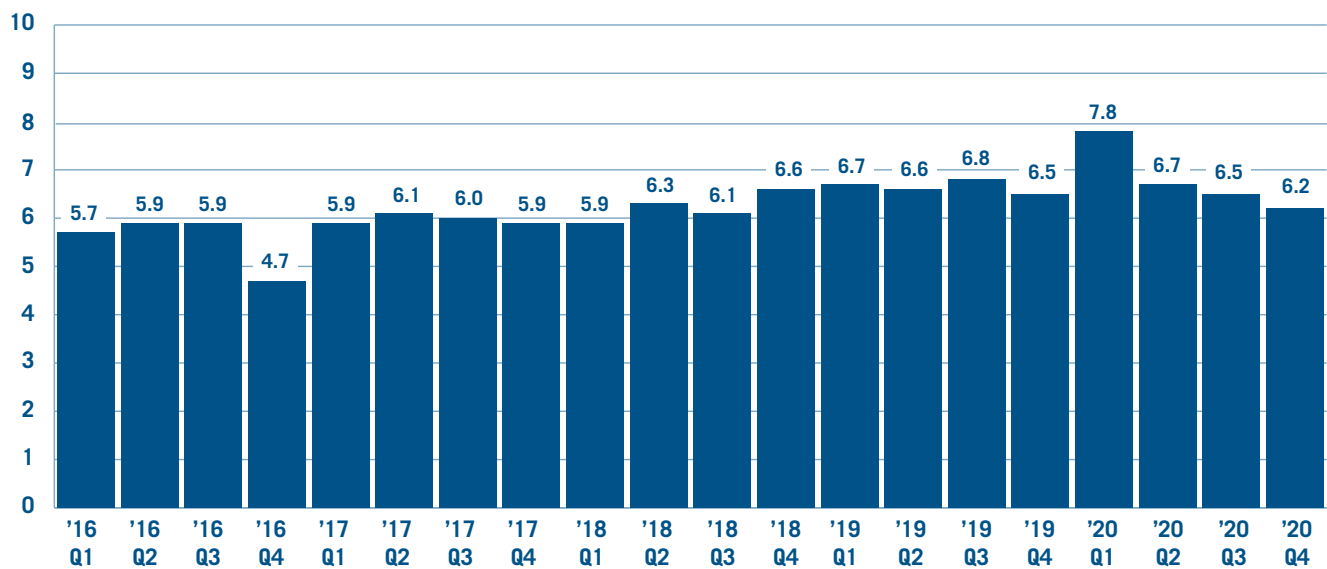


Source: S&P Global Market Intelligence and EEI Finance Department.

Quarterly Interest Expense

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



Source: S&P Global Market Intelligence and EEI Finance Department.

Individual Non-Recurring and Extraordinary Items 2011-2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Millions)	2011	2012	2013	2014	2015	2016	2017	2018	2019r	2020
Net Gain (Loss) on Sale of Assets	891	311	414	996	789	767	1,012	5,272	3,049	566
Other Non-Recurring Revenue	946	264	78	296	(4)	888	493	131	117	-
Total Non-Recurring Revenue	1,837	576	492	1,292	785	1,655	1,505	5,403	3,167	566
Asset Writedowns	(2,743)	(5,646)	(4,276)	(8,762)	(5,189)	(17,487)	(4,166)	(4,121)	(3,470)	(8,657)
Other Non-Recurring Charges	(851)	(3,136)	(3,510)	(2,675)	(1,764)	(3,109)	(5,630)	(17,841)	(13,034)	(7,518)
Total Non-Recurring Charges	(3,594)	(8,783)	(7,786)	(11,437)	(6,953)	(20,596)	(9,796)	(21,962)	(16,504)	(16,175)
Discontinued Operations	(1,011)	(4,317)	(88)	295	(1,148)	(732)	(1,554)	602	1,243	(122)
Change in Accounting Principles	-	-	-	-	-	-	-	-	-	-
Early Retirement of Debt	-	-	-	-	-	-	-	-	-	-
Other Extraordinary Items	960	-	-	-	-	-	-	-	-	-
Total Extraordinary Items	(51)	(4,317)	(88)	295	(1,148)	(732)	(1,554)	602	1,243	(122)
Total Non-Recurring and Extraordinary Items	(1,808)	(12,524)	(7,381)	(9,850)	(7,316)	(19,674)	(9,844)	(15,957)	(12,094)	(15,731)

r = revised

Note: Figures represent net industry totals. Totals may reflect rounding.

Source: S&P Global Market Intelligence and EEI Finance Department.

Top Net Non-Recurring and Extraordinary Gains (Losses) 2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

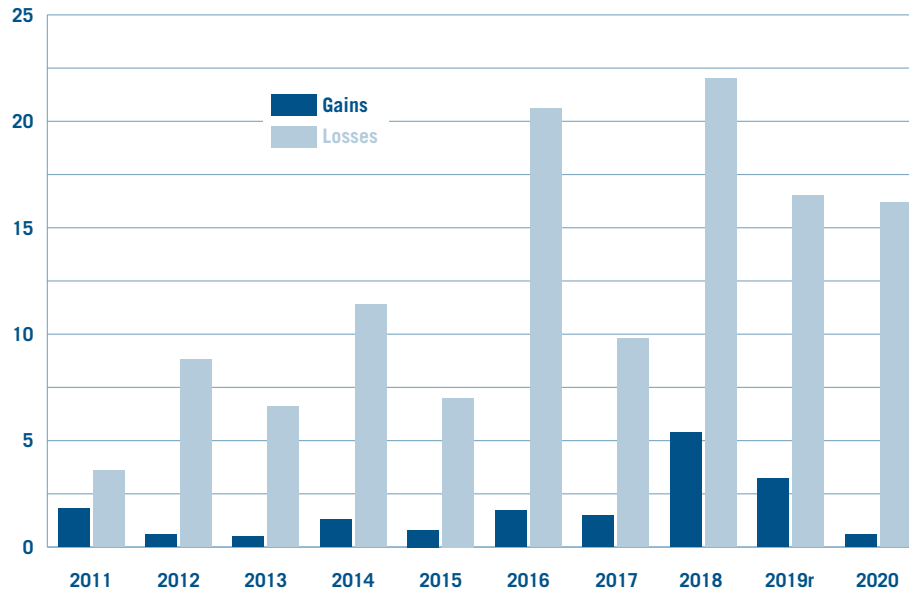
(\$ Millions)	Gains	Losses	Net Total
Company			
Duke Energy	10	3,111	3,101
PG&E Corp	-	2,623	2,623
Dominion Energy	61	2,233	2,172
CenterPoint Energy	-	1,951	1,951
Edison International	282	1,698	1,416
NextEra Energy	403	1,520	1,117
OGE Energy	-	780	780
NiSource	(411)	244	654
Exelon Corp	24	591	567
Southern Company	65	531	466

Source: S&P Global Market Intelligence and EEI Finance Department.

Aggregate Non-Recurring and Extraordinary Items 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



	2011	2012	2013	2014	2015	2016	2017	2018	2019r	2020	Total
Gains	1.8	0.6	0.5	1.3	0.8	1.7	1.5	5.4	3.2	0.6	22.9
Losses	3.6	8.8	6.6	11.4	7.0	20.6	9.8	22.0	16.5	16.2	132.4
Total	(1.8)	(8.2)	(6.2)	(10.1)	(6.2)	(18.9)	(8.3)	(16.6)	(13.3)	(15.6)	(109.5)

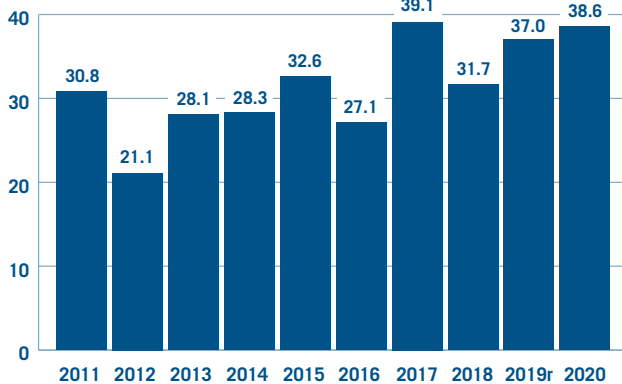
r = revised Note: Totals may reflect rounding.

Source: S&P Global Market Intelligence and EEI Finance Department.

Net Income 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



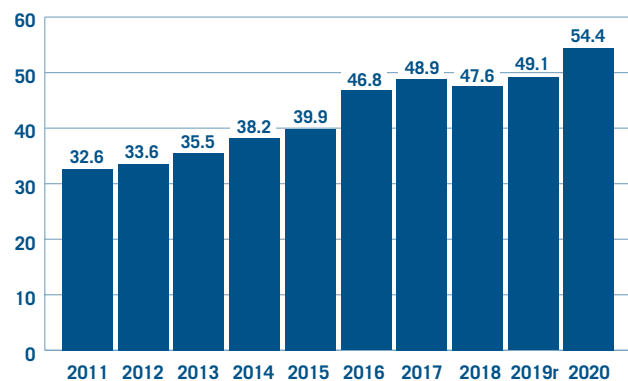
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Source: S&P Global Market Intelligence and EEI Finance Department.

Net Income Before Non-Recurring and Extraordinary Items 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



r = revised

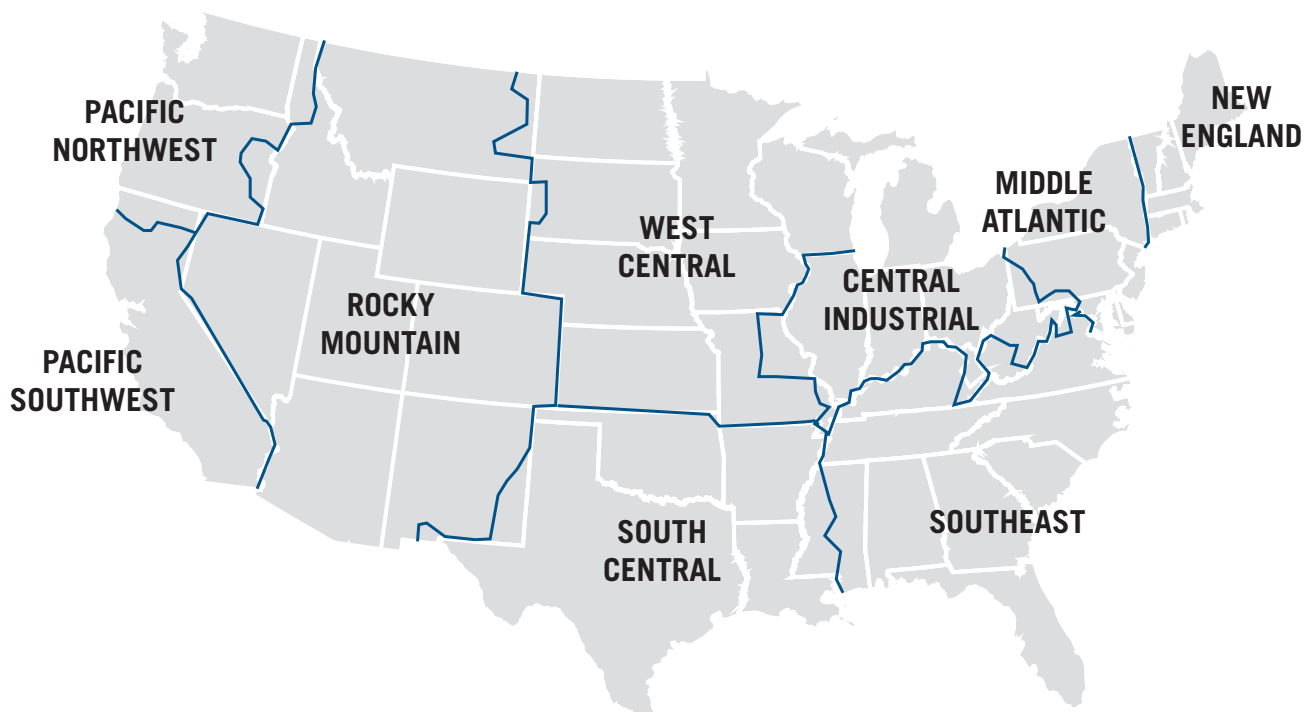
Source: S&P Global Market Intelligence and EEI Finance Department.

