

COMMISSION WORKSHOP

REVIEW OF THE

2020 TEN-YEAR SITE PLANS

OF FLORIDA'S ELECTRIC UTILITIES



FLORIDA
PUBLIC
SERVICE
COMMISSION

AUGUST 2020

Florida Public Service Commission Workshop
Review of the 2020 Ten-Year Site Plans for Florida's Electric Utilities

August 18, 2020
Betty Easley Conference Center, Room 148
4075 Esplanade Way, Tallahassee, Florida

Agenda

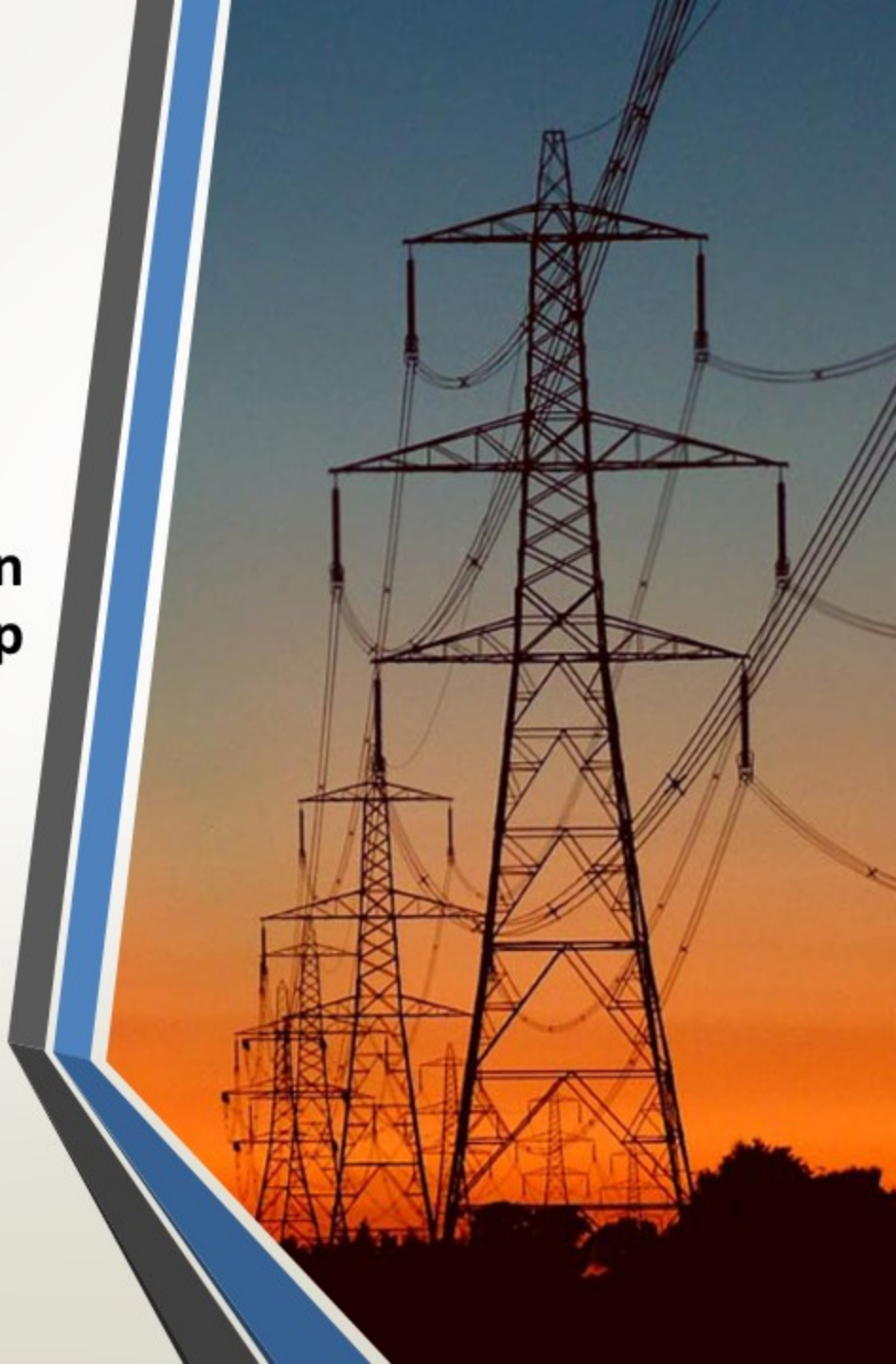
- I. FRCC Load & Resource Plan – Stacy Dochoda**
 - Integrated Resource Planning Process
 - Load Forecast and Demand-Side Management (DSM)
 - Generation Additions, Reserve Margins, Fuel Mix, and Renewable Resources
 - Reliability Considerations of Utility Solar Generation Additions
 - Natural Gas Infrastructure in Florida
- II. Tampa Electric Company – Jose Aponte**
 - Distributed Energy Resources – Reciprocating Engines & Battery Storage
- III. Florida Power & Light Company and Gulf Power Company – Steve Sim**
 - Joint Planning Process for Generation & Transmission
- IV. Southern Alliance for Clean Energy – Maggie Shober**
 - Florida Resource Planning Opportunities
- V. Vote Solar – Katie Chiles Ottenweller**
 - Themes and Questions Raised By 2020 Site Plans
- VI. Public Comments**
- VII. Adjourn**



Florida Public Service Commission 2020 Ten-Year Site Plan Workshop FRCC Presentation

Stacy Dochoda
President & CEO

Florida Reliability Coordinating Council, Inc.
August 18, 2020





Vision: To be the premier organization for grid reliability and security in North America.

Mission: To coordinate a safe, reliable and secure bulk power system with our Members.

Agenda

2020 Load & Resource Plan

- Summary
- Gulf Power Company Integration
- Integrated Resource Planning Process
- Load Forecast and Demand-Side Management (DSM)
- Generation Additions (including batteries), Reserve Margins, Fuel Mix, and Renewable Resources
- Reliability Considerations of Utility Solar Generation Additions
- Natural Gas Infrastructure in Florida
- COVID-19 Impacts

2020 Load & Resource Plan Summary

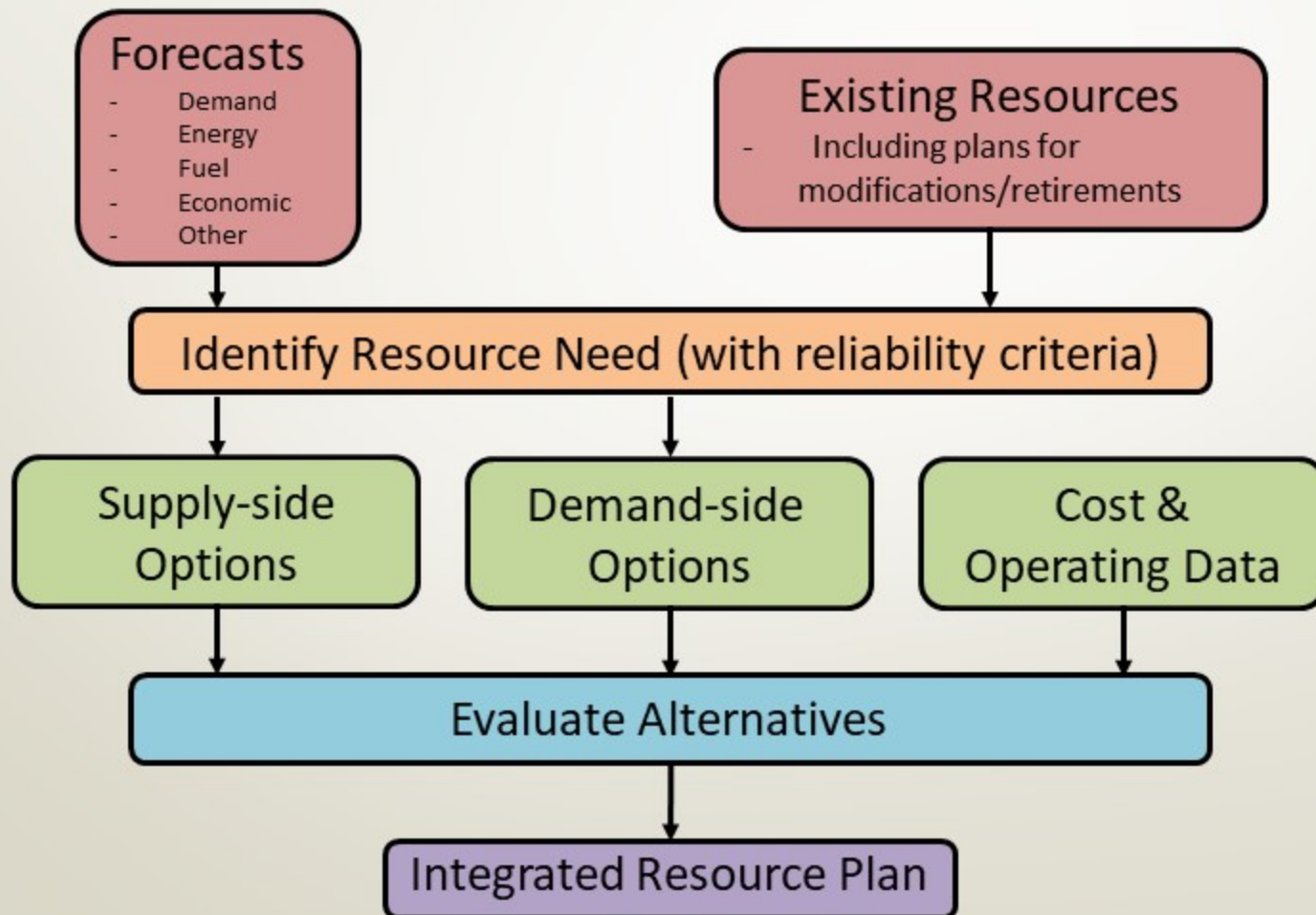
Over the next ten years

- Firm peak demand and energy sales forecasts are comparable to 2019 TYSP; continue to show growth
- Over 12,150 MW of new firm generation planned
- Planned Reserve Margins above 20%
- Demand Response reduces firm summer peak (MW) by 6.1% in 2029
- Energy Efficiency Codes and Standards are projected to reduce peak demand by 5.1% in 2029
- Reserve Margin increasingly dependent upon firm Demand Response in later years
- Renewables increase from 4% to 13% (energy)
- Utilities' Ten-Year Site Plans filed 4/1 and did not⁴ consider impacts of COVID-19

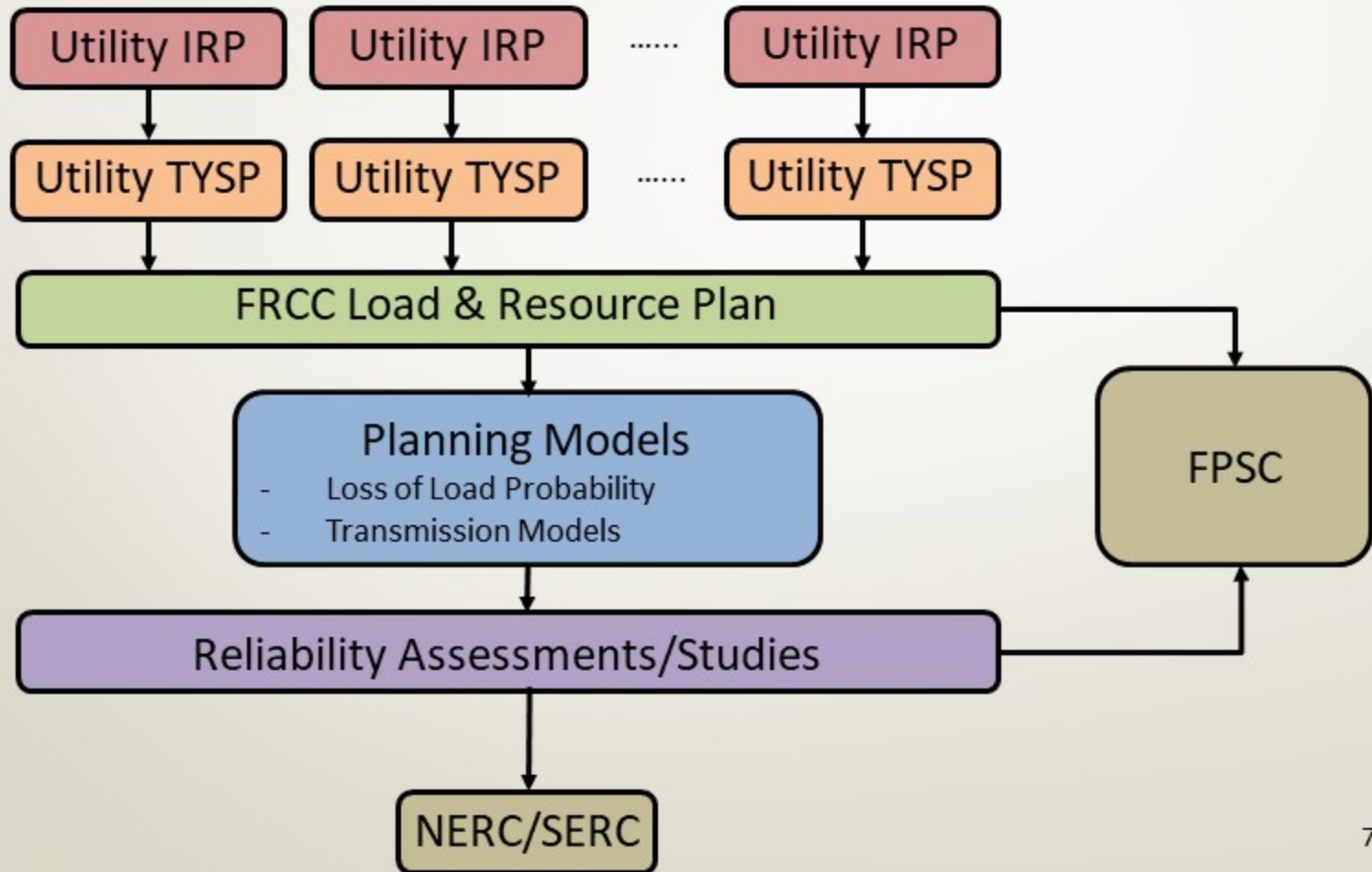
FPL IRP/Gulf Integration

- On January 1, 2019, Gulf Power Company (Gulf) became a subsidiary of NextEra Energy, Inc. which also owns FPL.
- In previous Load and Resource Plans, Gulf's data was only shown within the State section of the report.
- FPL expects to integrate Gulf, creating a single electric operating system on January 1, 2022.
- Approximately 2,350 MW of existing generation is being added to the FRCC Region.
- Gulf Power loads have been added to 2019 forecasts to better compare 2019 to 2020 data

Utility Integrated Resource Planning (IRP) Process Overview



FRCC Planning Process Overview



Load Forecast and DSM^{1,2,3}

- Firm summer peak demand (MW) growth similar to 2019, at 1.10% per year
- Forecasted energy sales (GWh) growth similar to 2019 TYSPs; at 0.75% per year
- Demand Response reduces firm summer peak (MW) by 6.1% in 2029
- Energy Efficiency Summer Peak reductions in 2029
 - Mandated Codes and Standards: 5.1%
 - Utility-Sponsored Energy Efficiency/Energy Conservation: 1.4%

¹ In this year's report the growth rate was calculated using 8 years of data from 2022-2029 to normalize the impact of Gulf Integration on 1/1/2022.

