

# THE COSTS & RISKS OF FLORIDA'S DEPENDENCE ON NATURAL GAS



Produced by Vote Solar



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# SUMMARY

When it comes to energy independence, Florida continues to move backwards, heading in the opposite direction from most of the country. For the past three decades, the so-called Sunshine State has embraced not solar but natural gas as the resource of choice for generating electric power. Instead of fully embracing lowest cost solar

investments, Florida currently plans to expand that gas generation capacity even more over the next decade. The end result is that Florida is increasingly reliant on a volatile fuel source that must be imported, increasing risks and raising costs for every Florida ratepayer.

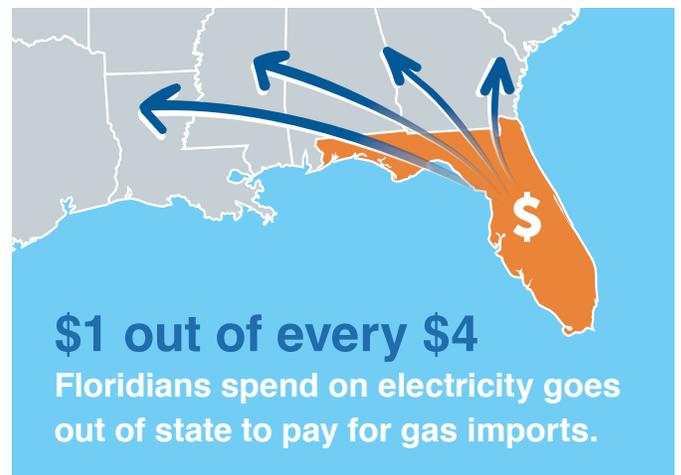
For every **FOUR DOLLARS** that Floridians pay their electric companies,



at least **ONE** of those dollars **IMMEDIATELY LEAVES FLORIDA** to pay for out-of-state gas. Every year, those fuel payments add up to **\$5 billion leaving the state's economy.**

Florida's reliance on gas is among the very highest in the country today, and new information and filings show that its utilities are poised to continue that reliance into the next decade. This pattern creates risks for the state and a missed opportunity for local economic development. Because Florida does not produce its own natural gas, it is required to purchase it from out-of-state sources. As a result, \$1 out of every \$4 spent by Floridians for electricity is shipped out of state to pay for gas imports.

- › Florida's share of gas generation is among the top four in the country, and **its 70% reliance on gas is double the national average.**
- › Since 1990, the vast majority of all installed capacity in Florida has been in gas plants.
- › Each year, some \$5 billion leave the Florida economy to pay for fuel.
- › If natural gas prices increase in the future, Floridians will disproportionately bear the financial burden because of the state's heavy reliance on that fuel source.
- › Florida captured only one-twentieth of its energy efficiency potential in 2017.<sup>1</sup>



Florida long resisted the most obvious energy source associated with the state — solar power. Clean and more affordable alternatives to gas, such as solar, are in the marketplace today. These low-risk alternatives are threatening to make today's natural gas investments obsolete, saddling consumers with burdensome and unnecessary costs. Now is the time for leadership to secure a more affordable energy future for Florida.