U.S. Electric Output (GWh) Periods Ending December 31			
Region	2020	2019	% Change
New England	114,308	117,133	(2.4%)
Mid-Atlantic	408,677	428,514	(4.6%)
Central Industrial	630,703	660,478	(4.5%)
West Central	321,004	329,870	(2.7%)
Southeast	984,921	1,027,445	(4.1%)
South Central	756,856	769,886	(1.7%)
Rocky Mountain	287,084	283,888	1.1%
Pacific Northwest	153,806	157,502	(2.3%)
Pacific Southwest	266,450	268,153	(0.6%)
Total United States	3,923,809	4,042,869	(2.9%)

Note: Represents all power placed on grid for distribution to end customers; does not include Alaska or Hawaii.

Source: EEI Business Analytics.

EEI U.S. Electric Output – Regions



Source: EEI Business Analytics.

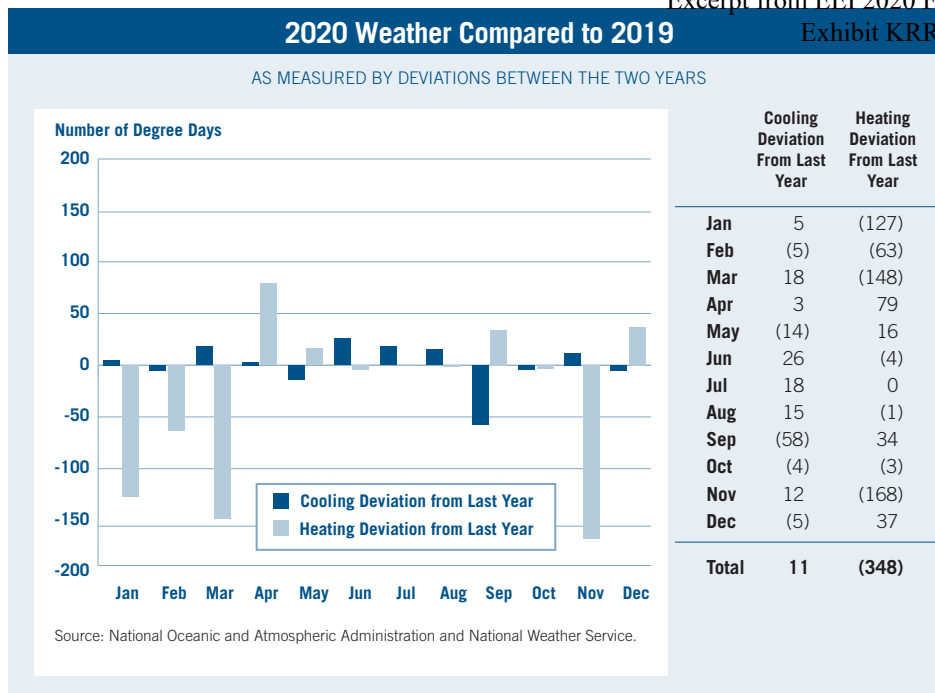
U.S. Weather

January – December 2020

	Total	Dev from Norm	% Change	Dev from Last Year	% Change
Cooling Degree Days					
New England	736	319	76%	173	31%
Mid-Atlantic	946	290	44%	119	14%
East North Central	865	157	22%	27	3%
West North Central	1,003	75	8%	(3)	(0%)
South Atlantic	2,348	383	19%	(159)	(6%)
East South Central	1,695	147	9%	(252)	(13%)
West South Central	2,726	275	11%	(108)	(4%)
Mountain	1,504	261	21%	134	10%
Pacific	982	278	39%	190	24%
United States	1,474	257	21%	11	1%
Heating Degree Days					
New England	5,852	(793)	(12%)	(683)	(10%)
Mid-Atlantic	5,107	(836)	(14%)	(528)	(9%)
East North Central	5,861	(670)	(10%)	(510)	(8%)
West North Central	6,315	(469)	(7%)	(706)	(10%)
South Atlantic	2,354	(514)	(18%)	(93)	(4%)
East South Central	3,051	(572)	(16%)	(110)	(3%)
West South Central	1,872	(427)	(19%)	(324)	(15%)
Mountain	4,837	(395)	(8%)	(265)	(5%)
Pacific	3,000	(243)	(7%)	(191)	(6%)
United States	4,008	(539)	(12%)	(348)	(8%)

A mean daily temperature (average of the daily maximum and minimum temperatures) of 65 degrees Fahrenheit is the base for both heating and cooling degree day computations. National averages are population weighted.

Source: National Oceanic and Atmospheric Administration, National Weather Service, Climate Prediction Center.



Heating and Cooling Degree Days and Percent Changes January–December 2020

	COOLING DEGREE DAYS			HEATING DEGREE DAYS			PERCENTAGE CHANGE			
	Total	Deviation From Norm	Deviation From Last Yr	Total	Deviation From Norm	Deviation From Last Yr	Cooling Degree Change From Norm	Cooling Degree Change From Last Yr	Heating Degree Change From Norm	Heating Degree Change From Last Yr
Jan	9	0	5	741	(176)	(127)	0.0%	125.0%	(19.2%)	(14.6%)
Feb	10	1	(5)	689	(66)	(63)	11.1%	(33.3%)	(8.7%)	(8.4%)
Mar	33	15	18	495	(98)	(148)	83.3%	120.0%	(16.5%)	(23.0%)
First Quarter	52	16	18	1,925	(340)	(338)	44.4%	52.9%	(15.0%)	(14.9%)
Apr	41	11	3	372	27	79	36.7%	7.9%	7.8%	27.0%
May	108	11	(14)	170	11	16	11.3%	(11.5%)	6.9%	10.4%
Jun	246	33	26	26	(13)	(4)	15.5%	11.8%	(33.3%)	(13.3%)
Second Quarter	395	55	15	568	25	91	16.2%	3.9%	4.6%	19.1%
Jul	396	75	18	3	(6)	0	23.4%	4.8%	(66.7%)	0.0%
Aug	345	55	15	7	(8)	(1)	19.0%	4.5%	(53.3%)	(12.5%)
Sep	179	24	(58)	70	(7)	34	15.5%	(24.5%)	(9.1%)	94.4%
Third Quarter	920	154	(25)	80	(21)	33	20.1%	(2.6%)	(20.8%)	70.2%
Oct	75	22	(4)	259	(23)	(3)	41.5%	(5.1%)	(8.2%)	(1.1%)
Nov	27	12	12	423	(116)	(168)	80.0%	80.0%	(21.5%)	(28.4%)
Dec	5	(2)	(5)	753	(64)	37	(28.6%)	(50.0%)	(7.8%)	5.2%
Fourth Quarter	107	32	3	1,435	(203)	(134)	42.7%	2.9%	(12.4%)	(8.5%)
Full Year	1,474	257	11	4,008	(539)	(348)	21.1%	0.8%	(11.9%)	(8.0%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Heating Degree Days Percentage Change from Historical Norm	(4.5)	(16.6)	(0.6)	1.1	(9.1)	(14.8)	(14.2)	(4.2)	(4.4)	(11.9%)
Cooling Degree Days Percentage Change from Historical Norm	21.5	22.4	10.9	5.8	19.2	29.4	16.0	26.4	20.3	21.1%

A mean daily temperature (average of the daily maximum and minimum temperatures) of 65°F is the base for both heating and cooling degree day computations. National averages are population weighted.

Source: National Oceanic and Atmospheric Administration and National Weather Service.

Balance Sheet

- In a year defined by COVID-19 lockdowns, U.S. real gross domestic product (GDP) fell 5.0% in Q1 and 31.4% in Q2 followed by nearly equivalent 33.4% and 4.3% gains in Q3 and Q4 (measured sequentially from the preceding quarter). Despite this historically unprecedented volatility, full-year real GDP was nearly unchanged, rising just 0.3% versus 2019.
- Interest rates fell sharply through March as pandemic news worsened by the day; the U.S. Federal Reserve cut short-term rates from 1.5% to zero, the 10-year Treasury yield declined from almost 2.0% in January to 0.5%, and corporate credit spreads jumped as markets grappled with the severity of the pandemic. While fiscal and monetary policy support steadied credit markets as the year progressed, Treasury yields and corporate yields remained broadly lower than their pre-pandemic levels. Utility debt continued to attract investors seeking yield with relatively low business risk exposure.
- The industry's financial condition remained strong in 2020. Aggregate balance sheet leverage increased slightly as the industry extended its multi-year trend toward a regulated focus with leverage appropriate for a lower risk profile. However, balance sheet structures show wide differentiation across the industry; aggregate figures are only suggestive of broad trends. The slight rise in Preferred Equity and Noncontrolling Interest (which has risen from 1% in 2015) results primarily from the use of preferred shares and accounting for subsidiaries at a few large utilities.
- Total debt rose as utilities took advantage of very low interest rates and strong demand from investors while managing balance sheet ratios and cash flows to maintain investment-grade credit ratings. Long-term debt increased at nearly all utilities in 2020, an expected outcome of the industry's widespread asset growth.
- PG&E's July 1 emergence from bankruptcy accounted for half the year's \$17.9 billion new equity issuance. While thirty utilities issued new equity in 2020, the same total as in 2019, broad equity issuance was stronger in 2019 as companies addressed the impact of tax reform. Equity issuance was also strong In 2018 as utilities took advantage of high price-earnings ratios and welcoming capital markets to fund capex, offset debt issuance and strengthen balance sheets.
- Property, plant, and equipment in service (PPE in Service) rose 6.5% from year-end 2019 and 13.7% over the level at year-end 2018; this metric grew at nearly all utilities which constitute EEI's consolidated data. Such strong, broad growth indicates the size and scope of the industry's build-out of new renewable and clean generation, new transmission, reliability-related infrastructure and other capital projects.
- Debt-to-cap ratios by category show the dominance of regulated operations in the industry and a tendency, at the aggregate industry level, toward slightly higher leverage versus 2019. The dispersion of moves across individual companies, with some companies showing higher, some lower and others no change in leverage, indicates why individual company strategies are as meaningful as aggregate totals when assessing industry trends.
- Regulated companies as a group continued to report higher balance sheet leverage than their mostly regulated peers. This is to be expected given their lower business risk profile.