² Demand-Side Management (DSM) is made up of Demand Response (DR) and Utility-sponsored Energy Efficiency/Energy Conservation (EE/EC).

³ Projected impacts of Energy Efficiency codes and standards included in all utilities' forecasts.

Load Forecast Factors*



Florida unemployment (actual) has continued to decrease*



Population growth is projected to remain strong



Wage and income growth have not kept pace with employment growth



EE codes and standards and distributed solar dampen energy use growth



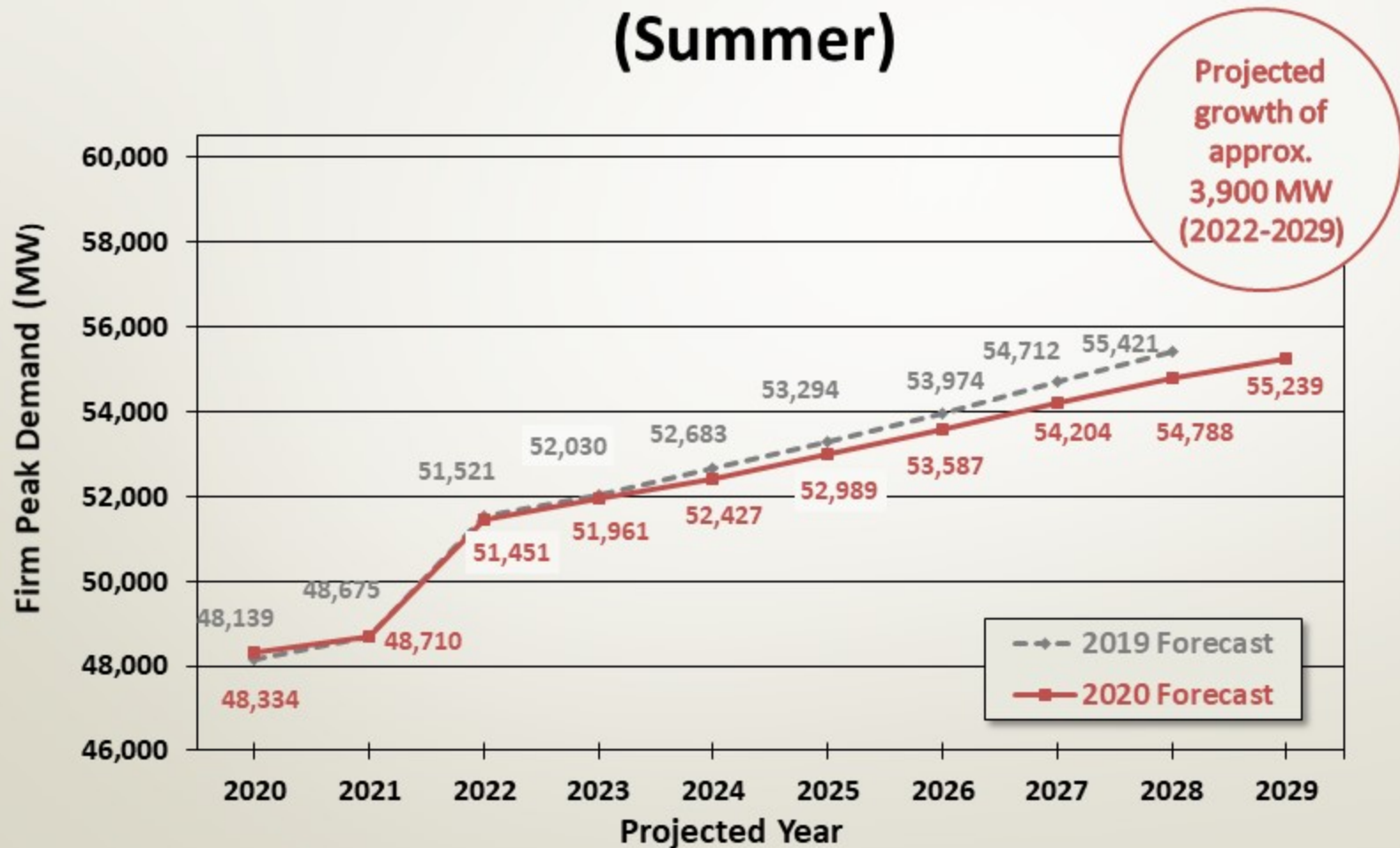
Commercial customer forecasts affected by online commerce



EV impact grows to 500 MW by 2029

*Utilities' TYSP filed 4/1 and did not consider impacts of COVID-19

Comparison of 2019 vs. 2020 Firm Peak Demand Forecast^{1,2} (Summer)

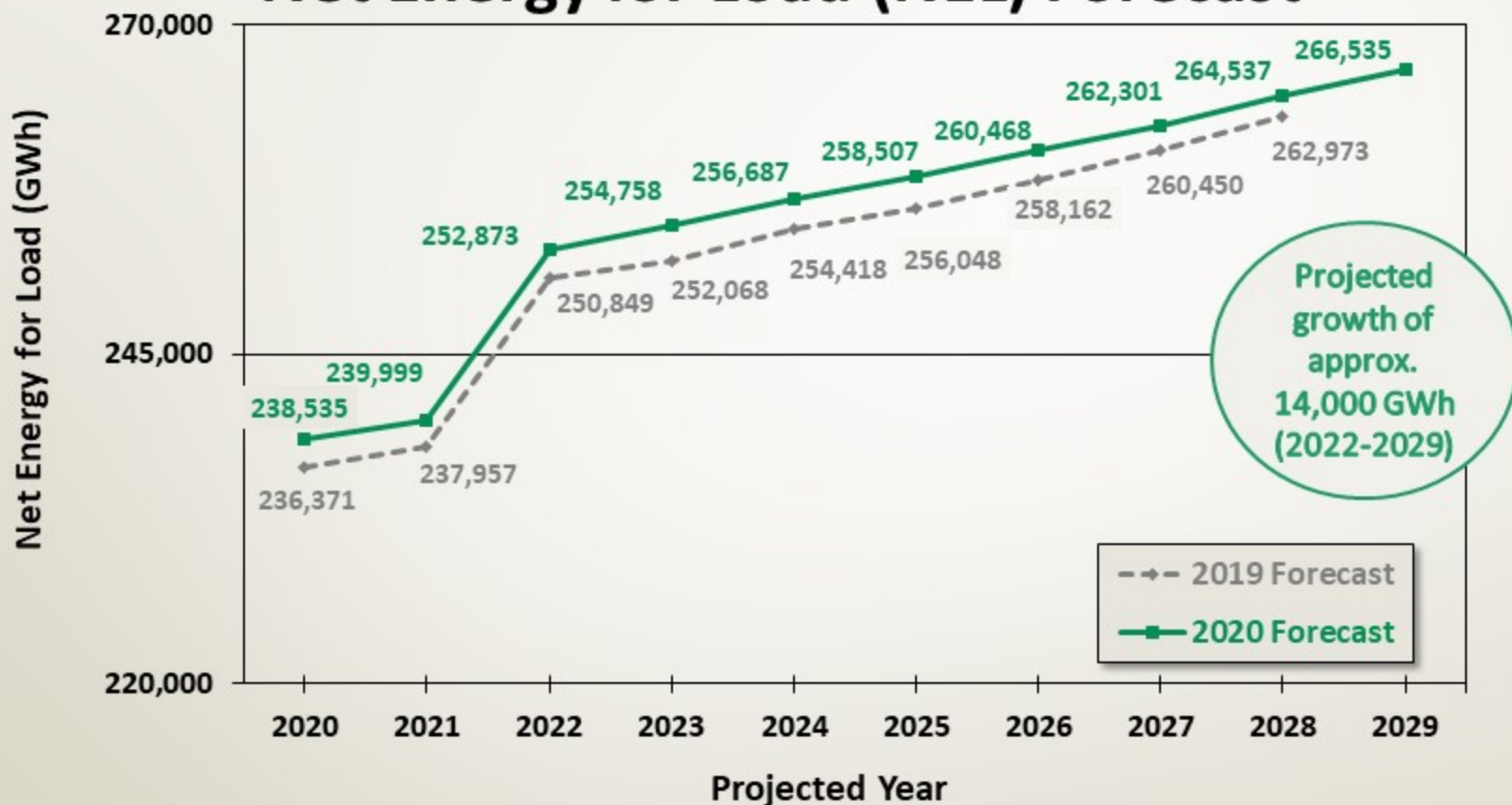


¹ Firm Peak Demand includes impacts of DSM (cumulative Demand Response and incremental (2020-on) utility-sponsored Energy Efficiency/Energy Conservation) as well as Energy Efficiency Codes and Standards.

² For the Years 2022 and beyond, the 2019 forecast includes legacy Gulf Power load projected in Gulf Power's most recent independent Ten-Year Site Plan filing to foster a better understanding of overall year-over-year growth.

Comparison of 2019 vs. 2020

Net Energy for Load (NEL) Forecast^{1,2}

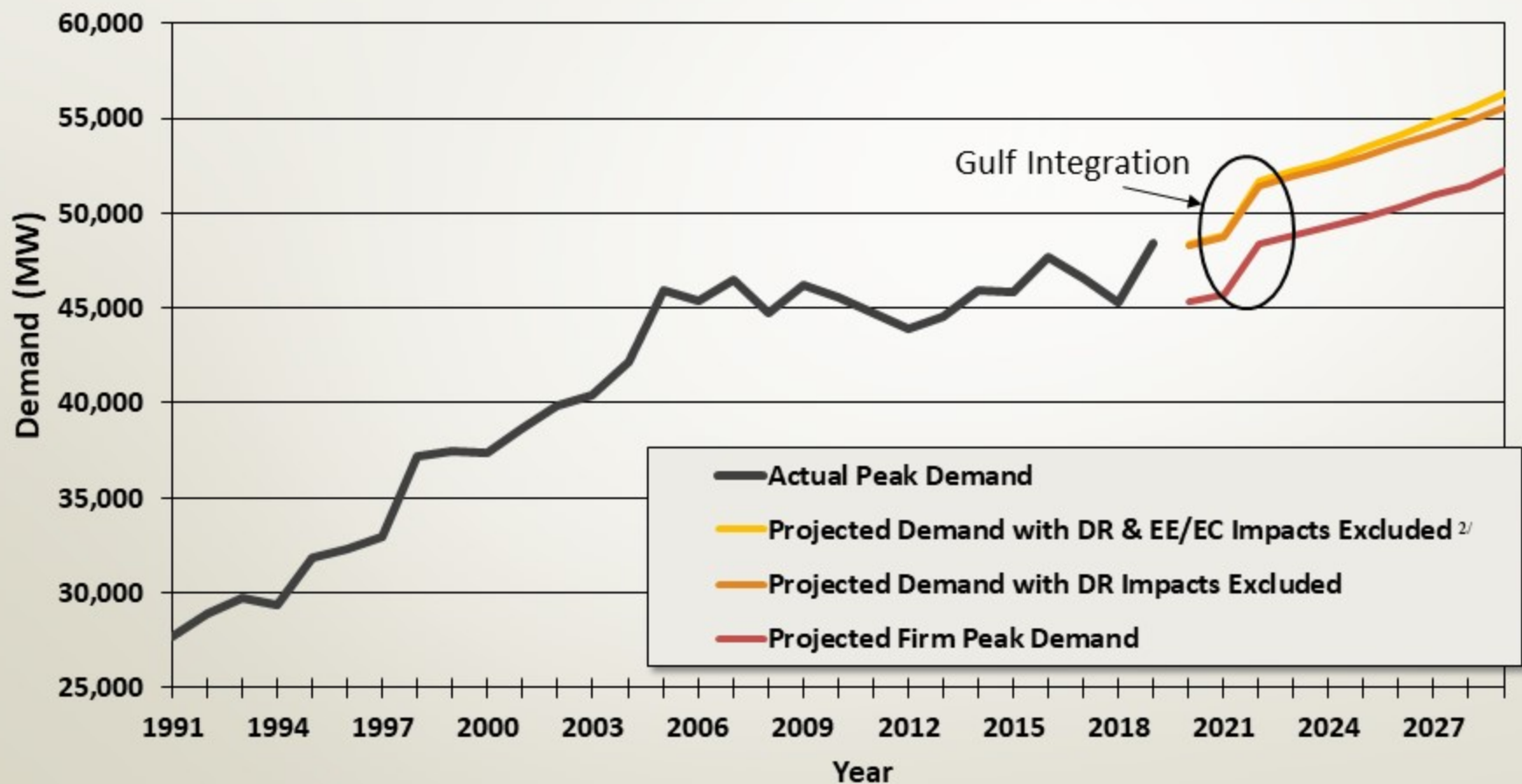


¹ Firm Peak Demand includes impacts of DSM (cumulative Demand Response and incremental (2020-on) utility-sponsored Energy Efficiency/Energy Conservation) as well as Energy Efficiency Codes and Standards.

² For the Years 2022 and beyond, the 2019 forecast includes legacy Gulf Power load projected in Gulf Power's most recent independent Ten-Year Site Plan filing to foster a better understanding of overall year-over-year growth.

Summer Peak Demands

Actual and Forecasted^{1,2,3}

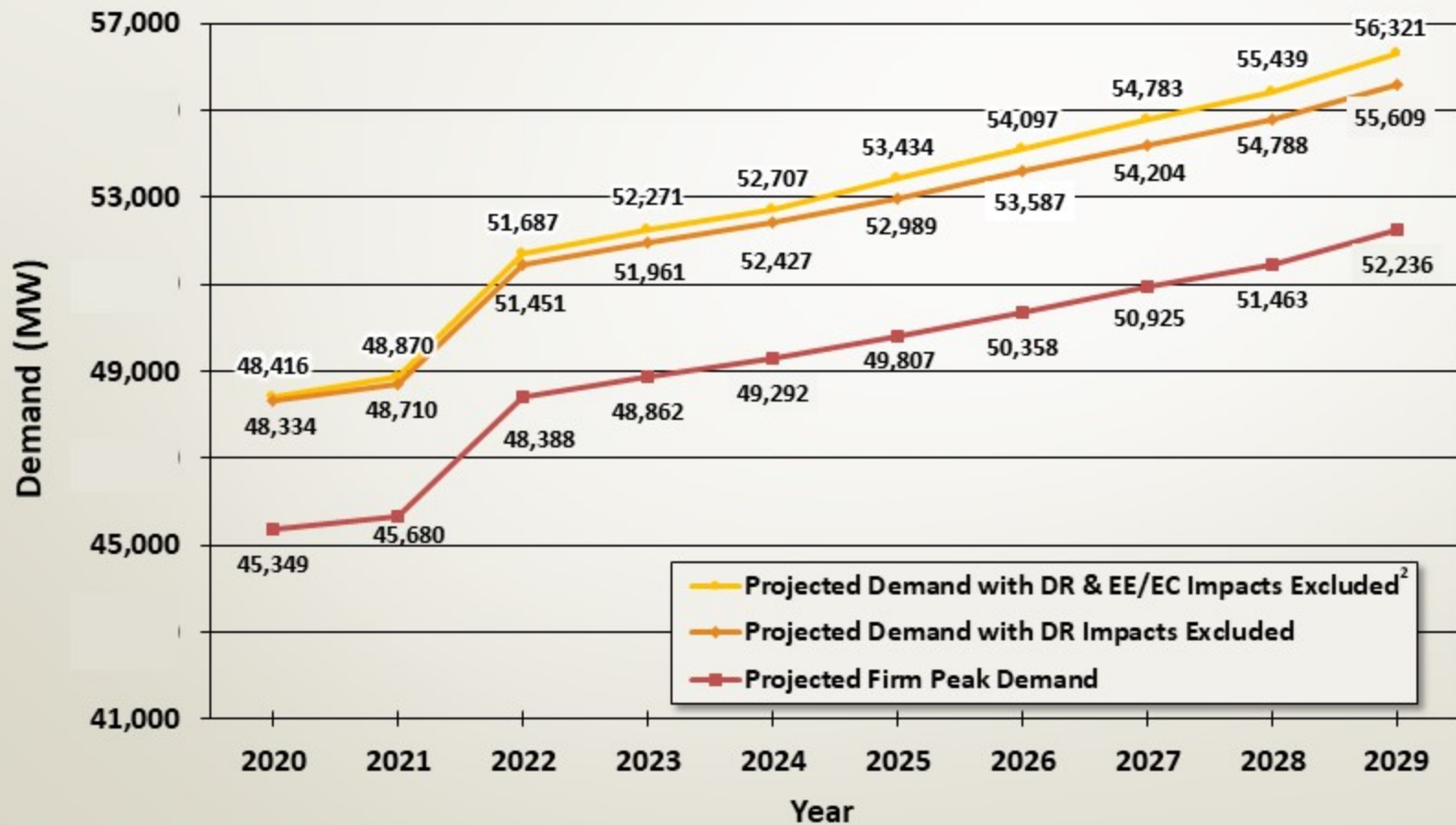


¹ Projected impacts of Energy Efficiency codes and standards are included in all projections.