# HOW DOES FLORIDA'S DEPENDENCE ON GAS COMPARE TO THE REST OF THE COUNTRY?

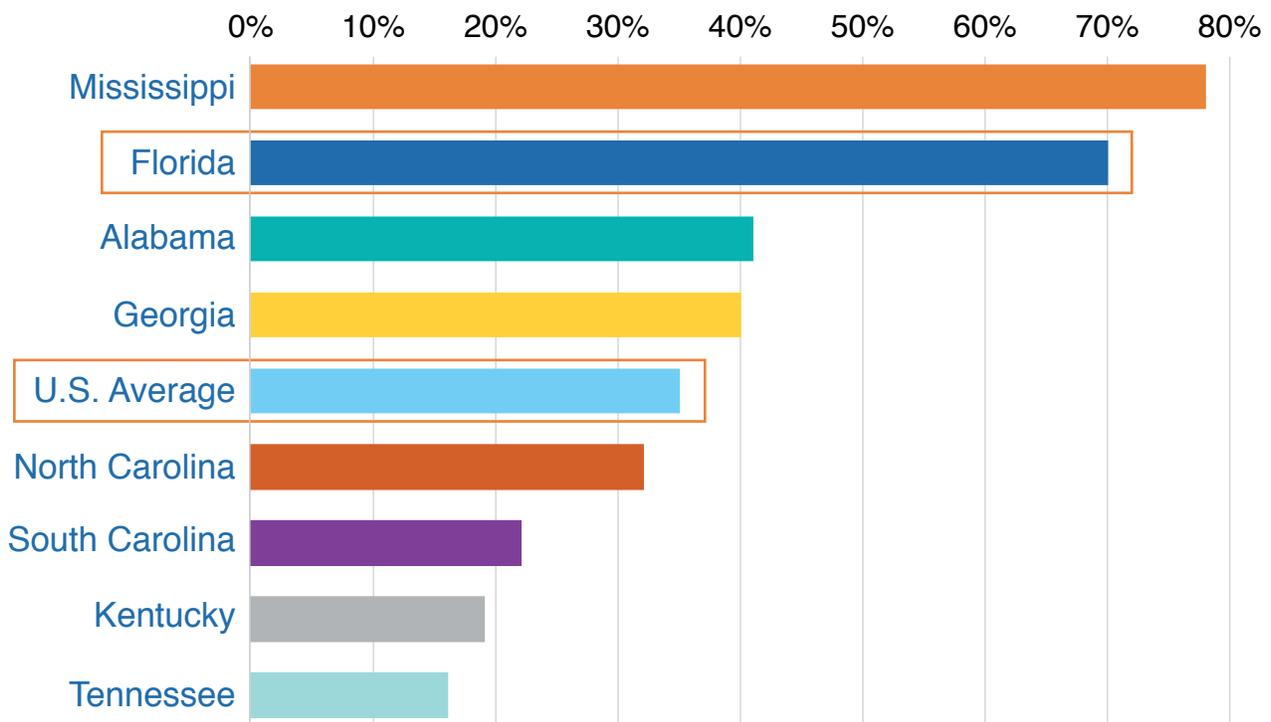


New natural gas pipelines being installed in Gilchrist County.

Florida's gas share is much larger than its peers in the Southeast. Fully 70% of Florida's electricity comes from burning gas, all of which must be piped in from out of state. Florida also stands out across the United States, which on average generates about 35% of its electricity from gas and has no single source of energy providing a majority of electricity.

Florida's share of gas generation is among the top four in the country, just behind Rhode Island, Delaware, and Mississippi. Yet as participants in larger energy markets, Rhode Island and Delaware have access to a broader energy mix than what they generate solely in-state, and as a result their overall supply of electricity comes from a mix that is less reliant on gas.