Excerpt from EEI 2020 Financial Review
Exhibit KKK-5, Page 9 of 21

Consolidated Balance Sheet

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Millions)	12/31/2020	12/31/2019r	% Change	\$ Change
PP&E in service, gross	1,678,135	1,584,364	5.9%	93,771
Accumulated depreciation	479,514	454,484	5.5%	25,030
PP&E in service, net	1,198,621	1,129,880	6.1%	68,741
Construction work in progress	82,641	75,945	8.8%	6,696
Net nuclear fuel	15,252	15,447	(1.3%)	(195)
Other property	19,903	17,757	12.1%	2,146
PP&E, net	1,316,416	1,239,029	6.2%	77,388
Cash & cash equivalents	16,848	11,699	44.0%	5,149
Accounts receivable	42,262	41,133	2.7%	1,129
Inventories	24,367	23,514	3.6%	853
Other current assets	52,011	45,534	14.2%	6,477
Total current assets	135,488	121,880	11.2%	13,608
Total investments	130,323	119,576	9.0%	10,747
Other assets	285,076	273,265	4.3%	11,810
Total Assets	1,867,303	1,753,750	6.5%	113,553
Common equity	494,910	462,915	6.9%	31,995
Preferred equity	14,529	9,265	56.8%	5,264
Noncontrolling interests	27,502	20,547	33.8%	6,955
Total equity	536,940	492,727	9.0%	44,213
Short-term debt	36,445	36,099	1.0%	347
Current portion of long-term debt	40,651	41,099	(1.1%)	(448)
Short-term and current long-term debt	77,097	77,198	(0.1%)	(101)
Accounts payable	73,062	70,580	3.5%	2,481
Other current liabilities	51,881	43,412	19.5%	8,469
Current liabilities	202,040	191,190	5.7%	10,850
Deferred taxes	108,113	106,773	1.3%	1,340
Non-current portion of long-term debt	666,009	586,563	13.5%	79,445
Other liabilities	353,444	375,190	(5.8%)	(21,745)
Total liabilities	1,329,606	1,259,716	5.5%	69,890
Subsidiary preferred	712	712	0.0%	0
Other mezzanine	45	596	(92.4%)	(550)
Total mezzanine level	757	1,307	(42.1%)	(550)
Total Liabilities and Owner's Equity	1,867,303	1,753,750	6.5%	113,553

r = revised

Source: S&P Global Market Intelligence and EEI Finance Department.

Capitalization Structure

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

Capitalization Structure (\$M)	12/31/2020	12/31/2019r	12/31/2018r
Common Equity	494,910	462,915	437,843
Noncontrolling Interests & Preferred Equity	42,030	29,811	23,163
Long-term Debt (current & non-current)*	706,660	627,662	561,409
Total	1,243,600	1,120,389	1,022,415
Common Equity %	39.8%	41.3%	42.8%
Noncontrolling Interests & Preferred Equity %	3.4%	2.7%	2.3%
Long-Term Debt (current & non-current)* %	56.8%	56.0%	54.9%
Total	100.0%	100.0%	100.0%

r = revised

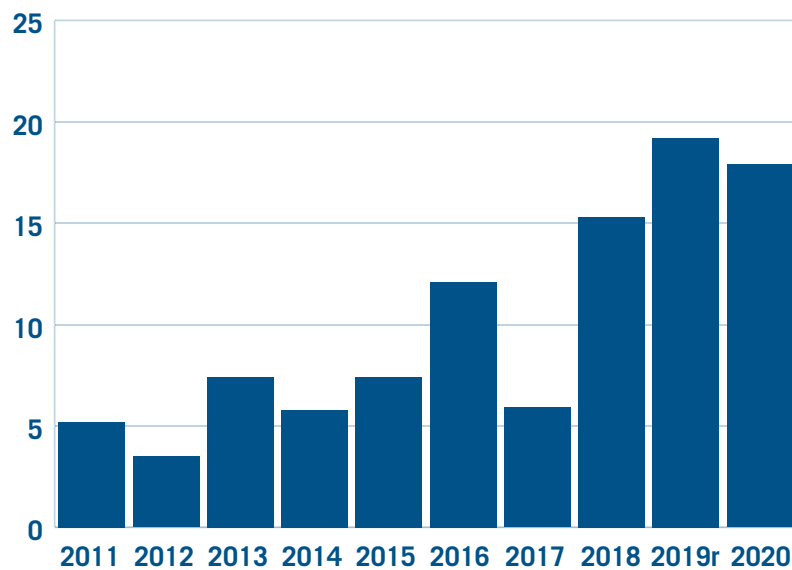
Long-term debt not adjusted for (i.e., includes) securitization bonds.

Source: S&P Global Market Intelligence and EEI Finance Department.

Proceeds from Issuance of Common Equity 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



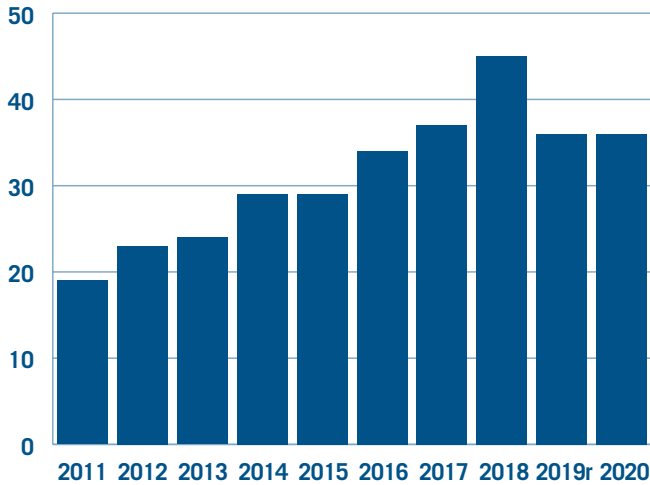
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Source: S&P Global Market Intelligence and EEI Finance Department.

Short-term Debt 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



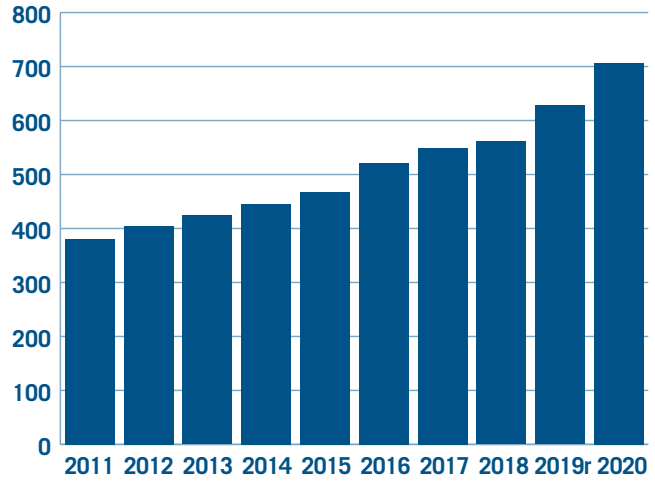
r = revised

Source: S&P Global Market Intelligence and EEI Finance Department.

Long-term Debt 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(\$ Billions)



r = revised

Source: S&P Global Market Intelligence and EEI Finance Department.

Debt-to-Cap Ratio by Category 2020 vs. 2019r

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

	Regulated		Mostly Regulated		Total Industry	
	Number	%	Number	%	Number	%
Lower	5	14.7%	4	40.0%	9	20.5%
No Change*	14	41.2%	3	30.0%	17	38.6%
Higher	15	44.1%	3	30.0%	18	40.9%
Total	34	100.0%	10	100.0%	44	100.0%

*No change defined as less than 1.0%

Note: December 31, 2020 vs. December 31, 2019. Refer to page v for category descriptions.

Source: S&P Global Market Intelligence and EEI Finance Department.

Capitalization Structure by Category 2020 vs. 2019r

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

	Regulated			Mostly Regulated		
	2020	2019r	Change	2020	2019r	Change
Common Equity (\$M)	494,910	462,915	31,995	314,997	294,256	20,741
Noncontrolling Interests & Preferred Equity	42,030	29,811	12,219	17,620	18,228	(608)
Long-term Debt (current & non-current)*	706,660	627,662	78,998	492,737	440,076	52,660
Total Capitalization	1,243,600	1,120,389	123,211	825,353	752,560	72,793
Common Equity %	39.8%	41.3%	-1.5%	38.2%	39.1%	-0.9%
Noncontrolling Interests & Preferred Equity %	3.4%	2.7%	0.7%	2.1%	2.4%	-0.3%
Long-Term Debt (current & non-current)* %	56.8%	56.0%	0.8%	59.7%	58.5%	1.2%
Total	100.0%	100.0%	—	100.0%	100.0%	—

r = revised

Long-term debt not adjusted for (i.e., includes) securitization bonds.

Source: S&P Global Market Intelligence and EEI Finance Department.

Date	PP&E in Service, Net (\$M)	% Change from 12/31/2016
12/31/2020	1,203,334	23.6%
12/31/2019r	1,129,880	16.5%
12/31/2018r	1,058,164	9.1%
12/31/2017	1,015,100	4.7%
12/31/2016	969,838	

Source: S&P Global Market Intelligence and EEI Finance Department.

Cash Flow Statement

- Net Cash Provided by Operating Activities decreased by \$27.6 billion or 29.0%. The two main drivers of this metric both generated cash; cash supplied by Net Income grew 4.2% while cash supplied by Depreciation and Amortization (a non-cash expense) increased 6.7%. The decline in the overall total was largely the result of accounting statement activity at one large company reflecting its restructuring in 2020.
- Cash provided by Deferred Taxes & Investment Credits has leveled off over the last three years compared to much higher amounts previously. Deferred taxes had been at historically high levels due to elevated capex and use of bonus depreciation. The Tax Cuts & Jobs Act (TCJA), passed in late 2017, significantly reduced deferred taxes due to the reduction in the corporate income tax rate from 35% to 21% and the elimination of bonus depreciation.