² Impacts from cumulative Demand Response (DR) and incremental (2020-on) utility-sponsored Energy Efficiency/Energy Conservation (EE/EC) programs are excluded.

³ As of 1/1/2022, capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

Forecasted Summer Peak Demands^{1,3}

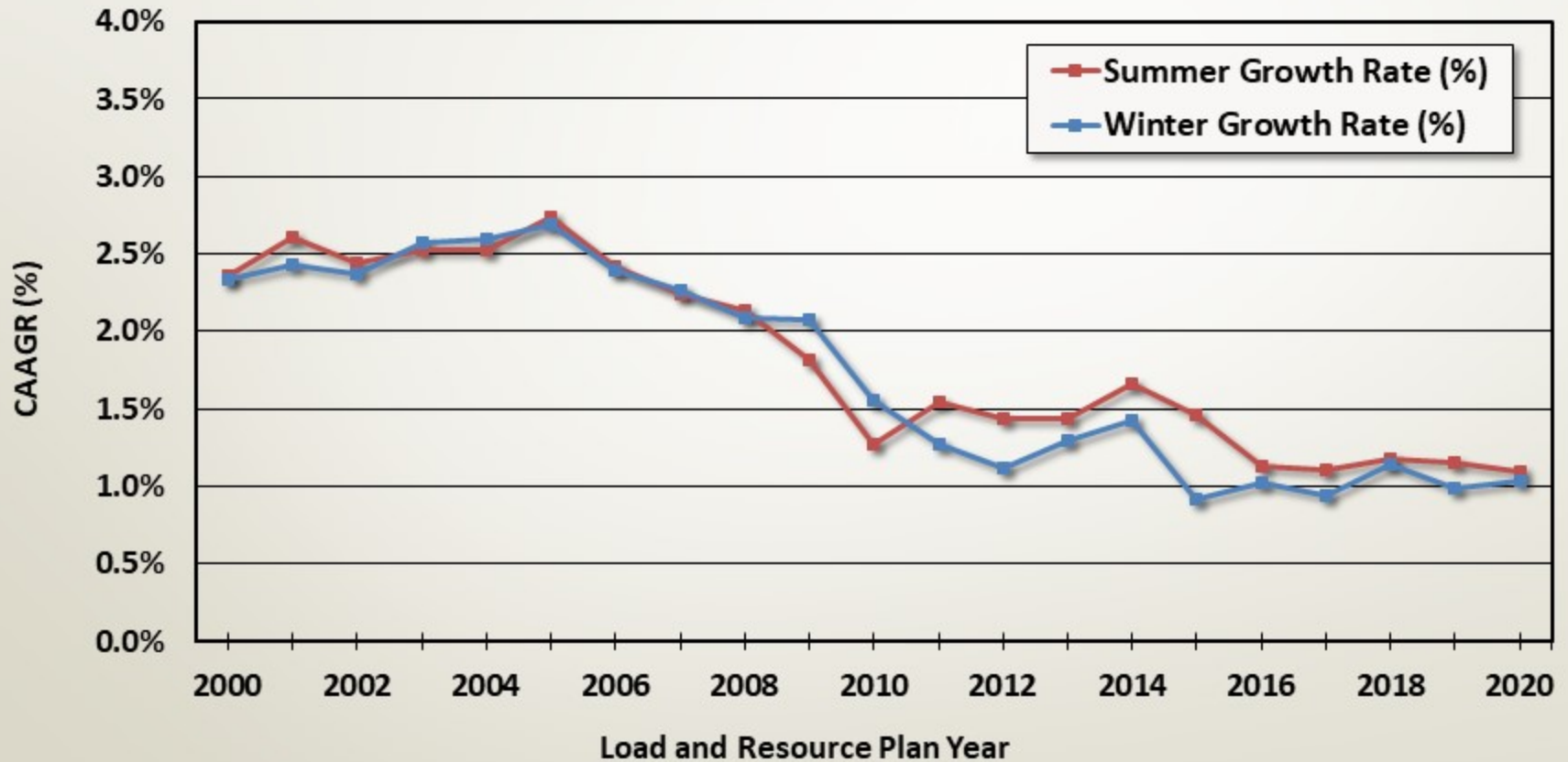


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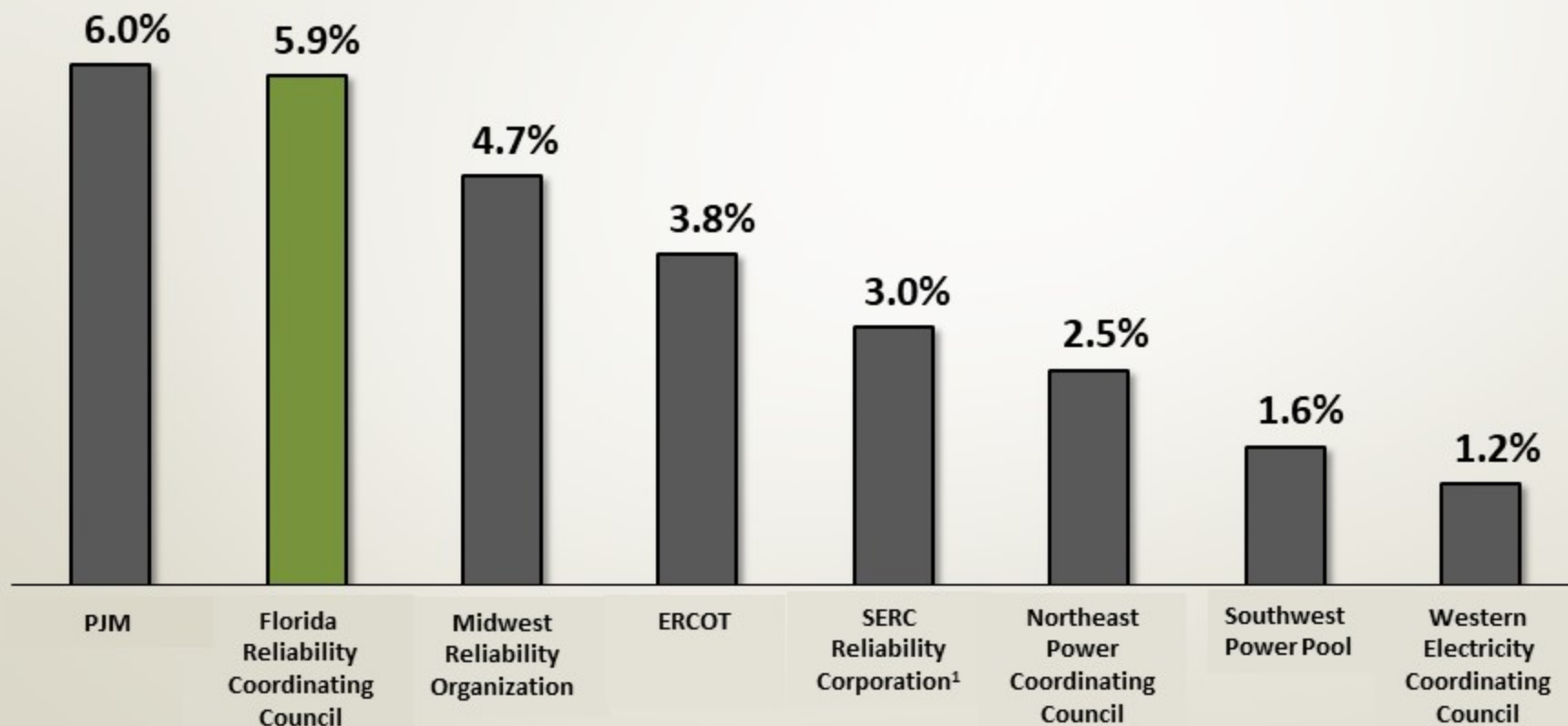
Historical Compound Average Annual Growth Rate^{1,2} for Firm Peak Demand (MW)



¹ Projected growth rate from prior forecasts

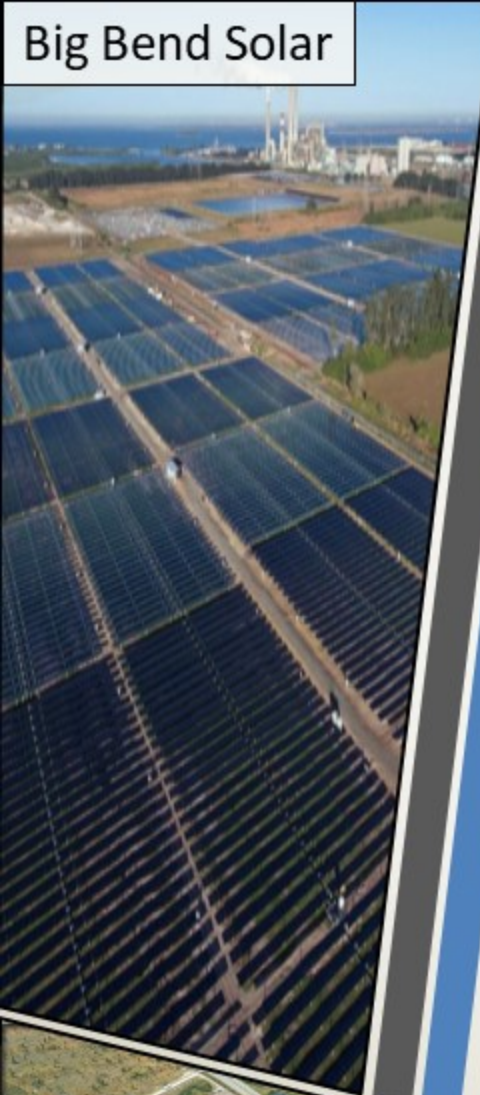
² In this year's report the growth rate was calculated using 8 years of data from 2022-2029 to normalize the impact of Gulf Integration on 1/1/2022

Demand Response as a Percentage of Peak Demand Summer 2020



Source: North American Electric Reliability Corporation's (NERC) 2020 Summer Reliability Assessment (<https://www.nerc.com/pa/RAPA/ra/Pages/default.aspx>)

¹ Excluding FRCC (FL-Peninsula) Subregion



Big Bend Solar

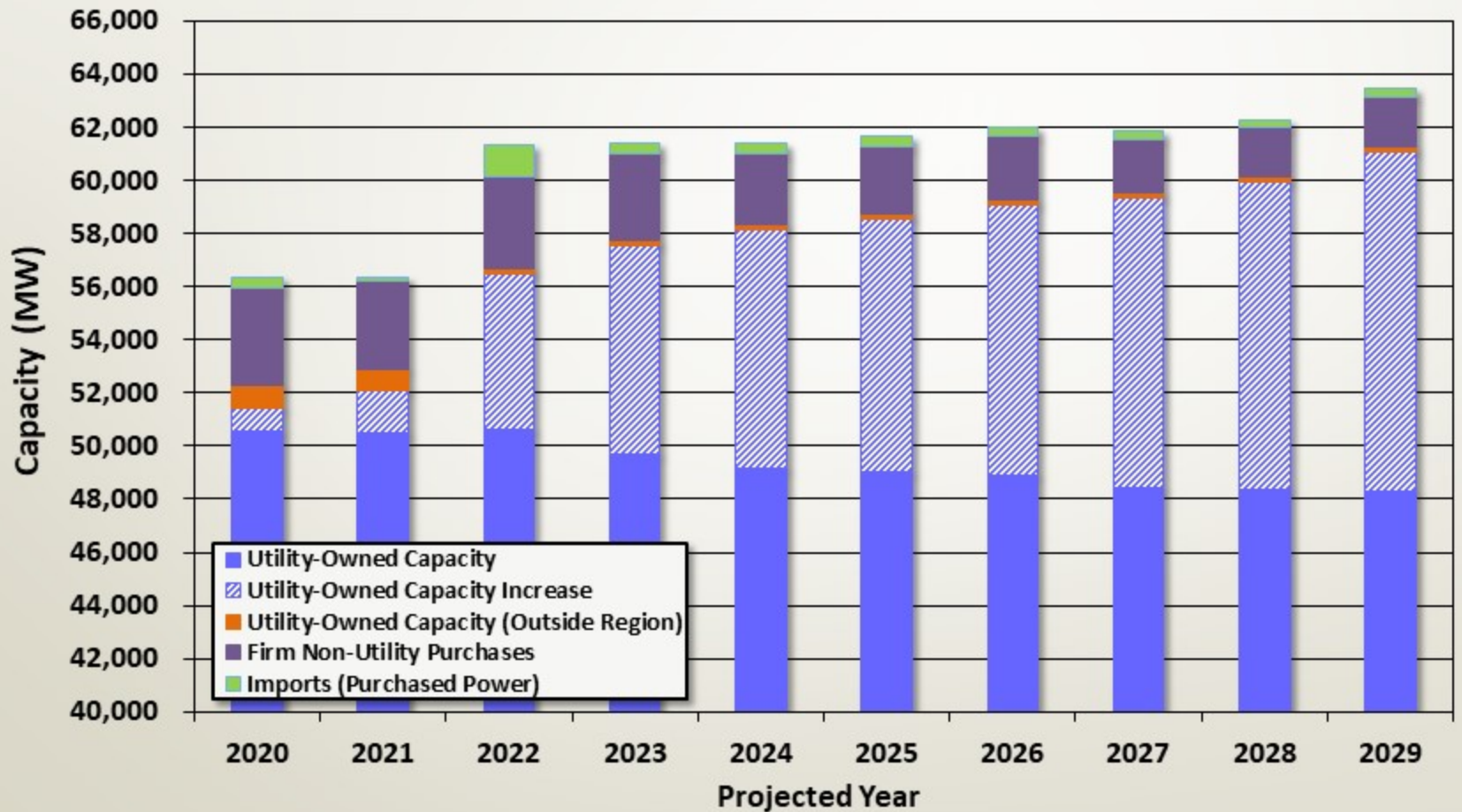


Stanton Solar

Capacity Additions and Reserve Margins

- 12,150 MW of new generation planned over the next ten years
 - Includes approximately 4,500 MW of firm solar
 - Average firm capacity value from solar in FRCC region is 42%
 - Includes 1,400 MW of battery storage
- 5,100 MW of retirements
- Planned Reserve Margins projected to remain above 20% over the next ten years
- Reserve Margin increasingly dependent upon firm Demand Response in later years

Projected Total Available Capacity¹ (Summer)



¹ As of 1/1/2022, capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

Incremental Firm Capability Changes over 10-yr Planning Horizon by Fuel Type in MW¹



¹ As of 1/1/2022 capacity, demand and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).