## Southeast States – Gas as a Share of Electricity Generation, 2018

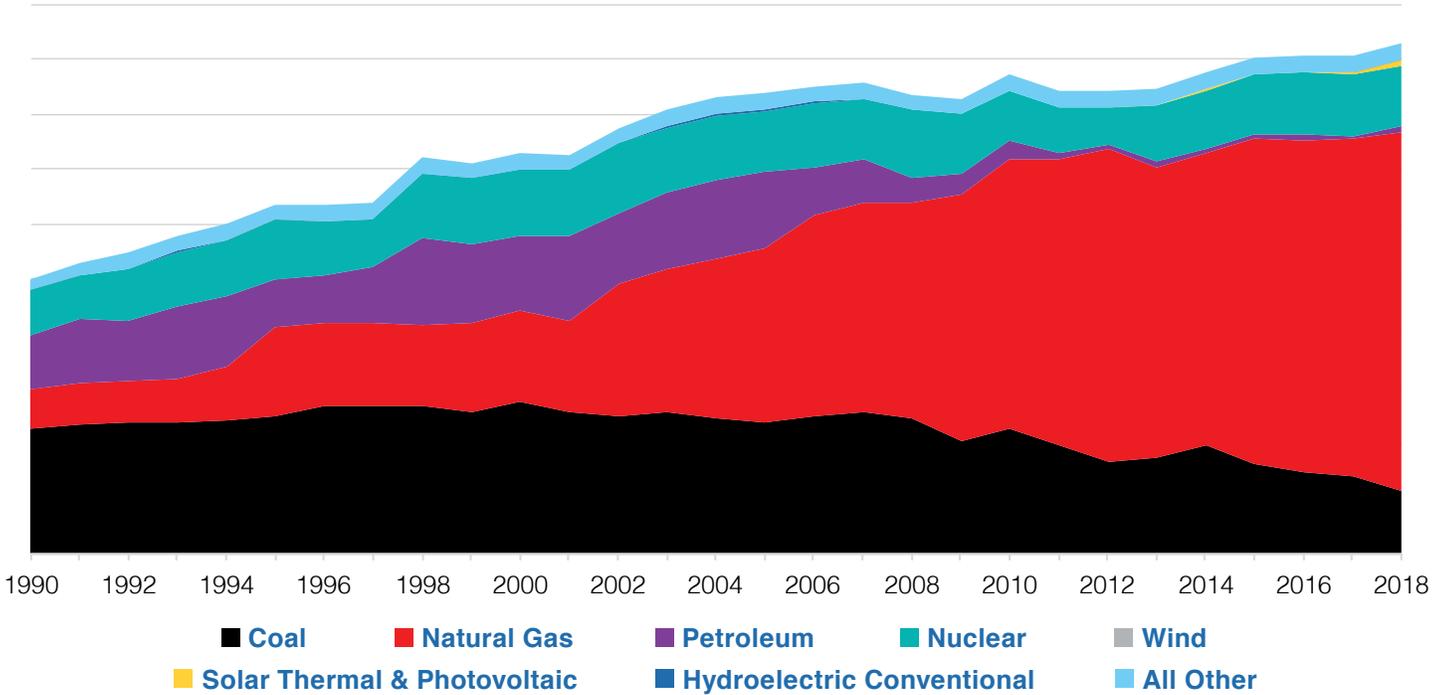


Source: Vote Solar analysis of 2019 U.S. Energy Information Administration Data

While Florida's reliance on coal and petroleum as fuel sources for electricity generation has significantly declined over the past several decades, those increasingly obsolete fuel sources have been replaced with volatile natural

gas resources that now risk being priced out by emerging clean energy. Florida's reliance on natural gas is a relatively new phenomenon; just over a decade ago, the state derived less than half of its electricity from gas.