- Excerpt from EEI 2020 Financial Review
Exhibit KKR-5, page 14 of 21
- Net Cash Used in Investing Activities increased by \$10.4 billion or 7.5%. The industry's capital spending — by far the largest component of this metric — totaled \$132.7 billion in 2020, up \$8.9 billion, or 7.2% from 2019. Industry capex has reached a new record high in each of the past nine years. About 70% of the 44 utilities represented in consolidated data grew capex in 2020.
 - EEI member companies continue to invest in clean energy resources and the infrastructure necessary to make the power grid more modernized, more resilient, and more secure for all customers. Spending on transmission and distribution continues to increase relative to recent years, as EEI member companies expand their focus on adaptation, hardening, and resilience (AHR) initiatives. Investment in generation continues to be driven by the development of renewable energy and natural gas generation.
 - Cash provided by Asset Sales increased from \$16.9 billion to \$25.7 billion while cash used for Asset Purchases decreased 10.6%, to \$23.8 billion. As in 2019, activity was driven by a number of larger utilities, primarily AEP, Berkshire Hathaway Energy, CenterPoint, Dominion, Duke, Eversource Energy, NextEra, NiSource and Southern.
 - Net Cash Provided by Financing Activities increased by \$30.1 billion or 85.4%. This resulted primarily from the rising debt at most utilities required to fund the aggressive clean energy asset growth goals across the industry. Issuance of common equity remained elevated in 2020 at \$17.9 billion, down slightly from 2019's \$19.2 billion, which partially offset higher debt and helped utilities maintain targeted balance sheet leverage ratios.
 - Dividends Paid to Common Shareholders rose 5.2%, to \$29.7 billion.

Statement of Cash Flows

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

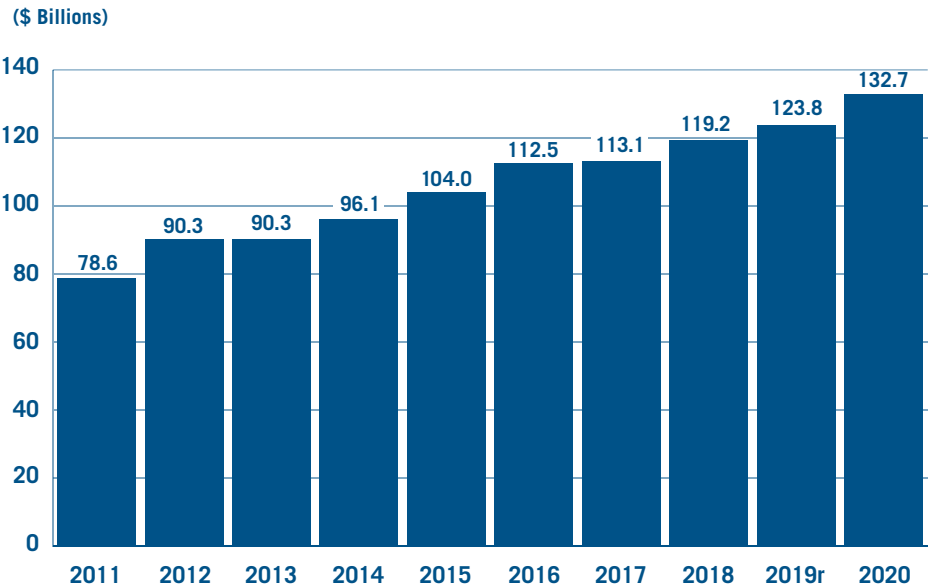
\$ Millions	12 Months Ended		
	12/31/2020	12/31/2019r	% Change
Net Income	\$38,627	\$37,053	4.2%
Depreciation and Amortization	60,052	56,293	6.7%
Deferred Taxes and Investment Credits	4,429	3,003	47.5%
Operating Changes in AFUDC	(1,432)	(1,278)	12.0%
Change in Working Capital	(20,713)	(2,628)	688.1%
Other Operating Changes in Cash	(13,313)	2,820	NM
Net Cash Provided by Operating Activities	67,651	95,263	(29.0%)
Capital Expenditures	(132,732)	(123,812)	7.2%
Asset Sales	25,656	16,933	51.5%
Asset Purchases	(23,805)	(26,617)	(10.6%)
Net Non-Operating Asset Sales and Purchases	1,851	(9,684)	NM
Change in Nuclear Decommissioning Trust	(408)	(365)	11.9%
Investing Changes in AFUDC	102	142	(28.1%)
Other Investing Changes in Cash	3,083	(4,746)	NM
Net Cash Used in Investing Activities	(128,104)	(138,465)	(7.5%)
Net Change in Short-term Debt	3,352	(4,880)	NM
Net Change in Long-term Debt	68,291	45,972	48.5%
Proceeds from Issuance of Preferred Equity	5,364	2,786	92.5%
Preferred Share Repurchases	–	(50)	NM
Net Change in Preferred Issues	5,364	2,736	96.0%
Proceeds from Issuance of Common Equity	17,938	19,171	(6.4%)
Common Share Repurchases	(3,927)	(2,137)	83.8%
Net Change in Common Issues	14,011	17,035	(17.7%)
Dividends Paid to Common Shareholders	(29,321)	(27,876)	5.2%
Dividends Paid to Preferred Shareholders	(388)	(359)	8.0%
Other Dividends	–	–	NM
Dividends Paid to Shareholders	(29,709)	(28,235)	5.2%
Other Financing Changes in Cash	3,965	2,586	53.3%
Net Cash (Used in) Provided by Financing Activities	65,274	35,214	85.4%
Other Changes in Cash	9	33	(72.7%)
Net increase (decrease) in cash and cash equivalents	\$4,830	\$(7,955)	NM
Cash and cash equivalents at beginning of period	\$12,018	\$19,654	(38.9%)
Cash and cash equivalents at end of period	\$16,848	\$11,699	44.0%

r = revised NM = not meaningful

Source: S&P Global Market Intelligence and EEI Finance Department.

Capital Expenditures 2011–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

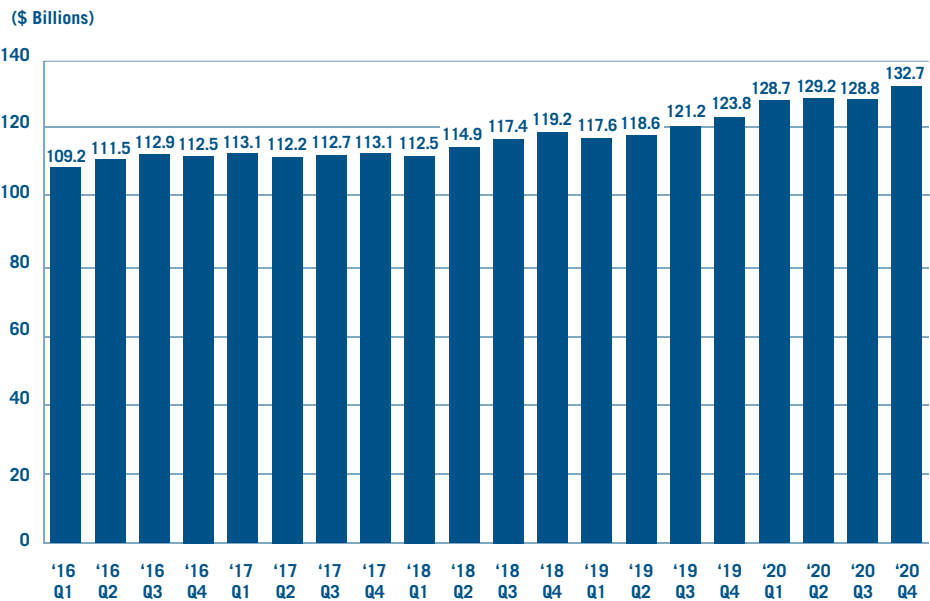


r = revised

Source: S&P Global Market Intelligence, company reports, and EEI Finance Department.

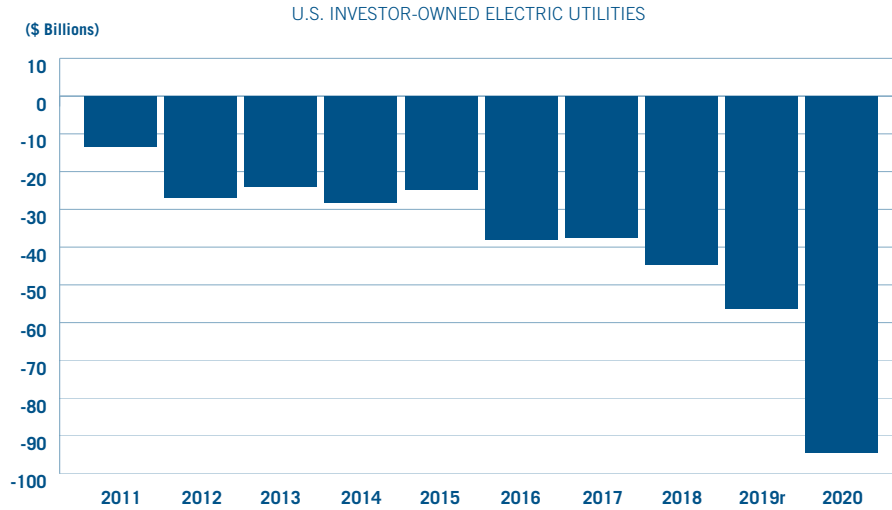
Capital Spending—Trailing 12 Months

U.S. INVESTOR-OWNED ELECTRIC UTILITIES



Source: S&P Global Market Intelligence and EEI Finance Department.

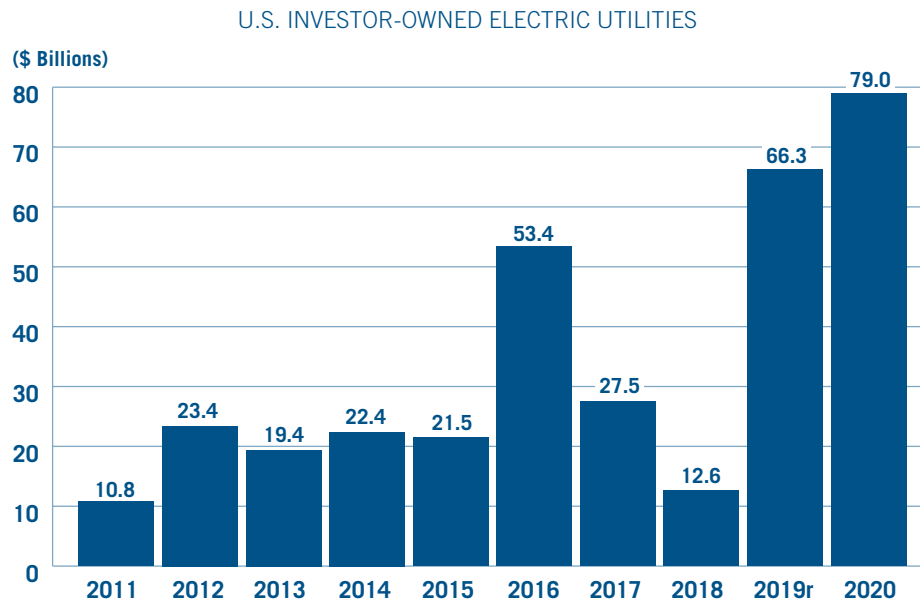
Free Cash Flow (FCF) 2011–2020



(\$ Billions)	2011	2012	2013	2014	2015	2016	2017	2018	2019r	2020
Net Cash Provided by Operating Activities	84.4	84.0	87.1	89.0	101.6	98.3	101.2	100.1	95.3	67.7
Capital Expenditures	(78.6)	(90.3)	(90.3)	(96.1)	(104.0)	(112.5)	(113.1)	(119.2)	(123.8)	(132.7)
Dividends Paid to Common Shareholders	(19.3)	(20.5)	(20.8)	(21.1)	(22.5)	(23.8)	(25.5)	(25.6)	(27.9)	(29.3)
Free Cash Flow	(13.5)	(26.8)	(24.0)	(28.2)	(24.8)	(38.1)	(37.5)	(44.7)	(56.4)	(94.4)

r = revised
 Note: Totals may not equal sum of components due to rounding.
 Source: S&P Global Market Intelligence and EEI Finance Department.