Nuclear Outlook is Stable in 10-yr Horizon

Existing¹ Nuclear Capacity (Summer)

St. Lucie 1	981 MW
St. Lucie 2	986 MW
Turkey Point 3	837 MW
Turkey Point 4	821 MW
	<hr/>
	3,625 MW

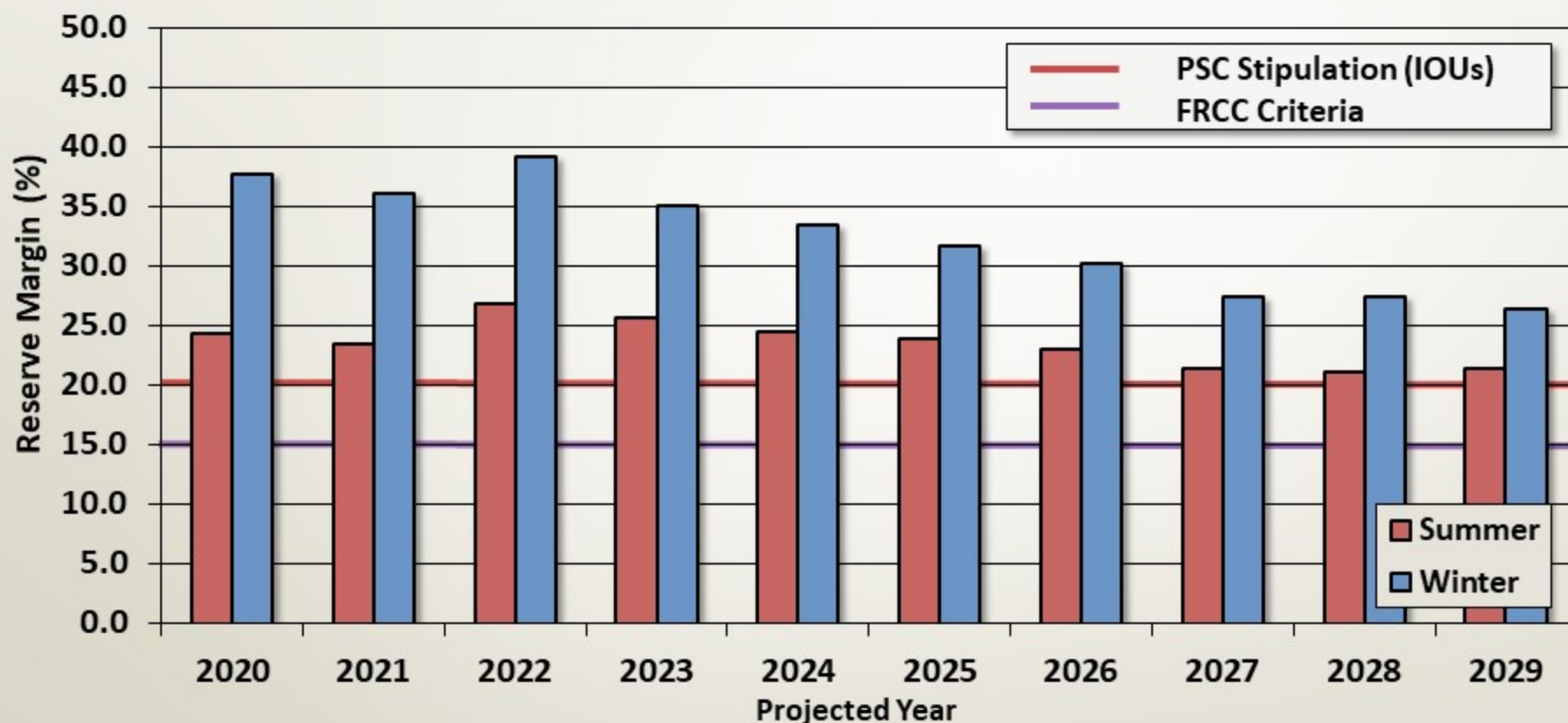
Planned Nuclear Capacity (Summer)

Turkey Point 4 Upgrade (11/2020)	20 MW
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¹ Existing generation as of December 31, 2019

Planned Reserve Margin^{1,2,3} (Based on Firm Load)

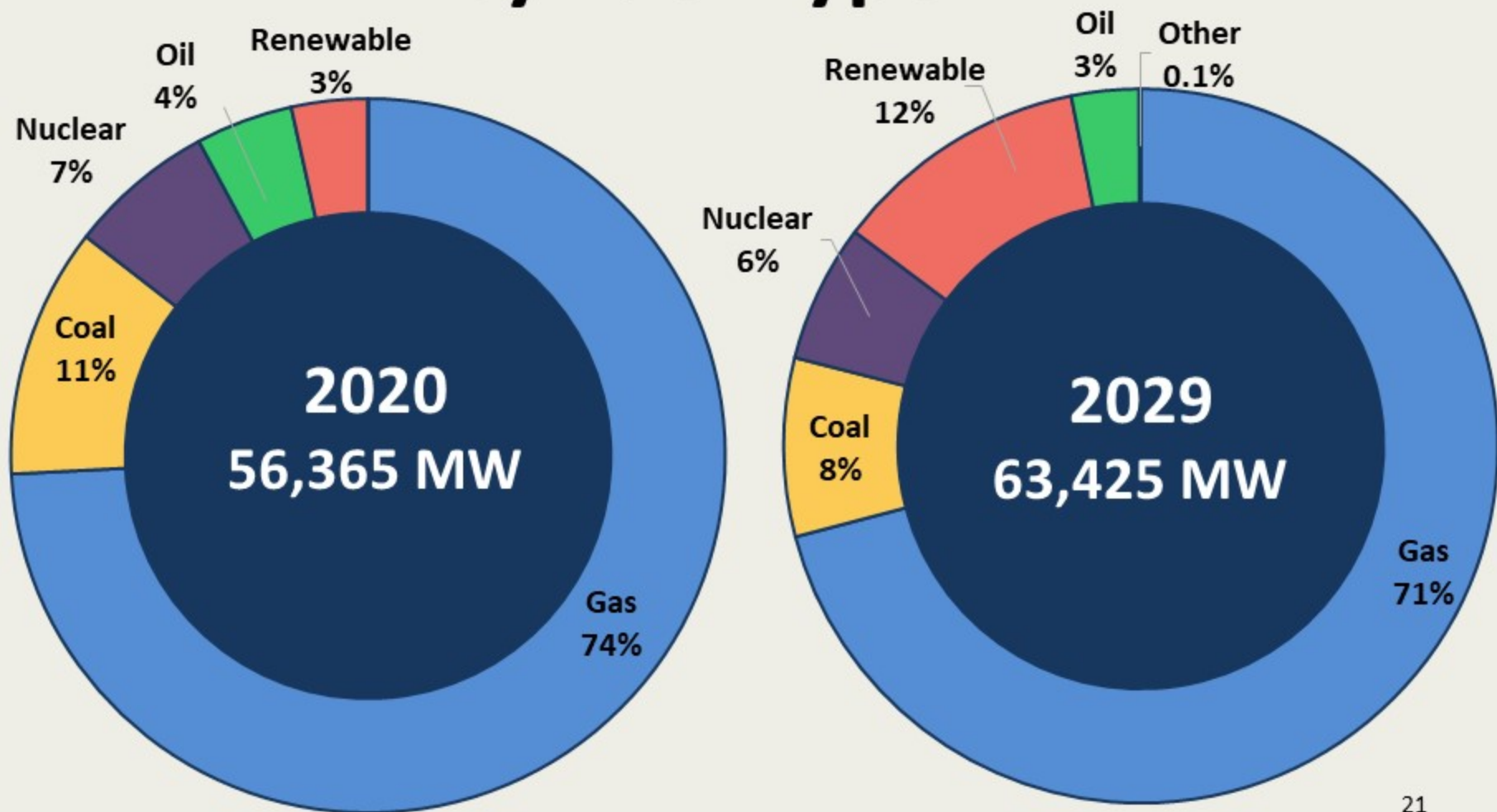


¹ Projected impacts of Energy Efficiency codes and standards are included in all projections.

² Impacts from cumulative Demand Response (DR) and incremental (2020-on) utility sponsored Energy Efficiency/Energy Conservation (EE/EC) programs are included.

³ As of 1/1/2022, Reserve Margin data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

Forecasted Firm Summer Capacity by Fuel Type^{1,2}

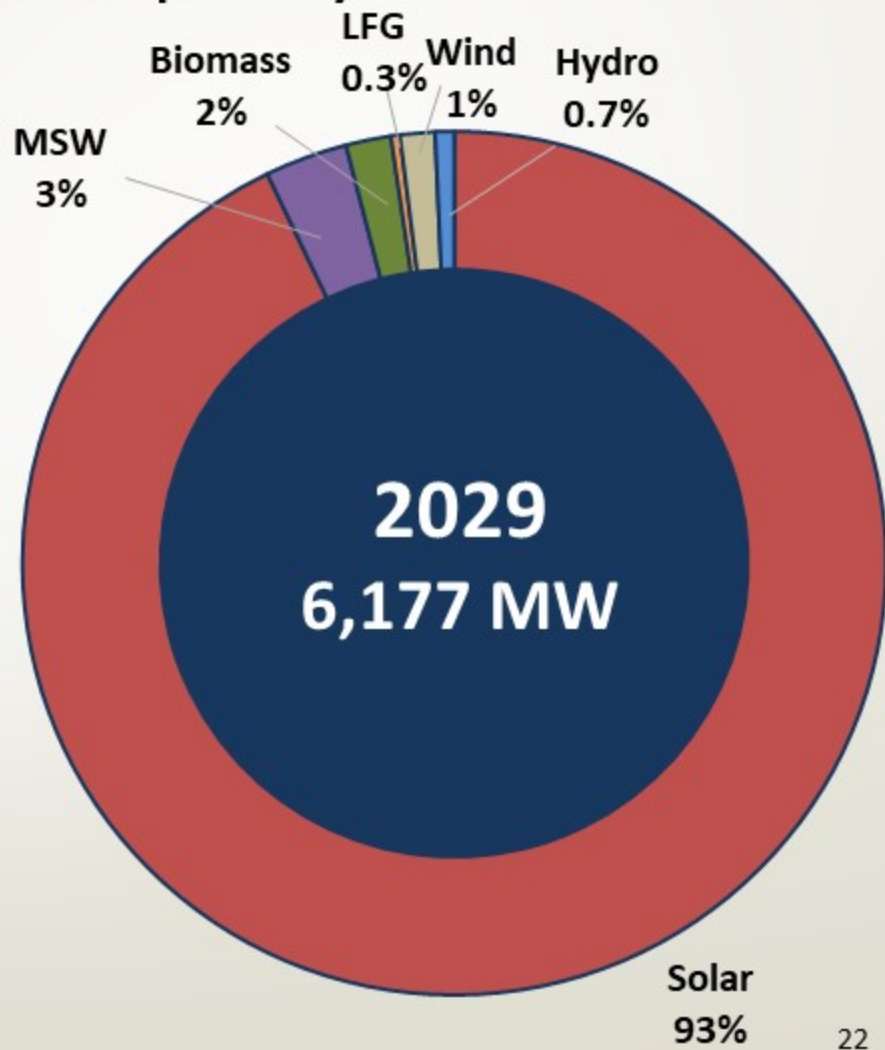
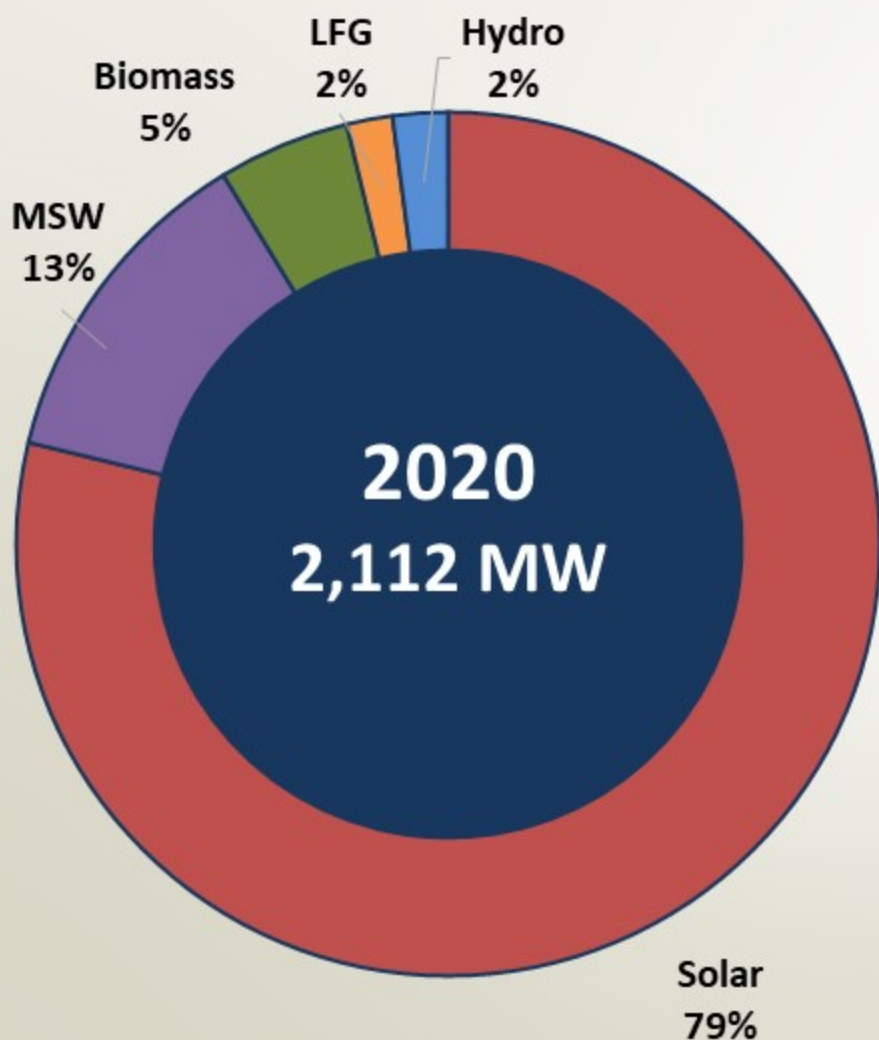


¹ As of 1/1/2022, capacity, demand and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

² Excludes Firm Demand Response.