### Florida's Total Electricity Generation Mix Since 1990, by Fuel

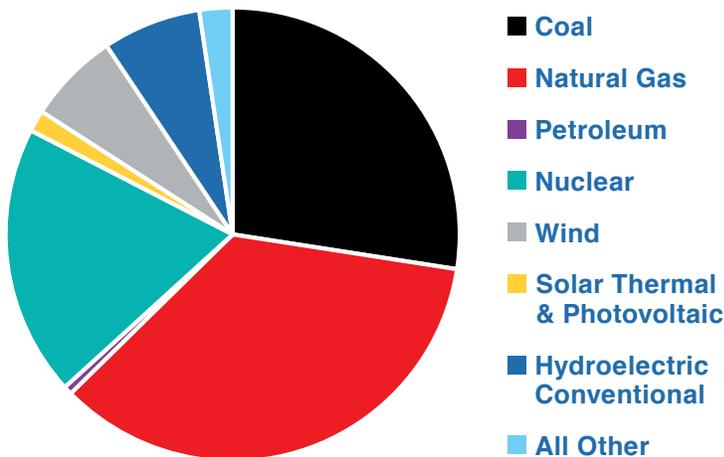


Source: Vote Solar analysis of 2019 U.S. Energy Information Administration Data

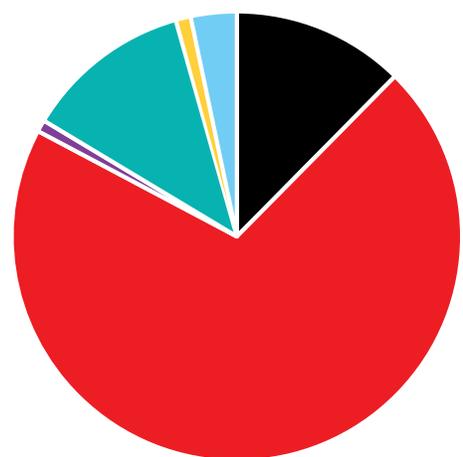
As shown in the pie charts below, while gas-fired generation plays a substantial role in electricity generation across the country, Florida's use is

more drastic. The state now relies heavily on gas for electricity generation to serve its nearly 22 million residents.

#### Share of Generation, U.S. Total, 2018



#### Share of Generation, FL, 2018



Source: Vote Solar analysis of 2019 U.S. Energy Information Administration Data

# HOW DID WE GET HERE?



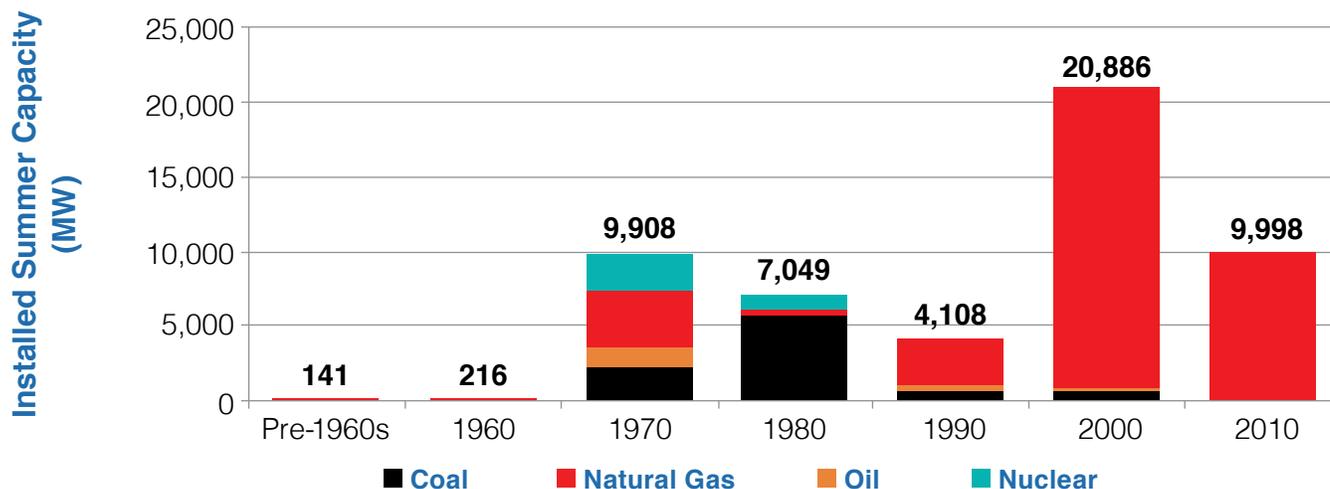
Big Bend Power Plant along the Manatee Viewing Center canal in Apollo Beach.

Each year, Florida’s major utilities file proposals for meeting electricity needs over the next decade. These plans are evaluated by the Florida Public Service Commission (PSC), after which the PSC makes a determination as to whether each plan is suitable or unsuitable.<sup>2</sup> However, these plans may be amended at any time by utilities. Further, many natural gas investments — such as building a new gas combustion turbine — do not require advanced approval by the PSC prior to construction under

Florida law. This dynamic gives utilities significant latitude over resource decisions.

Using this opaque process, Florida utilities have propelled Florida into this high-gas energy mix through a decade of overspending on gas generation. Since 1990, the vast majority of all installed capacity — over 33 GW of capacity — has been in gas plants.