Net Change in Long-term Debt 2011–2020



r = revised
 Note: Based on data from industry's consolidated balance sheet.

Source: S&P Global Market Intelligence and EEI Finance Department.

Rate Review Summary

- In 2020, there were approximately a quarter less rate reviews than those filed in the last three years. At the end of the year, there were 18 pending rate reviews and 53 rate reviews decided. This measured pace of filings is likely due to the economic impacts of the pandemic.
- For 2020, the average awarded ROE was 9.43%, continuing a negative trend. By way of comparison, for 2019, the average awarded ROE was 9.64%. On average, awarded ROE in 2020 was approximately 30 basis points lower than the average requested ROE. Consistent with declining interest rates, average awarded ROEs have been trending downward for the electric industry over the past four decades. In addition, the increased use of adjustment and cost recovery mechanisms, which arguably reduce risk of recovery for utilities, have often been cited by commissions as contributing to lower authorized ROEs. Going forward, it is reasonable to expect that ROEs will remain lower due to the sustained low interest rate environment combined with current economic conditions as a result of the pandemic.

- Regulatory lag was approximately 8.93 months, which is slightly higher than the last 2 years; but well within the historic average. Although there were fewer rate reviews filed in 2020 compared with previous years, commission agendas were filled with numerous other regulatory filings including those related to COVID. Many commissions also delayed or postponed hearings and working groups in the first few months of the year and ultimately shifted to virtual meetings.

For 2021, it is anticipated that there will be more rate reviews filed than in 2020. It is also expected that the following rate review trends seen in 2020 will continue or even accelerate in 2021.

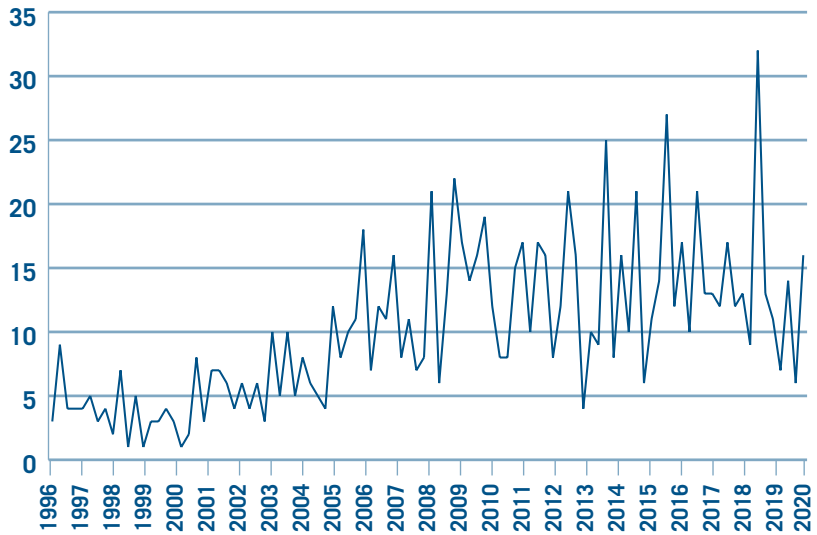
- **COVID-Related Matters** – Disconnection moratoria and recovery of COVID-related costs will still be a major focus for commissions in 2021. The impacts of the pandemic were already documented in a number of rate reviews decided in 2020. Accordingly, electric companies in Hawaii, Maryland, and New York have either agreed to no revenue increase, reduced the requested increase amount, or delayed approved revenue increases because of the current financial hardships of many of their customers.

- **Accelerated Clean Energy Transition and Cost Recovery** – Momentum for increased clean energy and carbon-free resources was strong in 2020. Industry dynamics are rapidly changing and in response to this shift, nearly all EEI members have made or updated commitments to reducing their carbon emissions. This shift will require the industry to address numerous issues, chief among them how to retire previously approved carbon intense resources while transitioning to cleaner generation and, at the same time, ensuring cost recovery at just and reasonable rates. The tools with which the electric industry will address this transition are changing and varied as well. Some states have preferred and approved securitization while others have allowed the use of accelerated depreciation or other adjustment mechanisms.

■ **Alternative Regulation** – Due to the rapid transition described above, changing customer preferences, and recognition that charging rates on volumetric throughput does not adequately correlate to cost causation, regulators (and legislators) increasingly recognize that the traditional regulatory framework must continue evolving to enhance the ability of electric companies to meet customer expectations. Alternative regulation as a concept is not new; however, its application varies by state. For example, Maryland recently passed legislation allowing multi-year rate plans, as a pilot, and in 2020 the Commission approved Baltimore Gas & Electric’s pilot program. For the electric industry to get as clean as it can, as fast as it can, while maintaining reliability and affordability, alternative regulation mechanisms will likely need to be utilized more going forward.

Number of Rate Reviews Filed 1996–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES

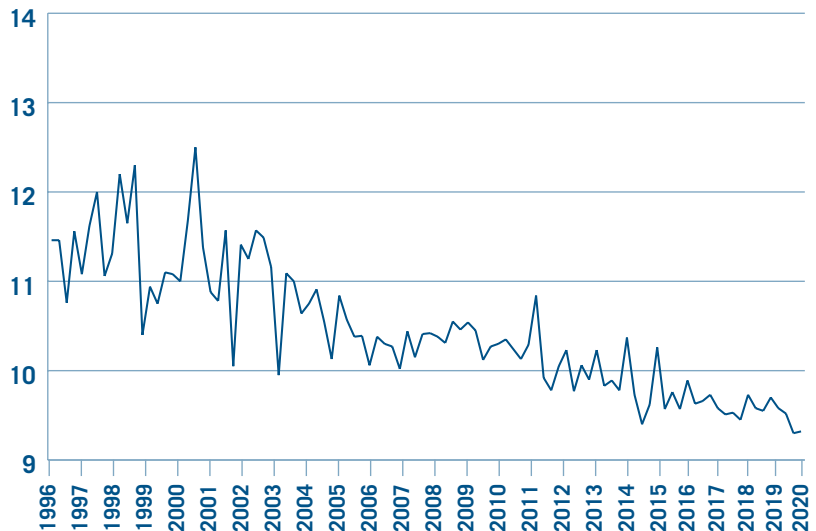


Source: S&P Global Market Intelligence/Regulatory Research Assoc. and EEI Finance Department.

Average Awarded ROE 1996-2020

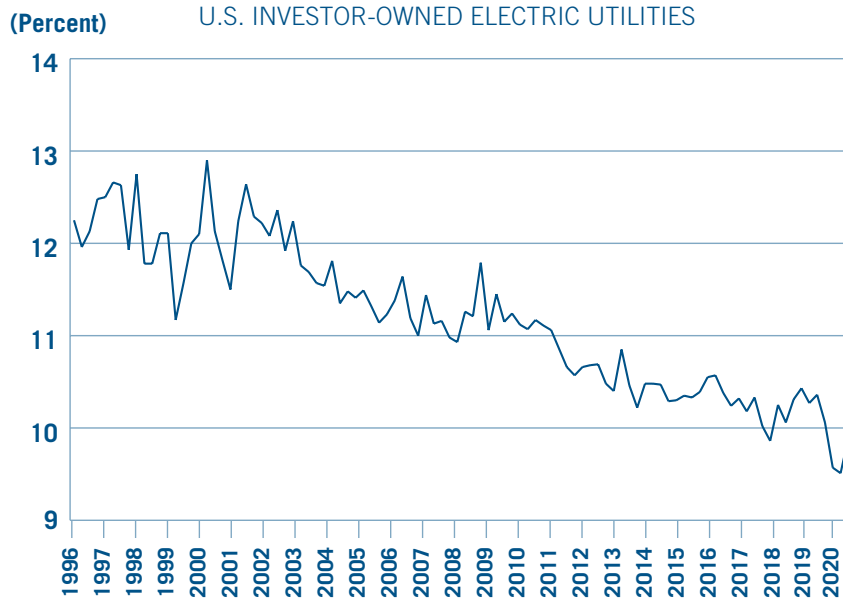
U.S. INVESTOR-OWNED ELECTRIC UTILITIES

(Percent)



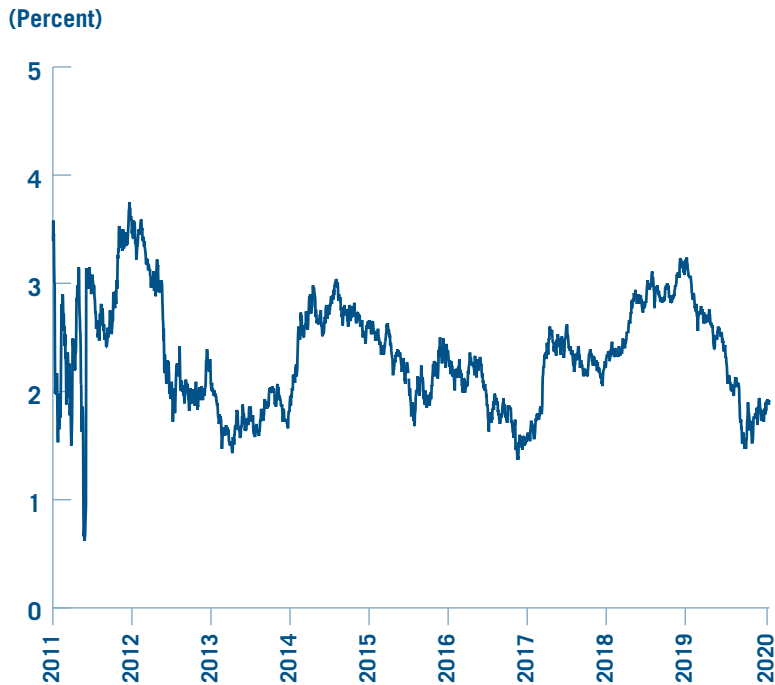
Source: S&P Global Market Intelligence/Regulatory Research Assoc. and EEI Finance Department.

Average Requested ROE 1996–2020



Source: S&P Global Market Intelligence/Regulatory Research Assoc. and EEI Finance Department.