Forecasted Renewable Mix

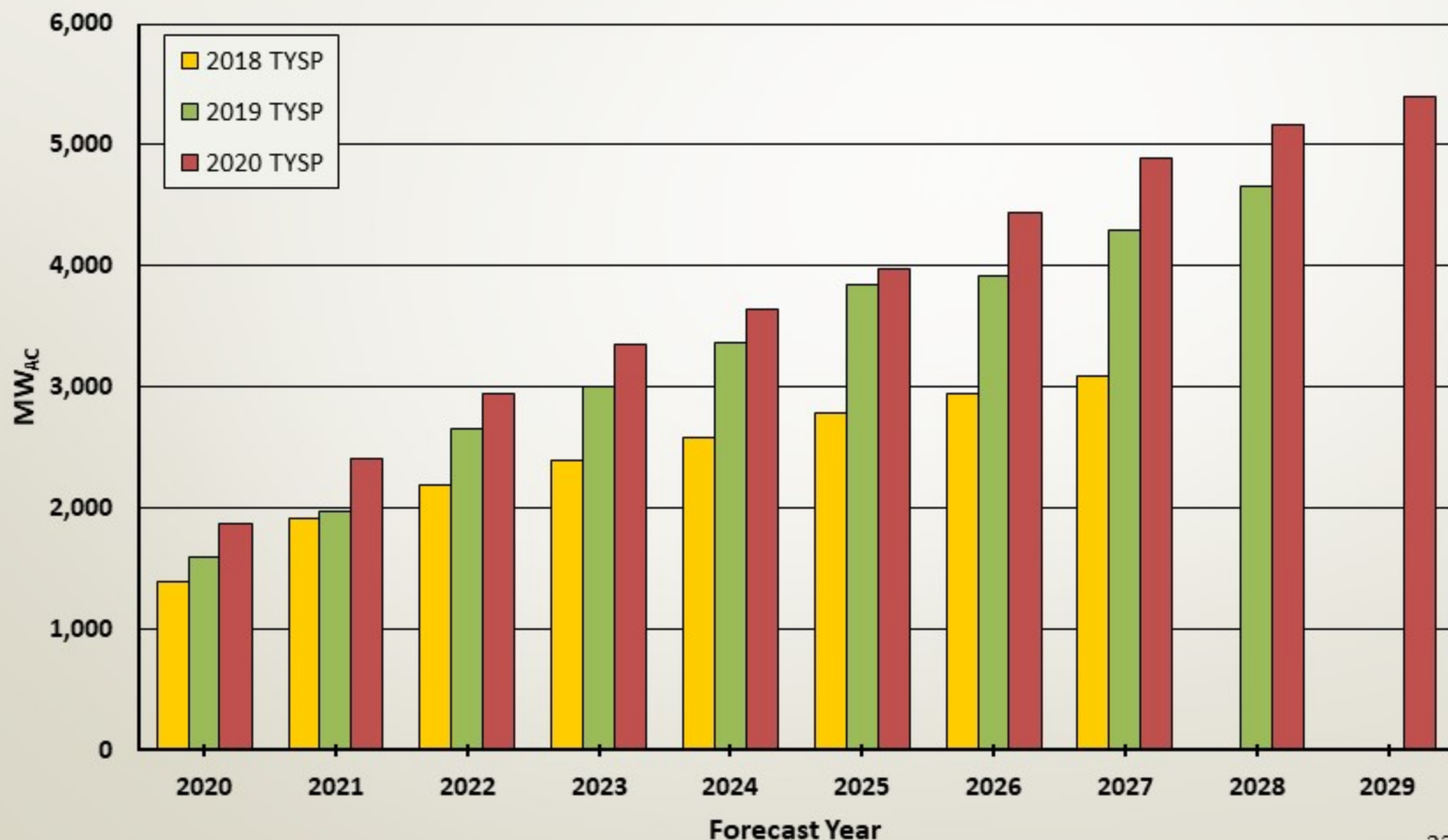
Firm Summer Capacity



¹ As of 1/1/2022, capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

2018-2020 TYSP Forecasted Solar¹

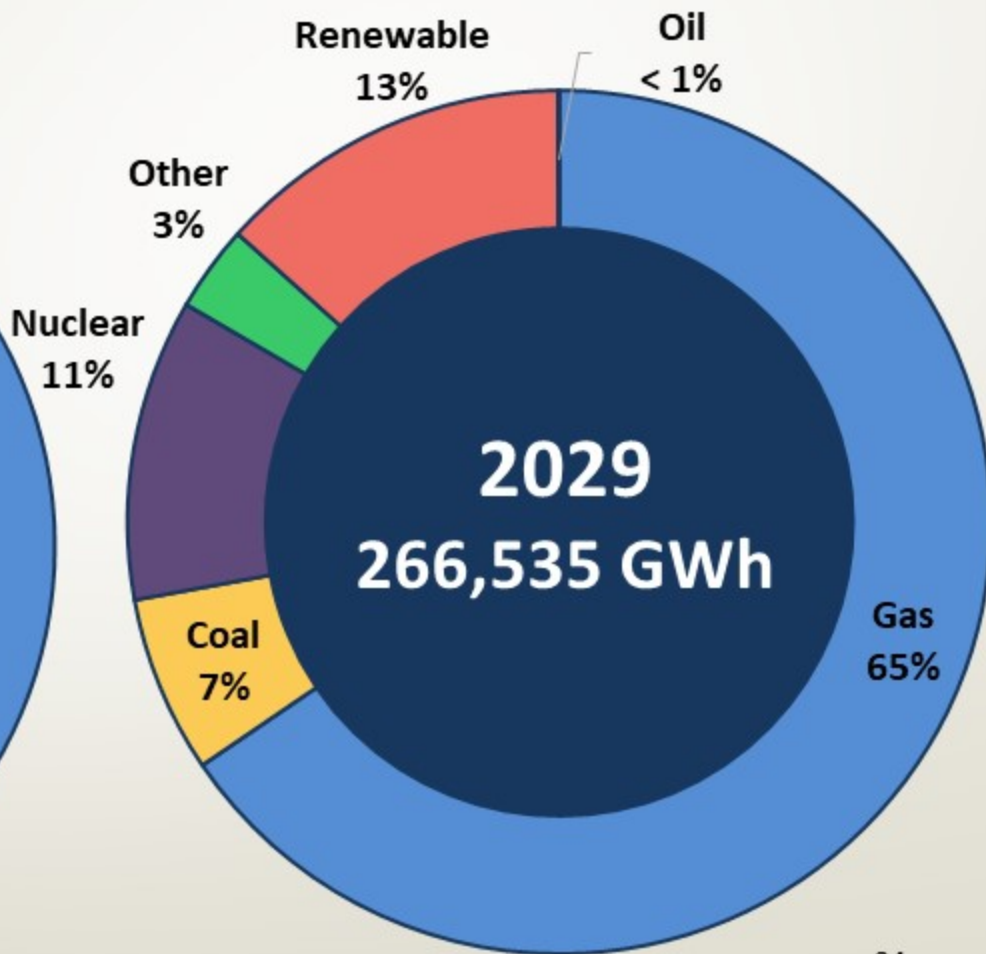
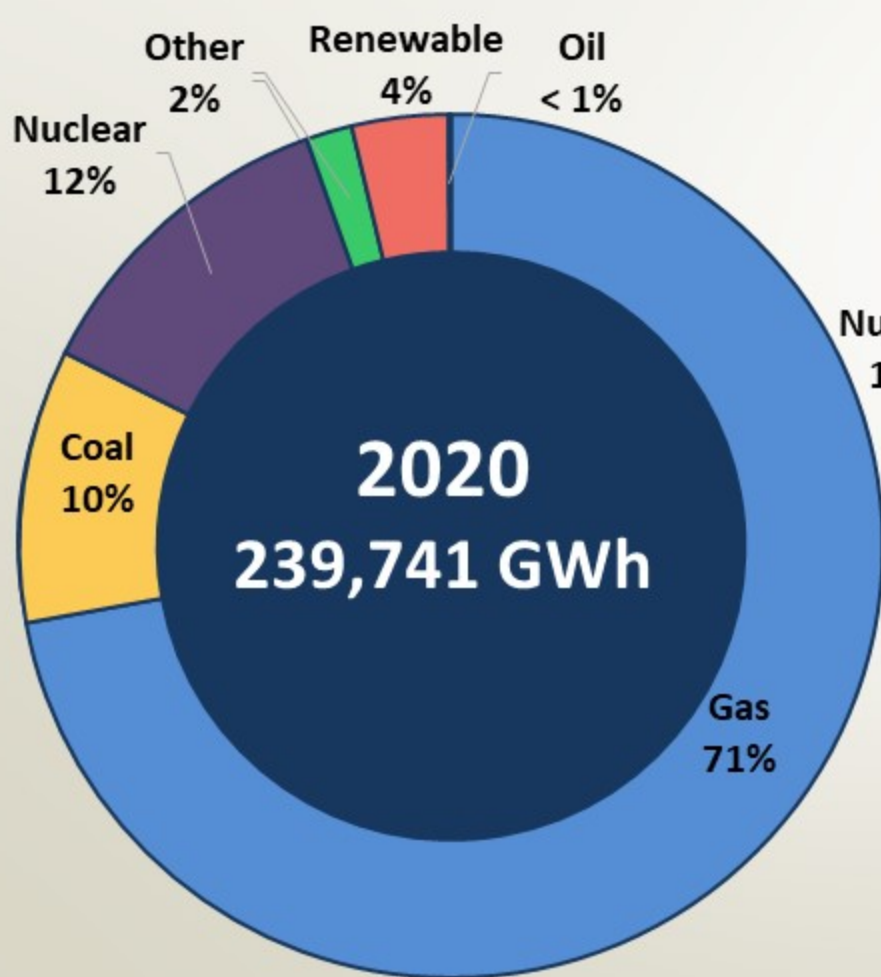
Firm Summer Capacity



¹ As of 1/1/2022, capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

Forecasted Fuel Mix¹

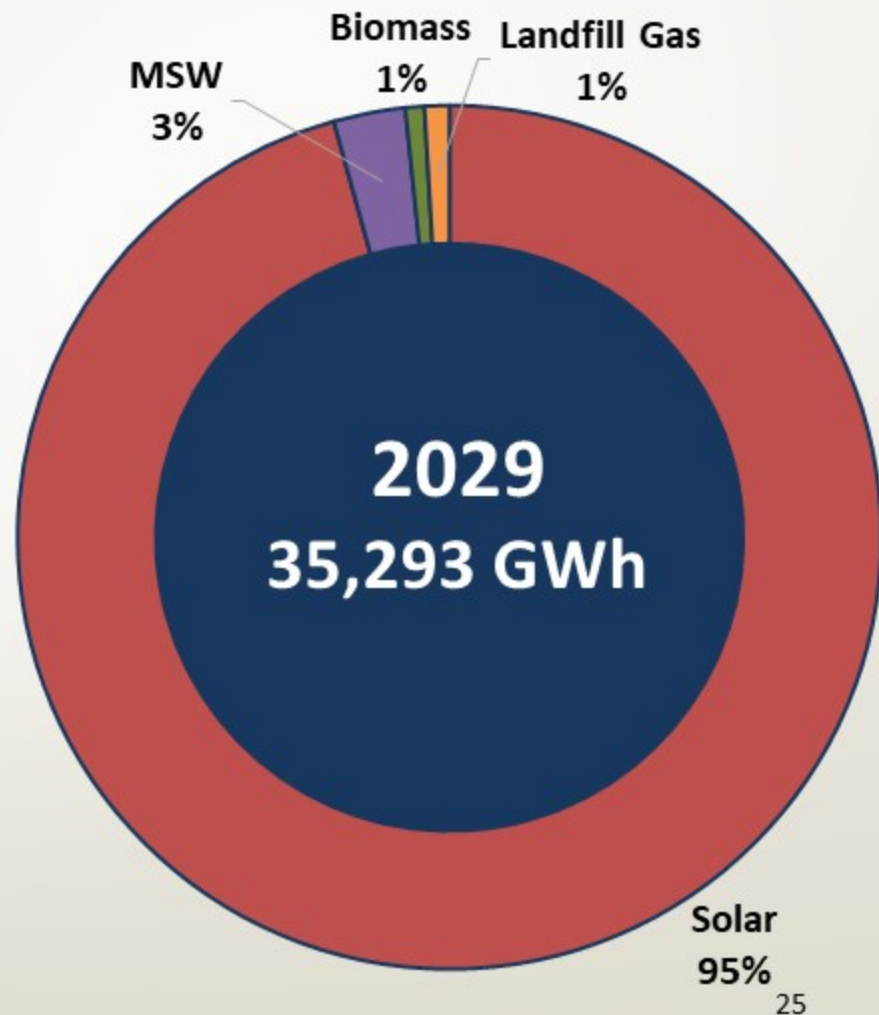
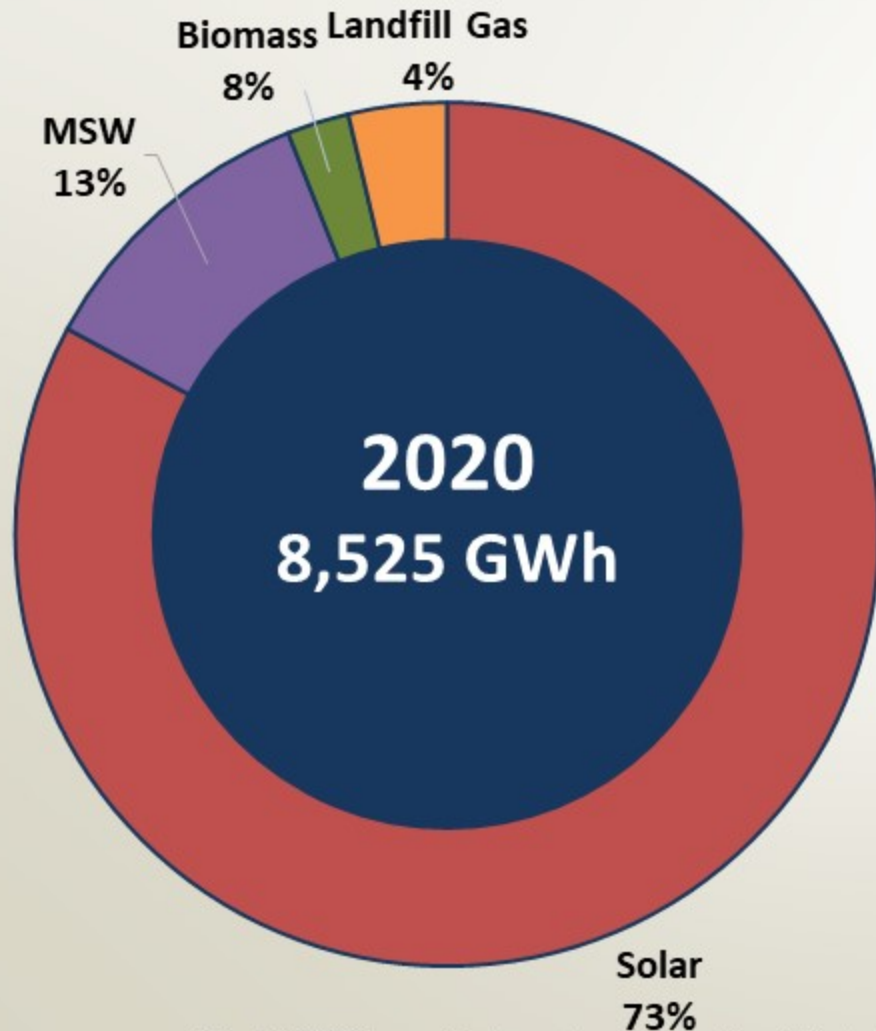
Net Energy for Load (GWh)



¹ As of 1/1/2022 capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).