## State of Florida – Electric Utility Installed Capacity, by Decade



Source: FRCC 2019 Regional Load and Resource Plan

In its rapid turn toward gas generation, Florida has actually procured more resources than it needs to run the grid. A review by the National Energy Reliability Corporation found that Florida has 25% more generation capacity than it needs — almost double the recommended safety margin.<sup>3</sup> In fact, without

adding any new capacity or counting energy imports, nuclear, or solar plus storage, Florida’s fossil resources alone could serve peak summer loads through 2026. This oversupply of generation capacity means more equipment to maintain and higher costs for ratepayers.

# WHAT'S ON TAP FOR THE NEXT 10 YEARS?

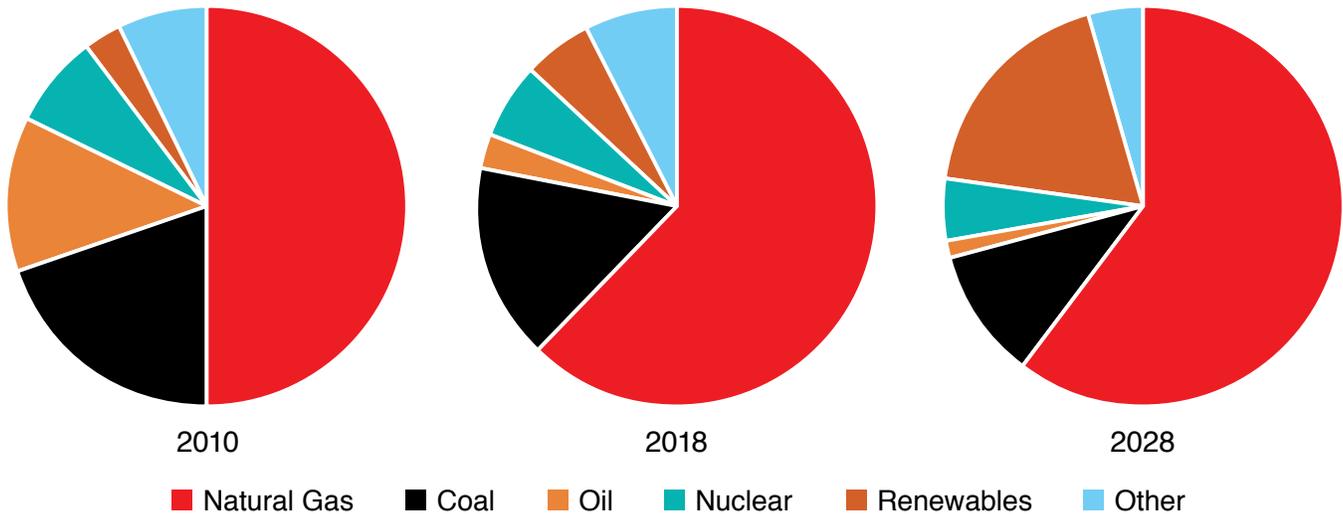


Florida Power & Light storage tanks sit along Manatee Lagoon in West Palm Beach at this natural gas plant. Photo taken May 2018.

Based on the most recently completed planning cycle, Florida plans to add several gigawatts of gas generation in this decade. Many of the projects

being planned by major utilities are not subject to PSC pre-construction authorization.

## Florida Historical, Current, and Projected Capacity, by Fuel Type



Source: U.S. Energy Information Administration Form 860, 2018.