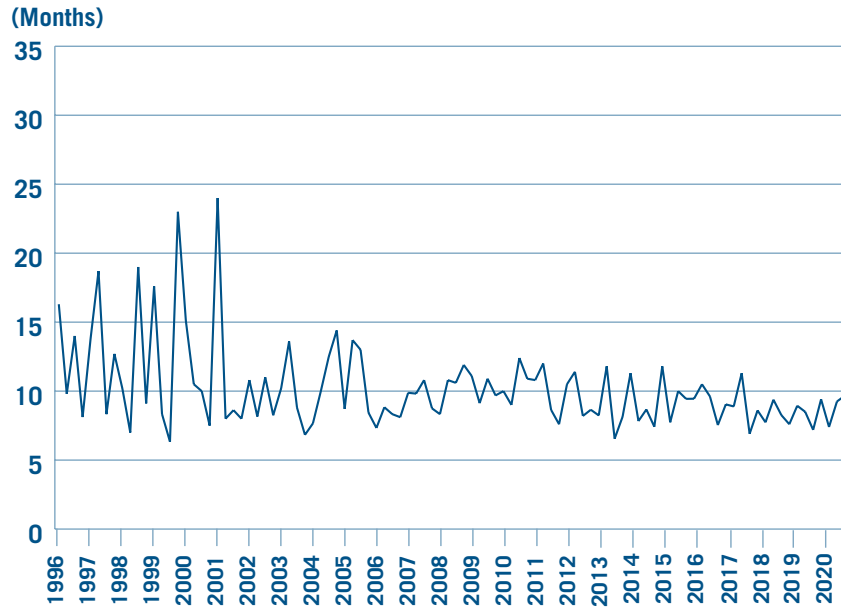
10-Year Treasury Yield 1/1/11 through 12/31/20



Source: U.S. Federal Reserve.

Average Regulatory Lag 1996–2020

U.S. INVESTOR-OWNED ELECTRIC UTILITIES



Source: S&P Global Market Intelligence/Regulatory Research Assoc. and EEI Finance Department.

UNREALIZED POTENTIAL:

EXPANDING ENERGY EFFICIENCY OPPORTUNITIES FOR UTILITY CUSTOMERS IN FLORIDA

**BY DAN YORK
AND CHARLOTTE COHN**



**ACEEE WHITE PAPER
JANUARY 2021**

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About the Authors

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Key Takeaways

- Energy efficiency (EE) is a critical industry in Florida, providing steady income and much-needed energy and cost savings to residents and businesses across the state.
- Florida's utility EE performance lags behind that of other states in the Southeast region and nationwide, largely because Florida's efficiency policies and practices do not follow those that are widely accepted and in place in other states.
- Goal-setting is a crucial step in achieving savings through EE. Florida utilities have proposed lower and lower EE savings goals each year over the past decade, with several utilities proposing a meaningless savings target of zero.
- The use of the ratepayer impact measure (RIM) test to evaluate EE program performance has led to systematic undervaluing of EE's cost effectiveness. No other state uses the RIM as its primary cost-effectiveness test.
- Accounting for program free-ridership with a two-year payback screen is also out of standard practice. This approach unduly restrains program measures and ignores some of EE's benefits.
- Florida's utility business model discourages utilities from making investments in EE.
- Florida's current utility program offerings leave out several important customer sectors, including small businesses and low-income multifamily housing.
- If Florida's Public Service Commission (PSC) adjusts its policies, and if the state's utilities broaden their program options, EE can promote economic growth, revive a struggling industry, and deliver cost savings and health benefits to millions of Floridians.

Florida's Energy Efficiency Performance

Energy efficiency (EE) is a proven utility energy resource that can save customers money, promote economic development, and contribute to meeting clean energy goals. It is also the biggest energy jobs sector in the United States, and it has been steadily growing in Florida to reach a total workforce of 127,000 in 2019 (E4TheFuture 2020). These local jobs provide stability and economic benefits while also delivering cost and energy savings to the customers and communities that need them the most. The COVID-19 pandemic, however, has had major repercussions for those valuable jobs, resulting in a net loss of more than 18,000 of Florida's efficiency jobs and wiping away all growth in that sector from the past three years.

The performance of Florida's utility EE programs greatly lags that of utilities in the Southeast and across the nation. In ACEEE's 2020 *State Energy Efficiency Scorecard*, Florida ranked 27th in the nation, falling from its 2019 ranking of 24th. This mid-range ranking is due largely to Florida's statewide building codes and state government initiatives to advance EE. In contrast to these favorable statewide EE policies, Florida falters in terms of its utility EE policies and programs. In fact, nearly every other state in the Southeast region outperforms Florida for investing in EE programs that provide opportunities for customers to save energy and money.

Electric utilities can play a critical role in delivering EE programs to Florida's families and businesses. However, utilities require the support of state regulators to apply commonly accepted practices to develop and implement cost-effective EE programs. The Florida Energy Efficiency and Conservation Act (FEECA) calls on participating utilities to set energy savings goals every five years. In recent years, however, plans for EE programs have shrunk to almost nothing as utilities set their savings goals at zero, largely due to restrictive screening practices.

Florida's screening practices are out of alignment with those of other states in the region and nationwide and have led to an undervaluing of EE by Florida's electric investor-owned utilities (IOUs). The result is that Florida's utility customers are deprived of EE services and incentives to reduce their energy costs; this is particularly true for households that face disproportionately high energy burdens.¹ Analysis of the EE potential for other Southeast states, such as North Carolina, highlights how EE programs can deliver economy-wide benefits, which are especially critical in the wake of the economic recession due to COVID-19 (Gold et al. 2020). These EE programs can also lower utility system costs, improve reliability, and reduce carbon emissions and other air pollution, resulting in benefits for all customers (Relf, York, and Kushler 2018).

¹ *Energy burden* is the share of total household income that goes toward energy costs, which includes electricity and fuels such as natural gas, propane, or heating oil.

UNDERPERFORMANCE OF UTILITY ENERGY EFFICIENCY PROGRAMS

Florida shows significant room for improvement in EE, particularly in its utility sector. The state’s utilities are underperforming in relation to other utilities in the Southeast region and nationwide in terms of EE outcomes.

The 2020 *Utility Energy Efficiency Scorecard* (Relf et al. 2020) scores the largest 52 electric IOUs nationwide based on metrics relating to EE performance, program diversity, and enabling infrastructure and policies. Three of Florida’s electric IOUs are included in these rankings: Duke Energy Florida (Duke FL), Florida Power & Light (FP&L), and Tampa Electric Company (TECO). These three utilities were some of the lowest performing among electric IOUs nationwide. Of the 52 utilities evaluated, TECO ranked 46th, Duke FL 48th, and FP&L 51st. In addition to those utilities, four other Florida utilities are required to submit demand-side management (DSM) plans under FEECA: Gulf Power, Florida Public Utilities Company (FPU), Orlando Utilities Company, and Jacksonville Electric Association (JEA).

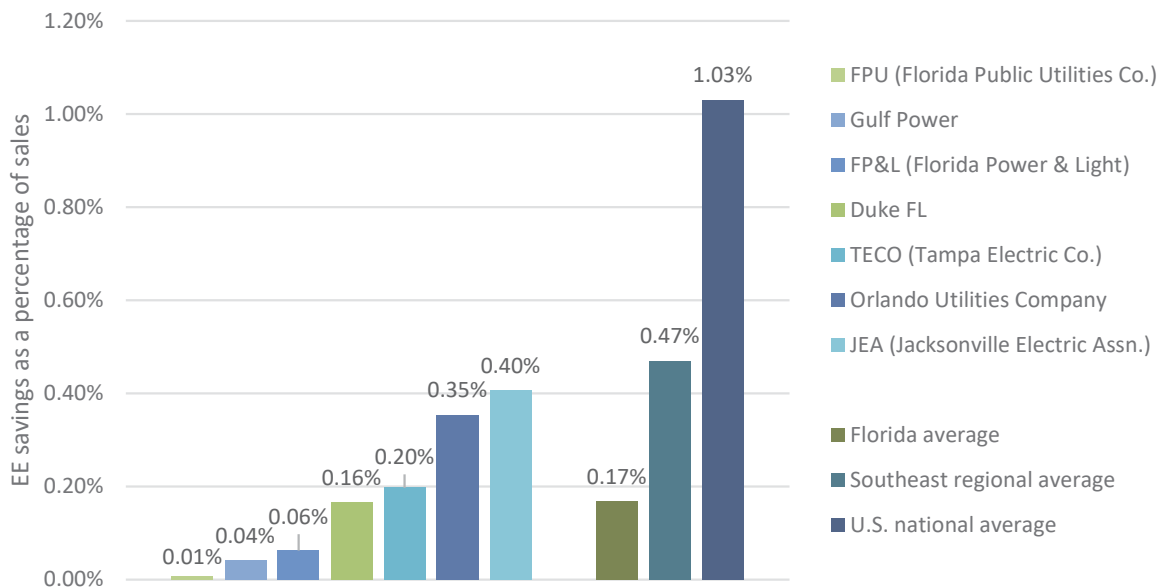


Figure 1. Energy efficiency savings as a percentage of sales—Florida utilities vs. regional and national averages. Averages are weighted based on GWh sales. Sources: FPL, Duke FL, TECO, and regional average data are from the ACEEE *Utility Scorecard* (Relf et al. 2020); all other utilities data are from EIA 2020.

Figure 1 compares Florida utility performance to average performance among utilities in the Southeast and nationwide. Using efficiency savings as a percentage of total sales allows for comparison of EE program performance regardless of sales volume. We can thus compare smaller utilities such as TECO, with 19,000 GWh in annual sales in 2019, to much larger utilities such as FP&L, which at 110,000 GWh is the state’s largest electric IOU by volume. Overall, Florida utility performance is substantially lower than that of other regional utilities and less than a quarter of the national average.

Florida utilities’ low energy savings are correlated with low spending levels on EE programs. Figure 2 shows spending as a percentage of total revenue for the seven FEECA utilities in 2019. None of Florida’s electric IOUs invested more than 0.80% of their total

annual revenue into EE. By contrast, the average spending on EE in the Southeast region was 1.64% of revenue, whereas the national average was even higher at 2.58%.