Forecasted Renewable Mix¹

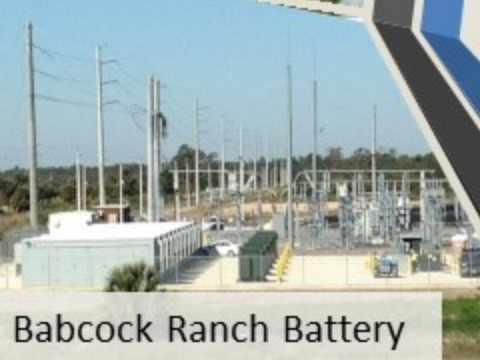
Total Energy Served



¹ As of 1/1/2022 capacity, demand, and energy data will include the integration of Gulf into FPL. The data presented for years 2022 through 2029 is for the single integrated system (FPL).



Perry Solar



Babcock Ranch Battery

Reliability Considerations of Utility Solar Generation Additions

- No significant operational impacts at current levels
- Utilities continue developing experience with operations, dispatch, and output forecasting
- Utilities are using tools and monitoring capability to manage increased solar
- Monitoring other parts of the country that have higher penetration rates
- Member utilities assign varying firm capacity values to utility solar

Natural Gas Infrastructure in Florida



- Maintain a comprehensive gas infrastructure model and utility fuels database
- Perform periodic reliability analysis
- Compare gas infrastructure assessments to TYSPs forecasted needs based on economic dispatch
- Gas infrastructure on pace with generation additions
- Coordinate regional response to fuel emergencies with utilities and pipelines
- Gas generation with alternate fuel capability remains between 64-66%

Conclusion

Based on 2020 TYSPs, planned Reserve Margins above 20% for all peak periods for the next ten years

Meeting the Reserve Margin target increasingly reliant on Demand Response in later years

Renewables increase from 4% to 13% (energy)

Gas infrastructure supports planned generation

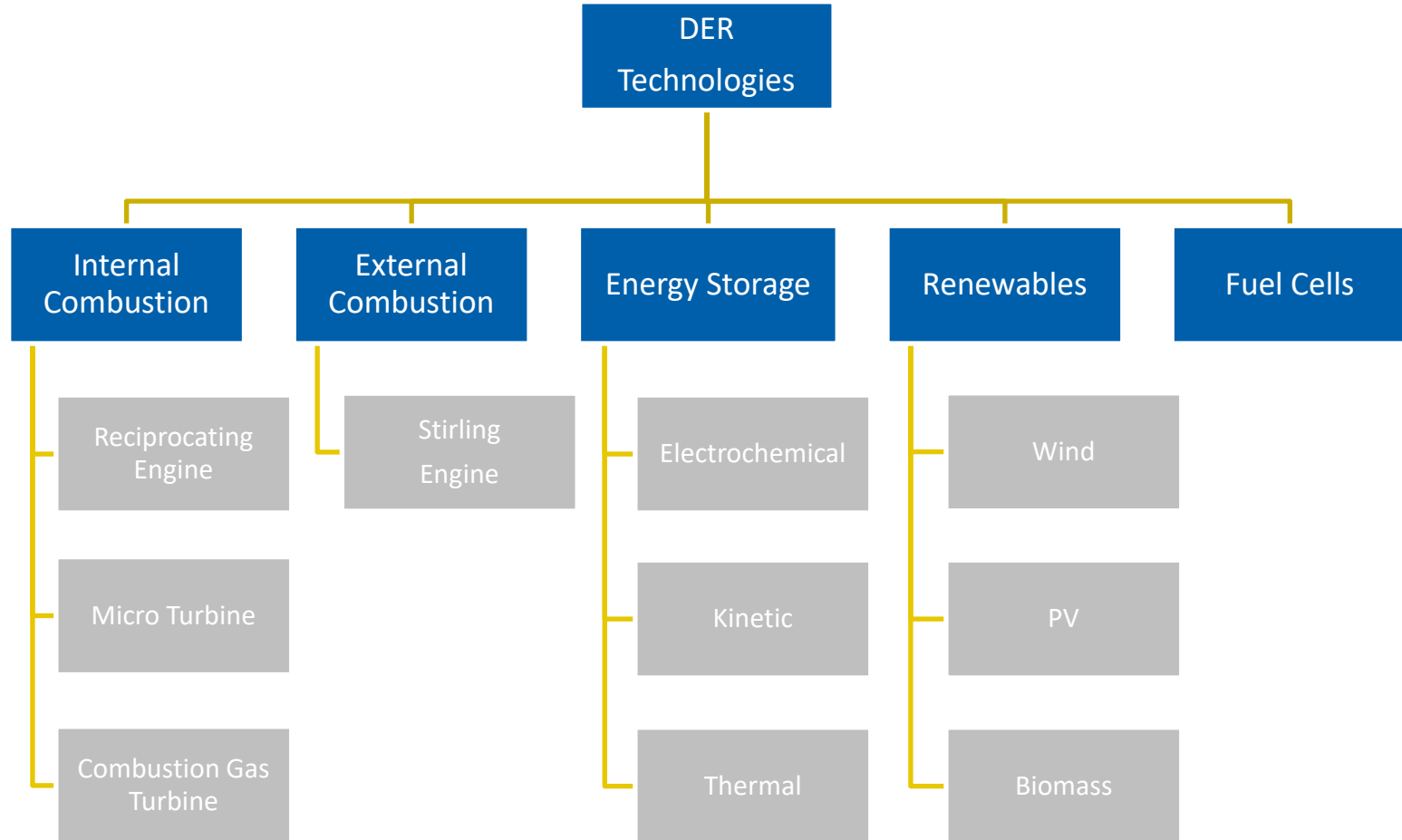
Questions?



Distributed Energy Resources (DER)

AUGUST 18, 2020

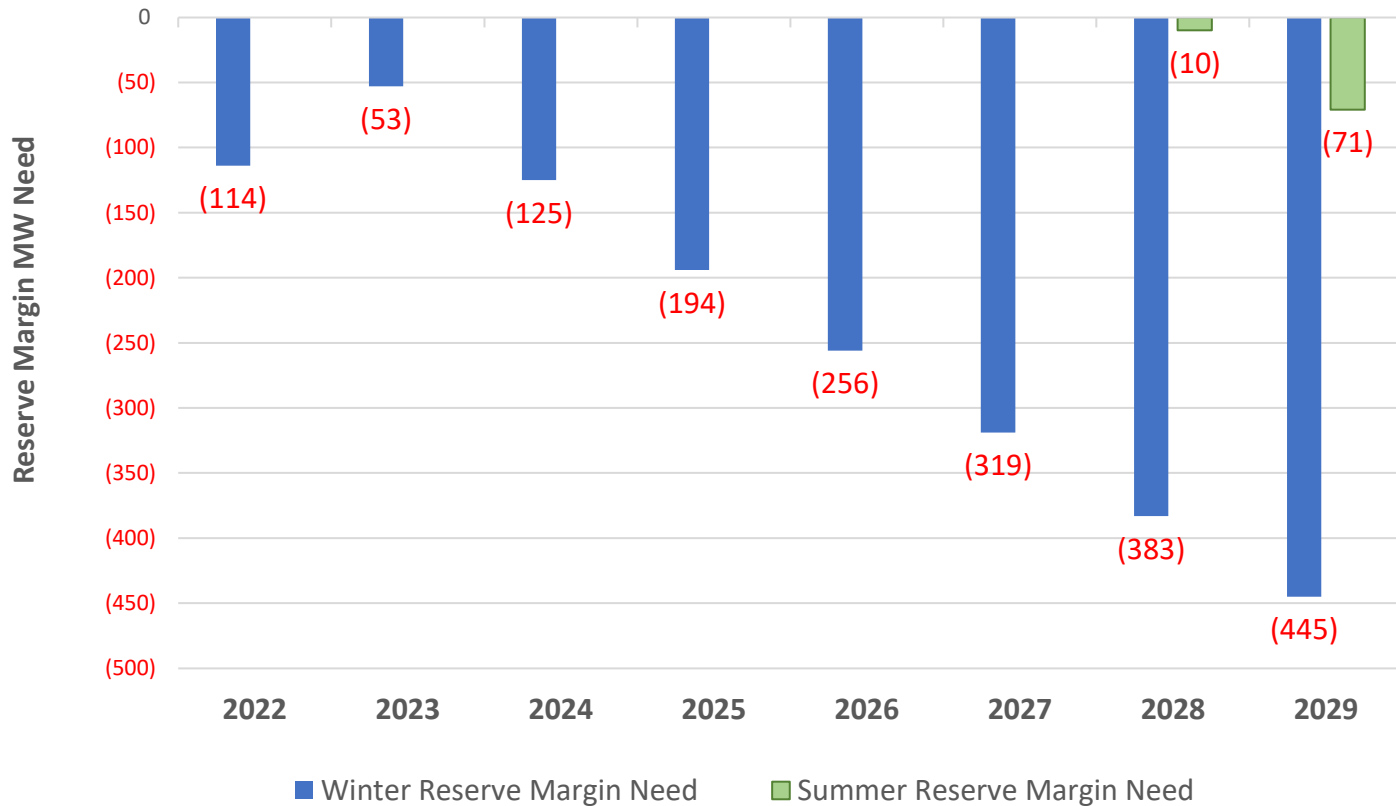
Distributed Energy Resources



2020 Ten Year Site Plan Expansion

- The Polk 2 combined-cycle conversion (2017), SoBRA photovoltaic generation additions (2019 – 2021), and the Big Bend 1 Modernization (2023) have provided the TEC system with abundant low-cost energy and the solar summer firm capacity contribution has shifted the reserve margin needs to the winter.
- One way to meet the winter capacity need would be to add large peaking combustion turbines (CTs) at existing central stations. This approach could result in having excess winter capacity in the year the unit goes in-service, until the demand grows, and the reserve margin declines.
- Another alternative, more streamlined approach, is to meet winter peaks with a portfolio of smaller distributed resources that allow for a more agile deployment of capacity that better matches the reserve margin need.
- The system is expected to benefit from flexible, quick response peaking capacity that reciprocating engines and battery storage delivers.
- The portfolio of distributed energy resources in the 2020 TYSP plan enables resiliency and reliability of service to our customers.

TEC's Capacity Needs Relative to the 20% Firm Reserve Margin Requirement



Expansion Plans Alternatives

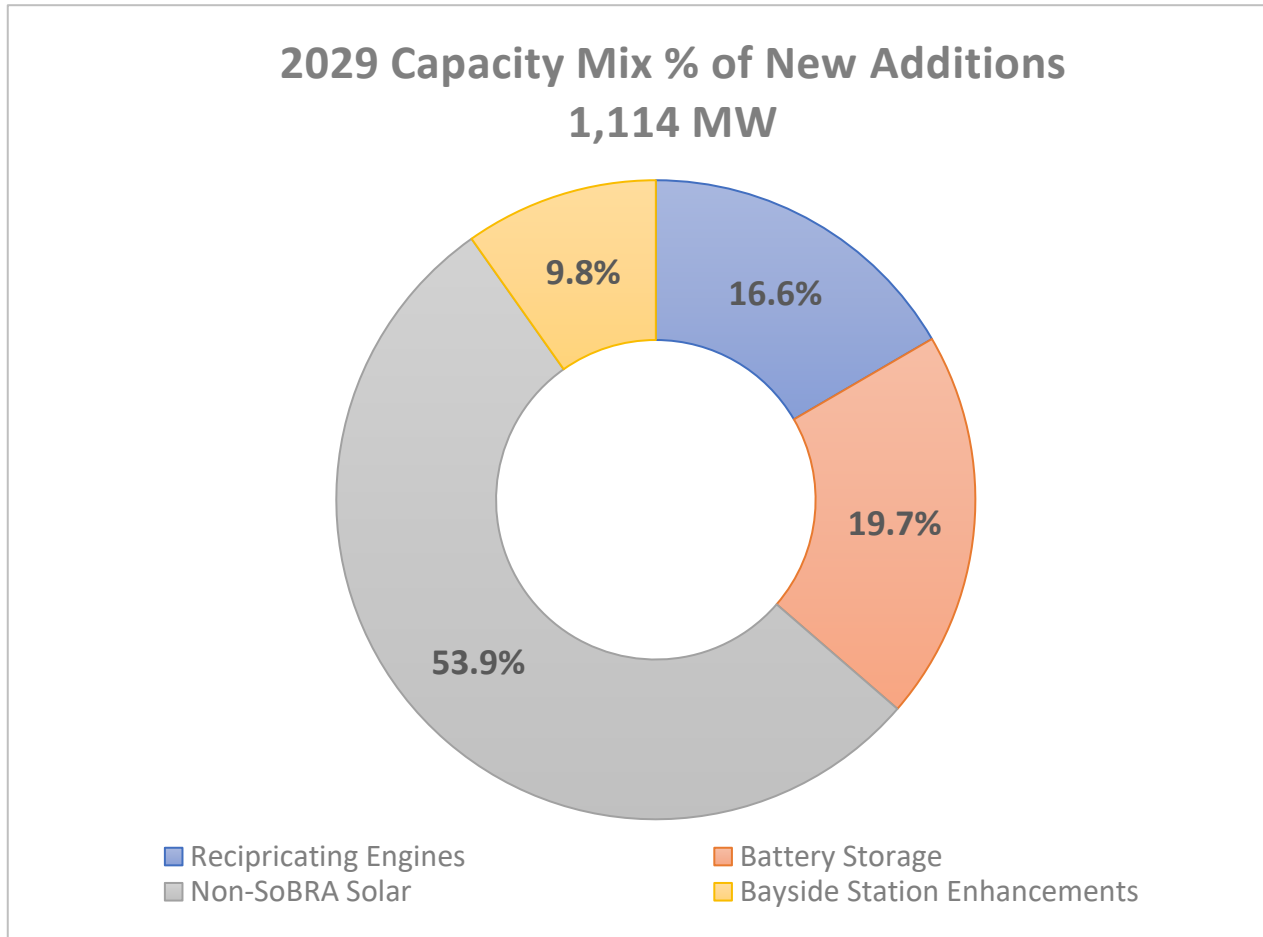
Centralized Generation Plan

Year		Winter RM%
2021	SoBRA Tranche 4 (47 MW) ; 150 MW Utility Scale Solar Big Bend Modernization CTs	20%
2022	225 MW Utility Scale Solar PPA Placeholder (Seasonal)	20%
2023	225 MW Utility Scale Solar ; Big Bend Modernization ST 245/229 MW Simple Cycle CT	25%
2024	–	22%
2025	–	21%
2026	245/229 MW Simple Cycle CT	25%
2027	–	23%
2028	–	22%
2029	–	21%