The 2020 filings reveal more of the same from many Florida utilities, which will exacerbate consumers' exposure to gas risk over the next decade.<sup>4</sup> Upcoming projects include:

- FPL: Planning 600 MW of CC upgrades – *not subject to PSC pre-construction authorization*
- Gulf Power: Planning 938 MW of new combustion turbines – *not subject to PSC pre-construction authorization*
- Duke Energy: Total energy from gas to increase from 64.9% to 77.3% by 2029. They also plan to build 452 MW of new combustion turbines (*also not subject to PSC pre-construction authorization*)

- Tampa Electric Company (TECO): Total energy from gas to increase to 84.6% by 2029
- Florida Municipal Power Agency (FMPA): Total energy from gas to increase from 75.6% to 81.2% by 2029

**FPL projects the cost of natural gas will almost double, increasing by 75% over the next decade from \$2.42/MMBTU in 2020 to \$4.25 in 2029<sup>5</sup>**

# HOW DOES THIS IMPACT FLORIDA CONSUMERS?



NASA's first large-scale solar power generation facility at Kennedy Space Center. Image credit: NASA.

Florida utilities' over-reliance on gas is a gamble they are playing with Florida consumers' money. If gas prices increase, everyday Floridians will be on the hook for those payments. While natural gas prices are difficult to predict, at least one scenario from the U.S. Energy Information Administration would see gas double in price over the next ten years.<sup>6</sup> This would result in an extra \$360 per year on every customer's electric bill.

Gas price shock is nothing new to Florida consumers. In 2006, in the wake of rising global prices compounded by supply disruptions caused by hurricanes in the Gulf of Mexico, the PSC approved a 19% bill increase for residential customers and a 30% to 41% bill increase for commercial and industrial customers of Florida Power & Light (FPL).<sup>7</sup> At that time, FPL's generation



This Florida Power & Light power plant in Riviera Beach was demolished in 2011 and replaced with a natural gas plant.

If gas prices  
**double,**



Floridians could see their  
utility bills increase by

**\$360/year**

mix included only 37% natural gas — significantly less than it is today.

In the past, electric utilities have turned to hedging their natural gas bet to mitigate this risk. But hedging brings its own hazards. Natural gas fuel contracts entered into by Florida's utilities lost consumers almost \$7 billion between 2002 and 2016. Although the PSC imposed a moratorium on hedging in 2017, new hedging methods lost another \$3.6 million in 2019 alone.

Adding to these risks, utilities now run a new risk of saddling consumers with stranded costs by building even more gas in an environment of cheaper, more reliable solar power and battery storage. Policymakers should carefully weigh these risks in assessing the prudence of continued investments of ratepayer funds in gas.

# WHAT CAN FLORIDA DO ABOUT ITS DEPENDENCE ON GAS?



The cost of battery storage on large-scale solar projects continues to decrease.

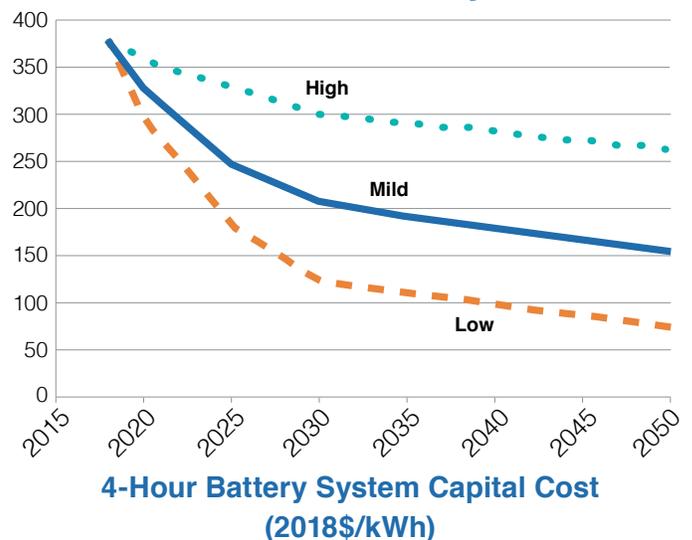
Experts and advocates, from IHS Markit to the Edison Electric Institute, agree: The best way to mitigate risk is to minimize exposure through a diversity of fuels and technologies. Investing in a variety of resources will reduce Florida's overall exposure to any price fluctuation.