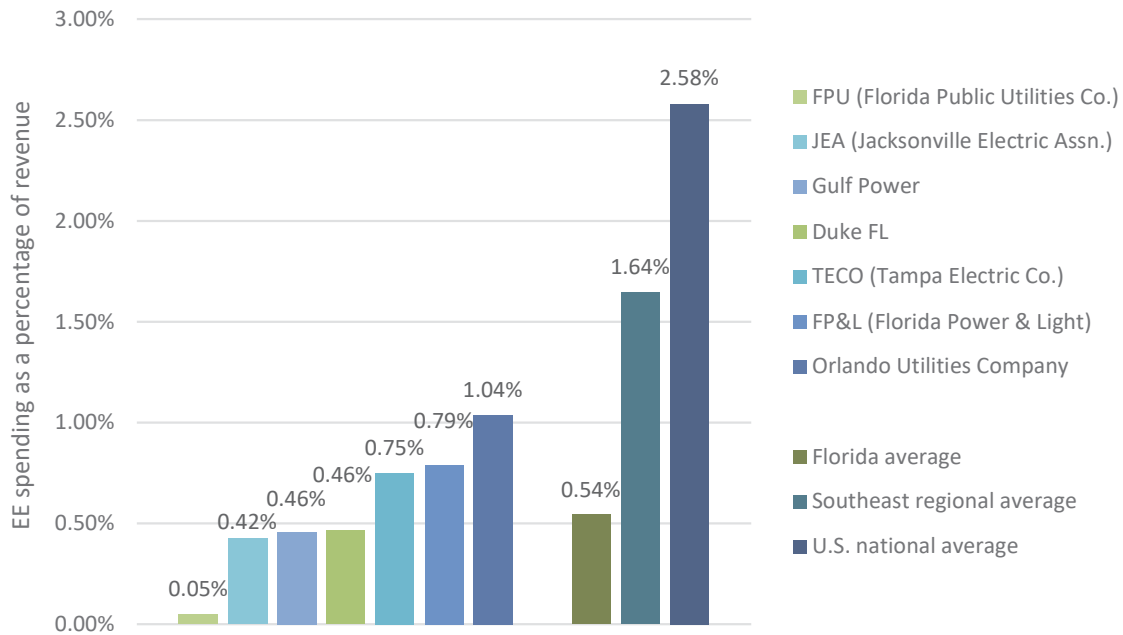


Figure 2. Energy efficiency spending as a percentage of revenue. Sources: FP&L, Duke FL, TECO, regional, and national average data are from the ACEEE *Utility Scorecard* (Relf et al. 2020); other utilities data are from EIA 2020.

After peaking at nearly 600,000 MWh saved in 2012, Florida’s annual savings from efficiency have declined. As figure 3 shows, current (2020–2029) utility goals are far below the 2012 peak level. For the next 10 years, FEECA utilities have proposed an annual target of 59,402 MWh in energy savings from electric efficiency programs, which is only 41% of achieved savings in 2017. Further, three FEECA utilities set electricity savings goals of zero during the last goal-setting cycle, based on the claim that no programs can pass an unduly restrictive cost-effectiveness test. That test – the ratepayer impact measure (RIM) – is not used as a primary test for program cost effectiveness in any state other than Florida. We discuss the RIM and the impacts of its application later in this paper. In any case, setting ambitious goals is an important first step toward achieving significant savings. Without increasing their targets, Florida utilities will likely continue to lag in this critical area.

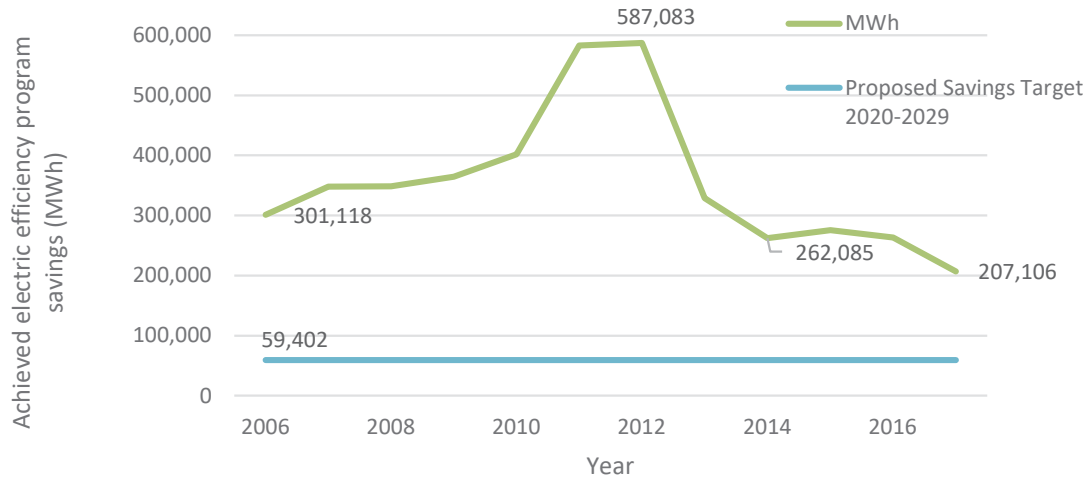


Figure 3. Total energy savings from utility EE in Florida for 2006–2017. *Source:* annual ACEEE *State Scorecard* series.

As figure 4 shows, Florida electric IOU program offerings reflect a lack of diversity in the types of customers and end uses served. Florida utilities offer fewer types of programs on average than other utilities in the region and the nation.² As a result, customers lack access to programs, services, and incentives to help them better manage their energy costs and realize other benefits that increased EE can provide, such as improved workplace productivity and health. This is especially important for economically disadvantaged households with high energy burdens, as well as for small businesses that are under stress due to COVID-19. Duke FL is the only electric IOU that offers any type of small business program. FP&L lacks many programs that are commonly offered by other utilities in the region, including incentives for multifamily housing efficiency, a sector that frequently overlaps with low-income and other marginalized groups. These sectors often struggle to adopt efficiency without external incentives, but they represent a significant opportunity for energy and cost savings. FP&L has not offered any new DSM programs in its portfolio since 2005 (FPL 2020).

² A list of program types and descriptions can be found in the 2020 *Utility Energy Efficiency Scorecard* under Category 2: Energy Efficiency Programs. See www.aceee.org/research-report/u2004.

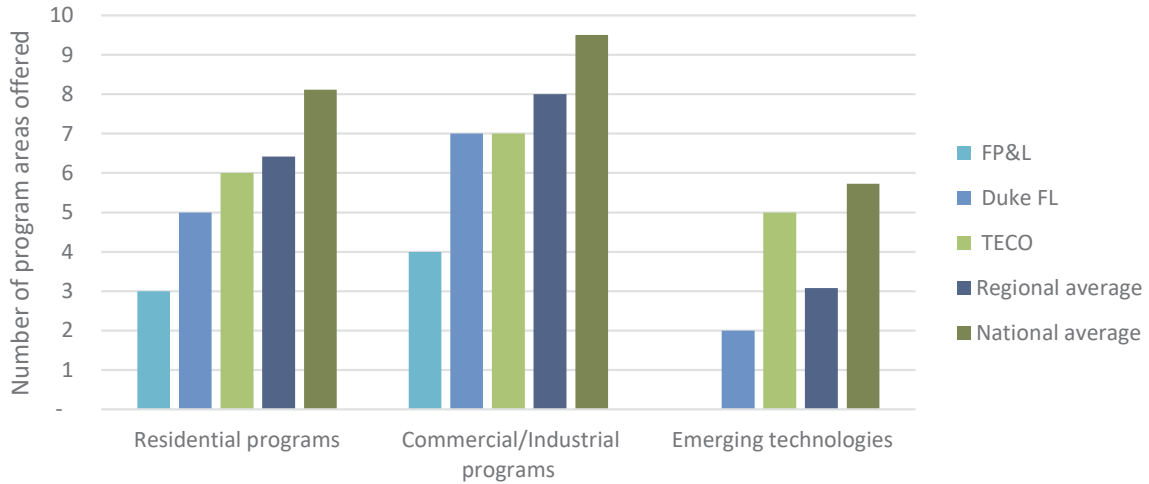


Figure 4. Energy efficiency programs offered by Florida utilities. *Source: ACEEE Utility Scorecard (Relf et al. 2020).*

REDUCING ENERGY BURDENS FOR FLORIDA’S MOST VULNERABLE POPULATIONS

Florida’s utilities are required to offer specific income-qualified EE programs, but there is no mandated level of spending and savings.³ The Public Service Commission (PSC) directed the FEECA utilities to educate and assist low-income customers on EE opportunities.⁴ The need among low-income households is great. For example, 23% of homes in Miami and 21% of homes in Tampa are considered *energy burdened* – that is, they spend more than 6% of their income on energy costs. Of these households, 12% are *severely energy burdened*, spending more than 10% of their income on energy costs. Average burdens increase when combined with other disadvantaged demographics, including Black, Latino, and older (65+) adult households (Drehobl, Ross, and Ayala 2020).

³ Under Florida Statute, Section 366.82.

⁴ Order PSC-14-0696-FOF-EU, issued in 2014 and reaffirmed in November 2019 with Order No. PSC-2019-0509-FOF-EG.

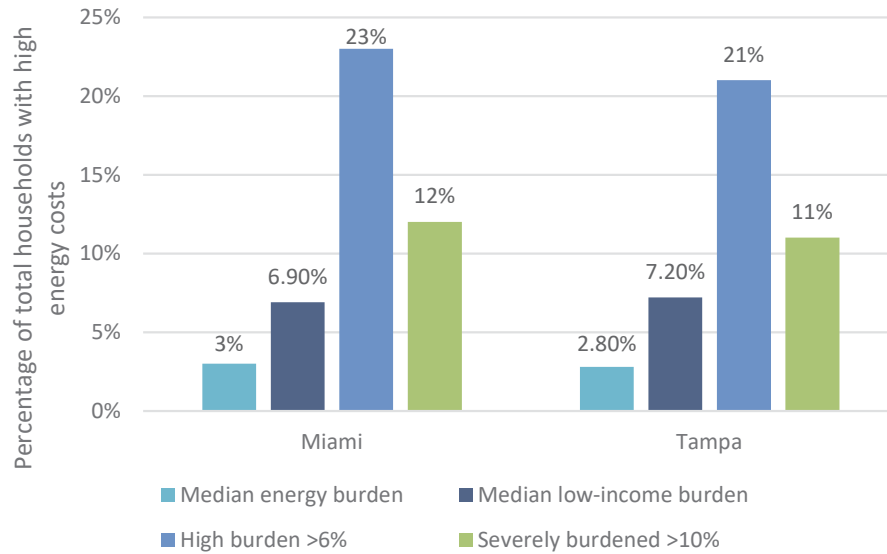


Figure 5. Energy burdens in Miami and Tampa, FL. *Source:* ACEEE (Drehobl, Ross, and Ayala 2020).

A variety of programs can effectively target and reduce household energy burdens. Low-income weatherization programs can reduce household energy use by 25% or more (Drehobl, Ross, and Ayala 2020). The National Renewable Energy Laboratory (NREL 2017) estimates that the average Florida single-family household can reduce its energy use by 23% through cost-effective efficiency improvements, particularly in HVAC, water heating, and lighting. Utilities are some of the best-situated entities to deliver these services to these households due to their existing relationship with customers and access to energy usage and bill data. Florida’s electric IOUs are currently not achieving this potential due to their underinvestment in EE and the resulting lack of available customer programs, services, and incentives.

To ensure that low-income customers are receiving the full benefits of EE programs, some states set a minimum threshold for utility spending on programs for low-income customers or require that the sector achieve a minimum level of energy savings. States that have taken these steps include New Jersey and Virginia, both of which have recently passed comprehensive EE reforms that include targets for utilities to reach more low-income customers with specialized programs (Berg et al 2020).