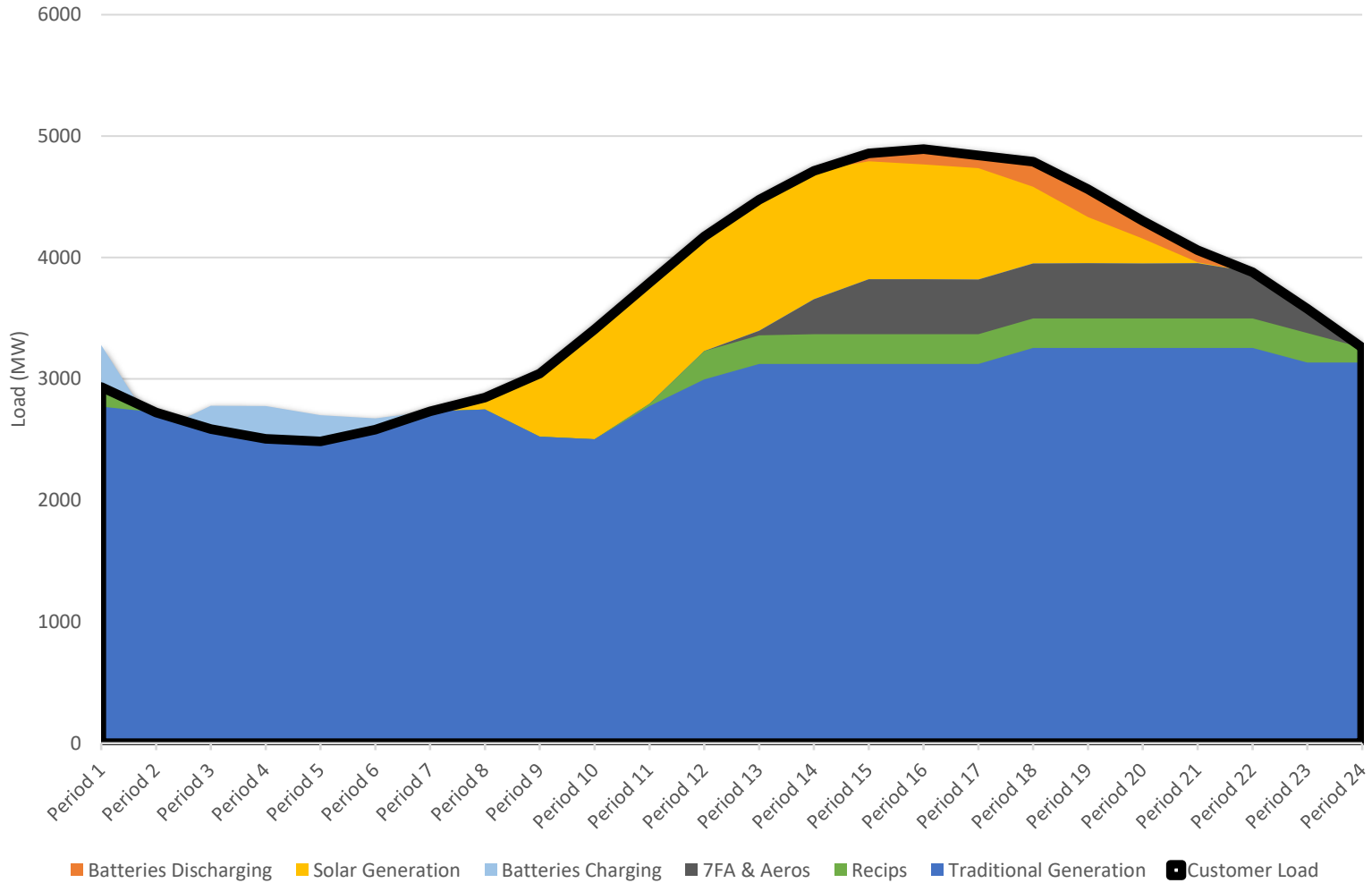
Distributed Generation Plan

	Winter RM%
SoBRA Tranche 4 (47 MW) ; 150 MW Utility Scale Solar Big Bend Modernization CTs	20%
225 MW Utility Scale Solar 92.5 MW Recips ; 30 MW Battery Storage	20%
225 MW Utility Scale Solar ; Big Bend Modernization ST Bayside 1 Advanced Hardware 50 MW	22%
Bayside2 Advanced Hardware 67 MW	22%
18.5 MW Recips ; 10 MW Battery Storage	21%
60 MW Battery Storage	21%
74 MW Recips	21%
60 MW Battery Storage	21%
60 MW Battery Storage	21%

2020 Ten-Year Expansion Plan Capacity Mix



Sample Summer Generation Dispatch with DERs



DER Value Streams

Value	DER Type	Value Type	Value Proposition
Greener, Cleaner Energy	Nat Gas DG - Solar PV - Battery Storage	Optimization, Financial	Fuel savings from optimized dispatch , increased efficiency (Heat Rates)
Emergency Response	Nat Gas DG - Battery Storage - Solar PV	Resiliency	Reciprocating engines or /or storage at closer to the load provides increased resiliency for all customers
Storm Restoration	Nat Gas DG - Battery Storage	Resiliency	Decrease in storm restoration time
Ancillary Services	Nat Gas DG - Battery Storage	Optimization	Strategically located to relieve congestion of transmission and/or distribution. Quick start, fast ramping, able to handle multiple starts and stops during the day.
Energy Price Arbitrage	Battery Storage	Optimization	Charge when power prices are low (Off-Peak) / Discharge when prices are high (On-Peak)
Black Start Capability	Nat Gas DG - Battery Storage	Resiliency	Decrease in restoration time after disruption event
Renewable Integration	Nat Gas DG - Battery Storage	Optimization, Reliability	Operational flexibility
T&D Investment Deferral	Nat Gas DG - Solar PV - Battery Storage	Reliability, Financial	Lower customer rates
Decrease in T&D Line Losses	Nat Gas DG - Battery Storage	Optimization, Reliability	Fuel savings
Offset Demand Charges	Battery Storage	Financial	Offset peak demand, lower demand charges
Power Quality	Battery Storage	Reliability	Reliable, always on service
Heat Rate Improvement	Nat Gas DG (Recips)	Optimization	Fuel savings

Conclusion

- Tampa Electric Company has selected a mix of elements that provides a robust, reliable, and resilient cost-effective expansion plan.
- The decentralization of assets through the deployment of a portfolio of distributed energy resources including utility-scale solar, battery storage and reciprocating engines is a favorable option for all Tampa Electric's customers.
- The resources work in concert to provide cost savings, operational flexibility, environmental and reliability benefits for customers, and value through improved efficiency and system reliability.
- The geographical flexibility and quick deployment timeframe of DERs enables the TEC system to adapt to changing needs that "long lead" centralized generation simply cannot match.

Distributed Energy Resources fit Tampa Electric's need: match load growth, provide operation flexibility, are highly reliable, cost effective, and adapt easily to changing circumstances.



FPL & Gulf Integrated Resource Plan

**Florida Public Service Commission
2020 Ten Year Site Plan Workshop**

August 18, 2020

The 2020 Ten-Year Site Plan (TYSP) presents a resource plan for an integrated FPL/Gulf system

Integration Into a Single System

- Integration of the FPL and Gulf systems is on-going with the objective of having a single operating electrical system in 2022
- Resource planning for both current systems, and for the single integrated system, is now being performed by FPL's IRP group
- Operation of the Gulf generating units is currently being performed by Southern Company (SoCo); this will continue through 2021
- A new 161 kV transmission line (the North Florida Resiliency Connection, or NFRC, line) will enhance the existing electrical connection between these two systems starting in 2022

This presentation provides an overview of the approach used to develop the resource plan for the integrated system



The analyses that led to the 2020 TYSP resource plan consisted of 3 steps

The 3 Analysis Steps

- **Step 1: Optimize Gulf as a stand-alone utility**
 - To determine how much system improvement can be made to Gulf as a separate system; and,
 - To provide a starting point for evaluation of the NFRC line
- **Step 2: Re-optimize Gulf as a separate utility system, but with a new electrical connection to FPL (*i.e.*, the NFRC line)**
 - To determine if projected benefits exceed projected costs of the NFRC line; and,
 - To provide a starting point for evaluating the integration of FPL and Gulf from a resource planning perspective
- **Step 3: Re-optimize FPL & Gulf as a single, integrated utility system**
 - The result was the resource plan presented in the 2020 TYSP



Gulf's generating units worked well as part of SoCo, but pose reliability challenges as a stand-alone system

Gulf's Generating Units

Gulf Power Generation

Resource	Unit No.	Primary Fuel	Firm MW Summer	Unit or PPA	% of Total MW
Crist	4	Coal	75	Unit	2%
Crist	5	Coal	75	Unit	2%
Crist	6	Coal	299	Unit	9%
Crist	7	Coal	475	Unit	14%
Daniel	1	Coal	251	Unit	7%
Daniel	2	Coal	251	Unit	7%
Lansing Smith	3	CC	664	Unit	20%
Lansing Smith	A	CT	32	Unit	1%
Pea Ridge	1	CT	4	Unit	0%
Pea Ridge	2	CT	4	Unit	0%
Pea Ridge	3	CT	4	Unit	0%
Perdido	1	LFG	1.5	Unit	0%
Perdido	2	LFG	1.5	Unit	0%
Scherer	3	Coal	215	Unit	6%
Kingfisher PPAs	I & II	Wind	89	PPA	3%
Gulf Coast Solar PPAs	I, II, & III	Solar	34	PPA	1%
SENA (Shell) PPA		CC	885	PPA	26%

Total = 3,360 100%

- 1 resource, SENA (Shell) PPA, is 26% of total MW (for comparison, FPL's largest unit, Fort Myers 2, represents < 7% of the total)
- 3 resources (Crist 7, Lansing Smith 3, & SENA (Shell) PPA) sum to 60% of total MW

Due to the large size of several resources relative to total firm capacity, a reserve margin of 30% would be needed for a stand-alone Gulf system



In Step 1, six types of resource options were evaluated as potential improvements for Gulf

Resources Options Analyzed in the Step 1 Analyses

- The 6 types of resource options analyzed for Gulf in Step 1 are:
 - New CTs and CCs (*similar to what appeared in Gulf's 2019 TYSP*)
 - Early retirement of Gulf's ownership portion of the Daniel coal units
 - 74.5 MW solar (PV) facilities
 - Conversion of the Crist Units 6 & 7 from coal-fueled to gas-fueled
 - Capacity upgrades to the Lansing Smith Unit 3 CC
 - Battery storage (20 MW facilities of 2-, 3-, and 4-hour durations)
- These options were analyzed sequentially in order to determine the economic impact of each option; the result was that each of these options was selected in an optimized resource plan for Gulf as a stand-alone utility system

This resource plan was used as the starting point for the Step 2 analyses



In the Step 2 analysis, the economics of the new NFRC line were analyzed

North Florida Resiliency Connection Line

- 176 miles of 161 kV line
- Allows bi-directional transfer capability of 850 MW
- 2022 in-service date
- Allows connection of Gulf (fossil fleet avg. HR of ~ 9,600) with FPL (fossil fleet avg. HR of ~ 6,900)



The economics of the NFRC line focused on answering two questions

The Step 2 Analysis

- **Question # 1: Is the projected cost saving to Gulf's customers resulting from having access to FPL's more efficient generation system via the NFRC line greater than the projected cost of the NFRC line?**
 - The answer is "Yes"
- **Question # 2: Is the projected cost of the NFRC line less than the projected cost of wheeling through neighboring utility systems?**
 - The answer to this question is also "Yes"

Based on these results, the NFRC line is projected to be a cost-effective addition and the re-optimized resource plan for Gulf based on the NFRC line became the starting point for Step 3 analyses

In the Step 3 analysis, several considerations emerged

Considerations in the Step 3 Analysis

- **Load Coincidence:**

- The electrical peaks in Gulf's and FPL's areas both occur at 4-to-5 pm, but in different time zones
- Consequently, the two areas do not experience peak loads simultaneously
- The coincident Summer peak load for the integrated system (which occurs at 4-to-5 pm EDT) is ~ 100 MW less than the sum of the Gulf & FPL areas' individual peaks

- **Reliability planning:**

- With an integrated system, there is no longer a need to meet a 20% reserve margin (RM) in both areas; instead resources from both areas can meet an overall 20% RM

Both of these considerations lower the amount of new resources needed for the single, integrated system

In addition to affecting coincident peak load, geographic distance affects solar planning

Considerations in the Step 3 Analysis (Cont.)

- **Siting of Solar:**
 - Because Gulf's area is west of FPL's area, the sun is higher in the sky over Gulf's area than it is over FPL's area at the integrated system's coincident peak
 - Thus, all else equal, solar placed in Gulf's area will have greater output at the coincident peak hour than solar placed in FPL's area
 - As a result, solar located in Gulf's area has a higher firm capacity value (*the % of the solar nameplate rating that is accounted for as firm capacity in RM analysis*) than solar located in FPL's area
- **Based on these (and other) considerations, an optimized resource plan for the integrated FPL/Gulf system was developed in Step 3**
 - The projected costs of this resource plan were then compared to the sum of the projected costs for optimized plans for the separate, electrically connected Gulf & FPL systems

Integrating the two systems is projected to be cost-effective

Results of the Step 3 Analyses

- The resource plan for the integrated system is projected to have a lower cost than the sum of the costs for optimized stand-alone Gulf & FPL resource plans
- Key features of the integrated resource plan:
 - ~ 10,000 MW of solar by 2029 (*the next slide presents a projection of solar to be added in both Gulf's & FPL's areas*)
 - ~ 1,200 MW of batteries by 2029
 - A 4x0 CT facility (938 MW) is scheduled for Gulf by the start of 2022 (*to provide fast start capability lacking in Gulf's area*)
 - Two CCs, one in Gulf's area (2024) & one in FPL's area (2026), previously shown in the respective 2019 TYSPs, have been avoided or deferred past 2029

The resource plan from the Step 3 analysis is presented in detail in FPL's 2020 TYSP



The 2020 TYSP shows a cumulative total of 10,000 MW of solar by 2029

2020 TYSP Solar Projection

	Year	FPL-Owned Solar MW	Gulf-Owned Solar MW	Combined Total MW	Cumulative Total MW
	Cumulative Thru 2019	1,153	0	1,153	1,153
Annual Additions	2020	745	75	820	1,973
	2021	1,043	149	1,192	3,165
	2022	0	447	447	3,612
	2023	0	447	447	4,059
	2024	0	447	447	4,506
	2025	745	0	745	5,251
	2026	1,192	0	1,192	6,443
	2027	1,192	0	1,192	7,635
	2028	1,192	0	1,192	8,827
	2029	1,192	0	1,192	10,019
	Total Additions: 2020 thru 2029 =	7,301	1,565	8,866	

The “30 million solar panels by 2030” objective will be met with this solar projection



The analyses concluded that significant cost savings are obtainable through a number of actions (*many of which are now underway*)

In Conclusion

- **The 3-step analyses performed to-date have resulted in projected net cost savings for:**
 - Various improvements/additions to the current Gulf system (Step 1 analyses)
 - Enhancing the electrical connection between Gulf and FPL by adding the NFRC line (Step 2 analyses)
 - Integrating the two systems into a single, integrated system based on the NFRC line being in place (Step 3 analyses)
- **Analyses of the two areas will continue throughout 2020:**
 - Updated forecasts & assumptions will be used (and, as always, IRP analysis results may change as a result)
 - The outcome of these new analyses will be presented in the 2021 TYSP





Southern Alliance for Clean Energy comments on 2020 Ten Year Site Plans

August 18, 2020

MAGGIE SHOBER
Director of Utility Reform
maggie@cleanenergy.org

SACE MISSION

ABOUT SACE

The Southern Alliance for Clean Energy (SACE) is a nonprofit organization that promotes responsible energy choices to ensure clean, safe, and healthy communities throughout the Southeast. As a leading voice for energy policy in our region, SACE is focused on transforming the way we produce and consume energy in the Southeast.