Fortunately, by combining clean energy resources, utilities can tap into cheaper, more flexible options for meeting future energy needs, while simultaneously diversifying Florida's energy mix. Battery storage promises to boost the efficiency and effectiveness of renewable energy sources, and is seeing significant price declines. This decline is projected to continue and makes solar plus storage opportunities even more attractive.<sup>8</sup>

- **According to the U.S. Energy Information Administration, solar power is now the cheapest generating resource available to Florida.<sup>9</sup> While Florida utilities' investments in solar power are growing, Florida drew just 2% of its electricity from solar in 2019.<sup>10</sup>**
- Solar is an even better investment in combination with other clean energy resources. An analysis by the Rocky Mountain Institute recently found that clean energy portfolios (a combination of solar, battery storage, and demand-side resources) can now provide the same services at lower cost than new gas-fired power plants.<sup>11</sup> **Clean energy portfolios can satisfy the same energy needs as four proposed natural gas plants in Florida — and save customers \$1.1 billion along the way.<sup>12</sup>** As clean energy prices continue to decline, the potential for savings will only grow.

- The cost of battery storage has plummeted in recent years, and Florida is beginning to take notice. While Florida has only about 10 MW of storage installed, there is over 430 MW of such storage being planned for future implementation across the state.
- Unfortunately, Florida customers are missing out on savings from energy efficiency programs. Investor-owned utilities in Florida saved on average only about 0.22% of retail sales in 2015 through their efficiency programs.<sup>13</sup> And despite the fact that Florida's cost-effective energy efficiency potential is among the highest in the country,<sup>14</sup> the state captured only one-twentieth of its efficiency potential in 2017.<sup>15</sup>

## Battery Cost Projections for 4-Hour Lithium Ion Systems



Source: National Renewable Energy Laboratory, Cost Projections for Utility-Scale Battery Storage, June 2019.



# CONCLUSION

**Florida's reliance on gas is among the very highest in the country — and the state is poised to continue that reliance into the 2020s, creating significant risks for the state and a missed opportunity for local economic development. Cleaner and more affordable alternatives are available in the marketplace, offering a less risky path forward for Florida's electric utilities and ratepayers.**

**Florida needs strong leadership to promote investment in largely untapped clean energy resources like solar, battery storage, and energy efficiency that will keep Floridians' dollars in state, create local jobs, and power a clean, resilient future.**

## REFERENCES

- <sup>1</sup> American Council for an Energy Efficient Economy 2018 State Energy Efficiency Scorecard.
- <sup>2</sup> Section 186.801, F.S.
- <sup>3</sup> North American Electric Reliability Corporation, <https://www.eia.gov/todayinenergy/detail.php?id=39892>; FRCC 2019 Regional Load & Resource Plan.
- <sup>4</sup> Florida utilities' 2020 Ten-Year Site Plans
- <sup>5</sup> 2020 FPL Ten-Year Site Plan - Discovery Response
- <sup>6</sup> U.S. Energy Information Administration 2020 Annual Energy Outlook
- <sup>7</sup> Florida PSC Approves FPL's Fuel Cost Adjustment for 2006 Bills, Reflecting Volatile Global Fuel Costs, Hurricane Impacts in the Gulf. <https://www.tdworld.com/overhead-distribution/article/20962115/florida-psc-approves-fpls-fuel-cost-adjustment-for-2006-bills-reflecting-volatile-global-fuel-costs-hurricane-impacts-in-the-gulf>
- <sup>8</sup> National Renewable Energy Laboratory, Page 6. <https://www.nrel.gov/docs/fy19osti/73222.pdf>
- <sup>9</sup> National Renewable Energy Laboratory (2019). Annual Technology Baseline
- <sup>10</sup> Solar Energy Industry Association: Florida Solar through Q1 2020. <https://www.seia.org/state-solar-policy/florida-solar>.
- <sup>11</sup> RMI Clean Energy Portfolios Report 2019.
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- <sup>15</sup> American Council for an Energy-Efficient Economy (2018). State Energy Efficiency Scorecard Spending & Savings Table. Retrieved at: <https://database.aceee.org/sites/default/files/docs/spending-savings-tables.pdf>.