Regulatory Barriers to Customer Energy Efficiency Programs

Florida utilities’ low rankings and poor performance in comparison to other electric IOUs’ energy savings and program offerings are largely due to systemic barriers within the state’s regulatory environment. Stakeholders have identified three Florida regulatory practices that are out of standard practice for funding, developing, and implementing EE programs: (1) unambitious and ineffective goal-setting for energy savings, (2) use of the RIM test to evaluate cost effectiveness and screen customer programs, and (3) a minimum two-year payback requirement for customer incentives for EE measures. We now examine and discuss how Florida’s practices in these areas unduly restrict the funding and provision of utility EE programs for its residents and businesses.

SETTING GOALS FOR ENERGY EFFICIENCY SAVINGS

Establishing significant, measurable, and achievable goals for utilities is a critical regulatory tool for delivering widespread energy savings. Quantitative analysis by the Brattle Group and ACEEE demonstrates that such EE resource standards are the policy most closely correlated with higher energy savings (Sergici and Irwin 2019; Molina and Kushler 2015). In 2019, the Florida PSC rejected proposals of 0% savings targets from three electric IOUs for 2020–2029. Instead, the PSC opted to continue with goals that were established in the 2014 goal-setting proceeding, which are 13% of 2010–2019 targets (Florida PSC 2020). These low savings targets reflect EE’s undervaluation and the resulting underperformance of Florida’s programs compared to other states. Further, these goals have no savings targets or thresholds for low-income Florida residents. Without reform, Florida’s electric IOUs will likely continue to propose minimal spending and ignore program offerings and potential areas that can deliver long-term value and savings.

The importance of goal setting is illustrated by recent policies enacted in Virginia and Arkansas. Virginia passed comprehensive legislative and regulatory reforms in 2020 that set multiyear energy savings targets for utilities, with specific measures to support low-income customers (Berg et al. 2020). These reforms have made the state a new leader in the Southeast in terms of EE, DSM, and clean energy policy. In Arkansas, the Public Service Commission ordered higher EE goals (1.2% savings) than electric utilities had proposed (1.0%) in the review proceeding for three-year program plans based on the estimated EE potential (Arkansas PSC 2018).

COST-EFFECTIVENESS TESTING

As we noted earlier, Florida is the only state to still rely primarily on the RIM test, which measures cost effectiveness only through EE’s impact on consumer rates rather than accounting for its complete costs and benefits in relation to customer bills and the utility system.⁵ Other states have moved away from the RIM in recent years, recognizing that it does not appropriately value EE as a resource. Until recently, for example, Virginia was the only other state to rely on the RIM as its primary cost-effectiveness test. In 2018, the Virginia General Assembly adopted new rules that reduced its reliance on the test, requiring regulators to approve programs that passed other cost-effectiveness tests even if they did not pass the RIM test.

States have widely rejected the RIM test as a primary test for decision-making about the cost effectiveness of utility EE programs for several reasons.

First, the RIM test does not really measure the cost effectiveness of an EE program. Rather, it indicates the distribution of already-sunk utility system costs. That is, it treats lost sales revenue as a cost, yet those lost revenues address costs that have already been incurred

⁵ A more thorough understanding of how a given program affects consumer costs would need to include three factors: (1) a RIM test, (2) a bill impact analysis to measure the extent to which customer bills might be lowered if they install energy efficiency measures, and (3) a participation analysis to estimate the portion of customers that are receiving such benefits (Neme 2019). Relying on the RIM test alone will not result in the lowest costs to consumers.

elsewhere in the system, which typically reflect the utility's existing fixed costs. They are not actually a cost of delivering the EE program. For this reason, the RIM test does not reveal whether a program is cost effective in terms of reducing total future costs below what they would be absent the program.

Second, the RIM test can produce perverse outcomes. The more energy a program saves, the worse it will do on the RIM test, because the test treats the lost sales revenue as a cost. A simple exercise can demonstrate why the RIM test is an unacceptable device for measuring economic efficiency. Assume a utility with the following typical conditions:

- An average retail rate of 9 cents
- An avoided cost of additional supply of 6 cents
- An EE program that saves electricity at a cost of 2 cents per kWh

Under the RIM test, the benefits of 6 cents would be compared to the program costs of 2 cents plus the costs of the 9 cents of lost revenue; the program therefore would be judged to be cost ineffective, even though saving electricity in this case costs one-third of the cost of acquiring additional electricity. So, even if the EE program is free, it would fail the RIM.

Third, it is both inconsistent and unfair to apply the RIM test to EE programs when it is not applied to supply-side investments such as new power plants or new distribution system infrastructure. By definition, these supply-side investments would all fail the RIM test because they would result in some rate increase over current rates.

All other states with utility EE programs rely on other tests – such as total resource cost or program administrator/utility cost tests – to estimate cost effectiveness and screen potential programs. Dropping reliance on the RIM and using tests commonly employed by other states would increase the cost-effective EE potential in Florida. This, in turn, would enable Florida utilities to expand their portfolios and offer more programs and eligible measures to their customers.

In addition to applying industry-standard cost-effectiveness tests that align with best practices, it is also important that Florida account for the full set of benefits that result from EE programs. While the primary benefit of efficiency from the utility's standpoint is avoided energy (kWh) and capacity (kW) costs, EE programs offer additional benefits to program participants and society in general. These benefits range from improved productivity and comfort in homes and businesses to better indoor air quality, reduced air and water emissions due to avoided generation, improved home and property values due to increased efficiency, job creation, public health improvements, and economic growth. Accounting for some or all of these non-energy benefits of efficiency in cost-effectiveness tests will result in a more complete valuation for EE programs overall.

TWO-YEAR PAYBACK SCREEN

Florida utilities apply a two-year payback screen to eliminate efficiency measures that have a financial payback of two years or less, based on the assumption that customers will adopt such measures on their own. These customers are known as *free riders* – that is, customers who will adopt certain efficiency measures without receiving incentives or other program

services. This treatment of free ridership is unique; most other states instead use well-established analytical techniques, such as surveys and other types of market research (NESP 2020), to estimate free-ridership.

Florida's payback screen blocks low-cost, easily implemented EE measures and discourages low-income participation and investment in EE (because low-income households can often afford only such rapid payback measures). By assuming that consumers will inevitably and independently adopt all programs with less than a two-year payback, the Florida PSC fails to recognize the informational, economic, and motivational barriers that might be keeping consumers from embracing new EE technologies.

UTILITY BUSINESS MODEL

Florida's existing utility business model discourages utilities from investing in EE by treating all energy savings as lost utility revenue. This does not need to be the case, as there are statutory and regulatory tools that better align EE and utility business models. Three primary types of regulatory tools exist to enable utility investment in EE:

- **Program direct-cost recovery.** Utilities traditionally make a profit by investing in infrastructure and recovering those costs—plus a return on investment—through rates charged to their customers. This is the method Florida utilities currently use to earn a return on their efficiency spending. However, because EE reduces kWh sales, the returns on EE investments are lower than other types of utility investments.
- **Decoupling mechanisms.** By decoupling utility revenues from kWh sales, regulators can eliminate the lost revenue issue and remove the disincentive to invest in efficiency under the current business model. Although decoupling addresses a major barrier, utilities may need additional incentives or mandates to properly scale up EE investments.
- **Performance incentives.** By tying utility profits to desired outcomes, regulators can create an environment that encourages utilities to invest in programs that deliver energy savings and other results. A performance incentive can make up for lost revenue, even without decoupling revenues from sales, by increasing the utility's rate of return on programs that achieve certain targets for energy savings or other types of goals.

Florida utilities are allowed to request decoupling or a lost revenue adjustment.⁶ However, they have yet to do so, and Florida regulators have not developed mechanisms for utilities to earn a financial incentive for investing in EE. A first step to improving the utility business model would be to develop a performance incentive for EE programs. Such incentives are most effective when awarded according to achievement of specific program goals, typically for total energy savings, but they may also be aligned with other outcome-related targets such as low-income energy savings or job creation. Other states in the region, such as North Carolina, have adopted outcome-based performance incentive mechanisms. The state's two largest utilities, Duke Energy Progress and Duke Energy Carolinas, have more well-rounded EE program portfolios than Duke Energy Florida, and they are achieving close to

⁶ Under Florida Statute § 366.82.8 and 366.82.9

1% annual energy savings as a percentage of sales as of 2019 (Gold et al. 2020). This savings level is possible in Florida as well, so long as the utilities are working within a structure that better aligns utility profits with socially and economically desirable results.

Recommendations

Effective utility EE programs rely on a standard set of policies. By adopting more representative cost-effectiveness testing protocols, eliminating the unnecessary two-year payback screen, and focusing on delivering a broader variety of programs—including targeted programs for low-income customers—Florida’s regulators can enable greater energy savings for the state’s households, businesses, and industries. Expanded EE programs would not only directly benefit customers by reducing their energy costs, they would benefit Florida’s economy and environment as well. Utilities can also partner with leaders from cities and local governments to deliver targeted EE solutions as a means to reduce costs and achieve clean energy objectives. State agencies can coordinate and support such efforts.

To realize a much greater share of Florida’s EE potential, state regulators should change the rulemaking process to realign policies and practices. The following changes to rulemaking and program development would break down existing regulatory barriers and create new opportunities for realizing EE’s many benefits:

- Set strong energy savings targets for utilities.
- Include specific requirements for delivery of comprehensive programs to low-income and other underserved customer categories, such as small businesses.
- End reliance on the RIM as the primary screen for EE cost effectiveness. For this FEECA cycle, we recommend that the Florida PSC evaluate proposed programs using the utility cost test results presented by utility proposals.
- Eliminate the two-year payback screen to increase the programs and EE measures available to customers. Doing so will expand opportunities for customers to benefit from EE.

Enacting changes to Florida’s screening of EE measures and programs to align with common practices is a much-needed fundamental reform. To achieve its EE potential, Florida needs a full and fair accounting of the benefits and costs of implementing programs. Our recommendations above are for near-term changes that can be enacted during the present FEECA rulemaking proceeding. For future cycles, we recommend that the Florida PSC facilitate a robust stakeholder process to improve cost-effectiveness testing methodologies and inputs to utility potential studies. We suggest that such a proceeding follow the principles and practices in *The National Standard Practice Manual for Distributed Energy Resources* (NESP 2020). This industry guidebook provides a set of economically sound, politically neutral procedures and concepts for evaluating the cost effectiveness of EE and other distributed energy programs and technologies. Different tests measure different priorities, and Florida regulators, utilities, and stakeholders should evaluate which testing method will align with the desired outcomes and industry best practices.

The historically poor performance of Florida’s electric IOUs in the area of EE programs has deprived customers of opportunities to reduce their energy costs and realize other benefits that result from such improvements. EE programs also reduce overall utility system costs, support job growth and economic development, and reduce carbon emissions. Compared to other regional and national utilities, Florida’s utilities stand out for this poor performance. Effectively addressing restrictive regulatory practices would eliminate fundamental barriers to investing in and providing cost-effective EE programs for Florida’s electric utility customers.

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