CONTENTS

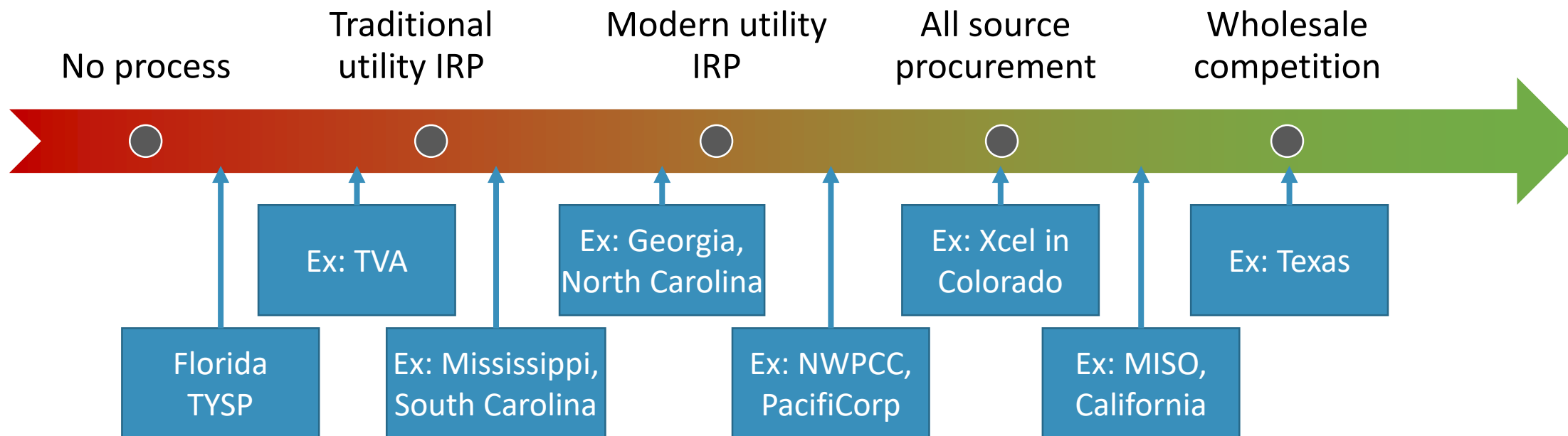
1. Florida TYSP outlier in resource planning
2. New gas increases costs to ratepayers
3. New gas flatlines CO₂ emissions
4. New gas increases stranded asset risk
5. Vast untapped energy efficiency
6. Florida utilities increase solar, could do more
7. Opportunities for lower costs: all-source procurement and reserve margin sharing
8. Conclusion and recommendation
9. Further reading



Florida's TYSP process has led to an
over-reliance on gas that:

- ↑ Increases costs to ratepayers
 - Flatlines CO₂ emissions
- ↑ Increases stranded risk exposure

FLORIDA TYSP PROCESS OUTLIER IN RESOURCE PLANNING



Features of some examples:

- TVA: IRP without regulatory oversight
- North Carolina: stakeholder feedback on draft IRP before completion of final IRP
- NWPCC: energy efficiency as a resource
- Xcel: all-source procurement best practices in practice
- MISO: wholesale competition with self-scheduling and capacity market
- Texas: no utility-owned generation, energy-only market

TYSP PROCESS OUTLIER

- No alternatives presented
- Most data, assumptions, scenarios not visible
- Stakeholders and commission can only react, cannot engage in development of plan itself

**Recommendation:
Commission hold a workshop
on how Florida's resource
planning process compares
to others**

NEW GAS INCREASES COSTS TO RATEPAYERS

NextEra: “Solar is expected to be the cheapest source of electric generation other than wind after investment tax credit steps down.”¹

More cost effective investments for customers: energy efficiency, solar, and soon storage

20-25% of all revenue collected from electric customers spent on gas, meaning utilities send \$4-6 billion of Floridan’s money out-of-state every year.

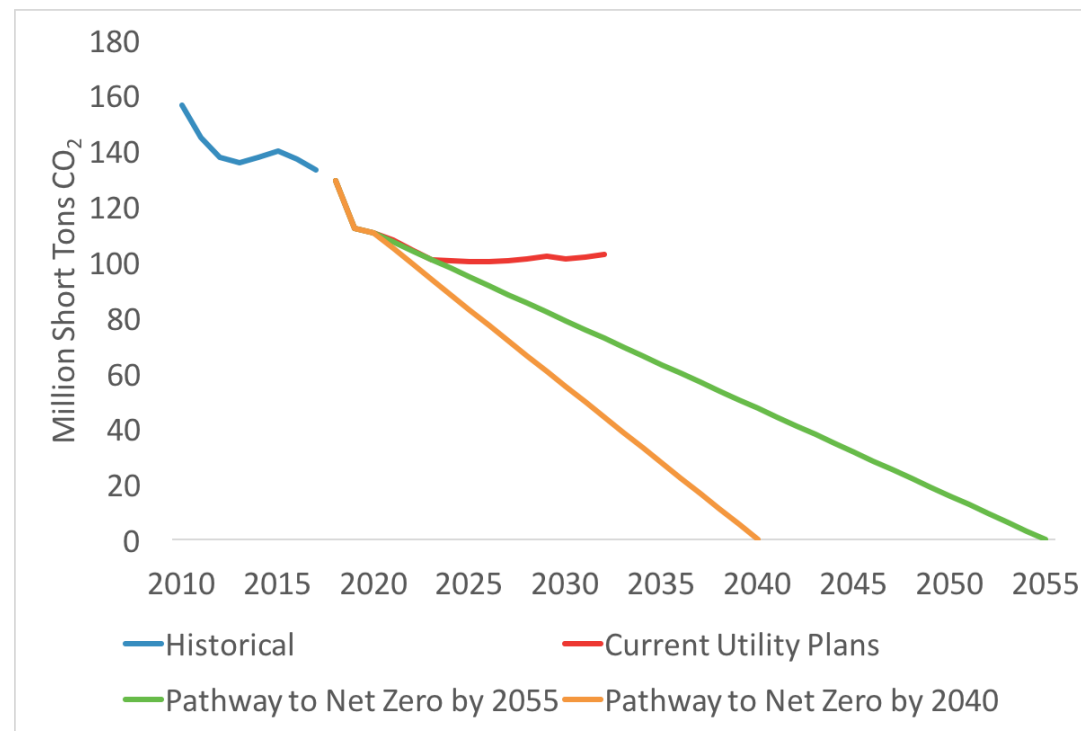
Florida does not have native gas supplies so \$ spent on gas means \$ sent out of state

¹ NextEra Energy June 2020 Investor Presentation, <http://www.investor.nexteraenergy.com/~//media/Files/N/NEE-IR/news-and-events/events-and-presentations/2020/6-2-2020/June%202020%20Investor%20Presentation%20vF.pdf>

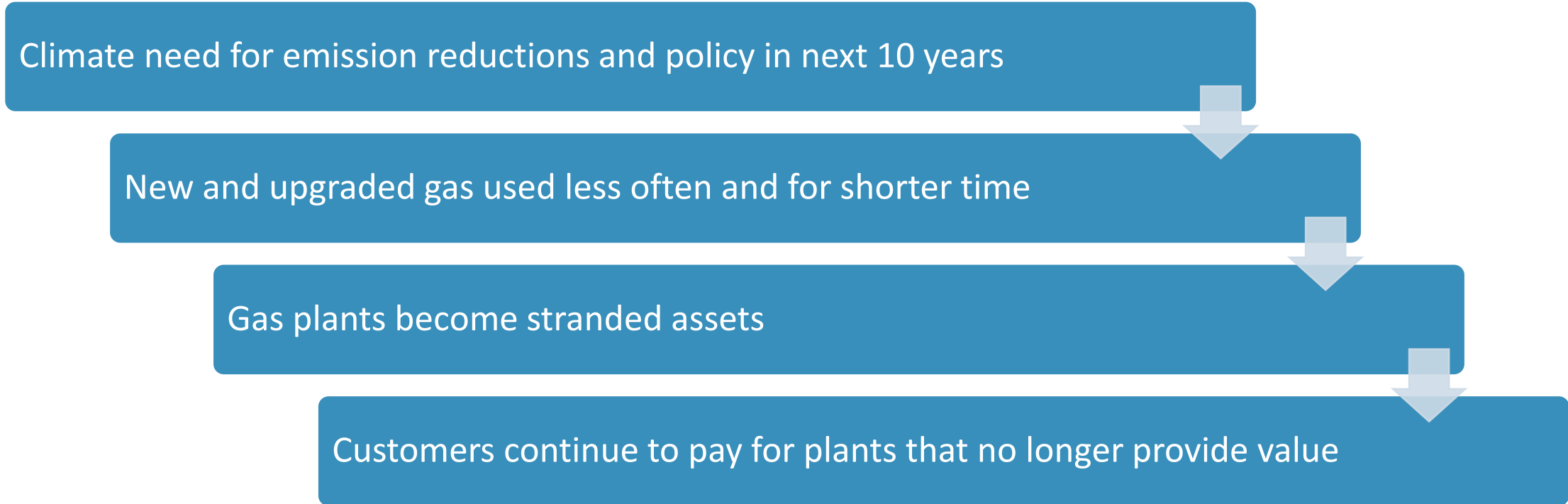
NEW GAS FLATLINES CO₂ EMISSIONS

- Further emission reductions cannot happen without both:
 - Retirement of existing fossil (coal and gas) plants
 - Replacement with zero emission sources like energy efficiency and solar
- Instead, 2020 TYSPs increase gas capacity through new plants and upgrades at existing plants
- Significant gas means state CO₂ emissions rate remains near that of a gas plant: ~750 lbs/MWh under the 2020 TYSPs

Florida utilities not on track to net zero CO₂ by 2040-2055



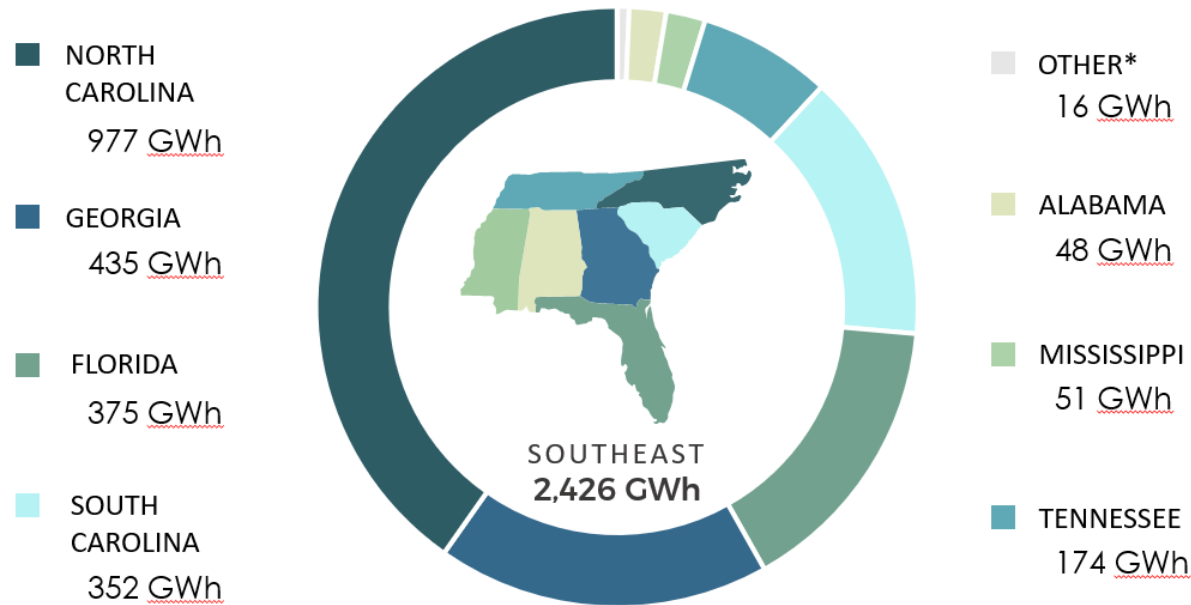
NEW GAS INCREASES STRANDED ASSET RISK



Since so many TYSP propose an expansion of gas reliance, utilities likely did not fully consider risk of new or upgraded gas plants becoming stranded assets in the future.

VAST UNTAPPED ENERGY EFFICIENCY

Energy Savings in 2018 by State



Florida: ~33% region's population; ~15% regional savings

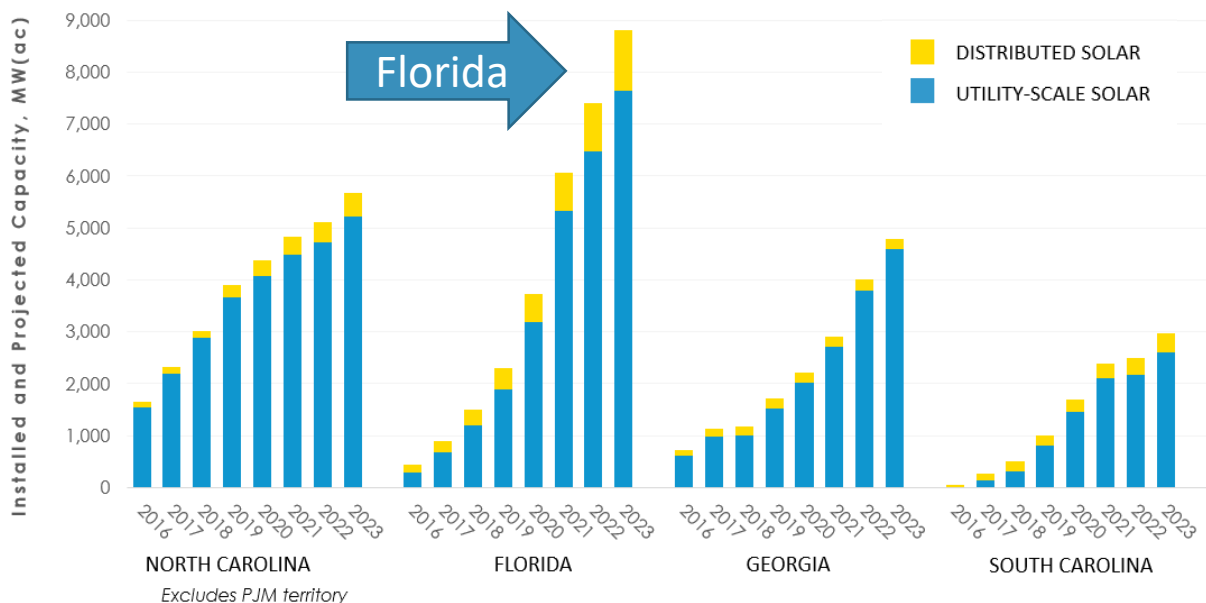
- In a robust resource planning process demand-side measure like EE compete directly with supply-side resources
- Instead Florida utilities limit the most cost-effective and proven EE measures through non-standard screening practices (Ratepayer Impact Measure test and 2-year screen) and feed FEECA results directly into resource planning
- Less energy savings → higher bills for Floridians



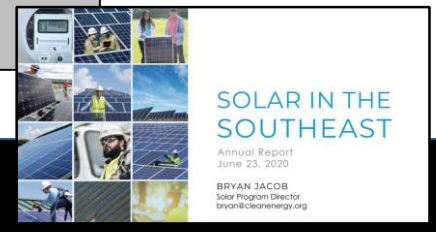
For more see SACE annual report:
Energy Efficiency in the Southeast

FLORIDA UTILITIES INCREASE SOLAR, COULD DO MORE

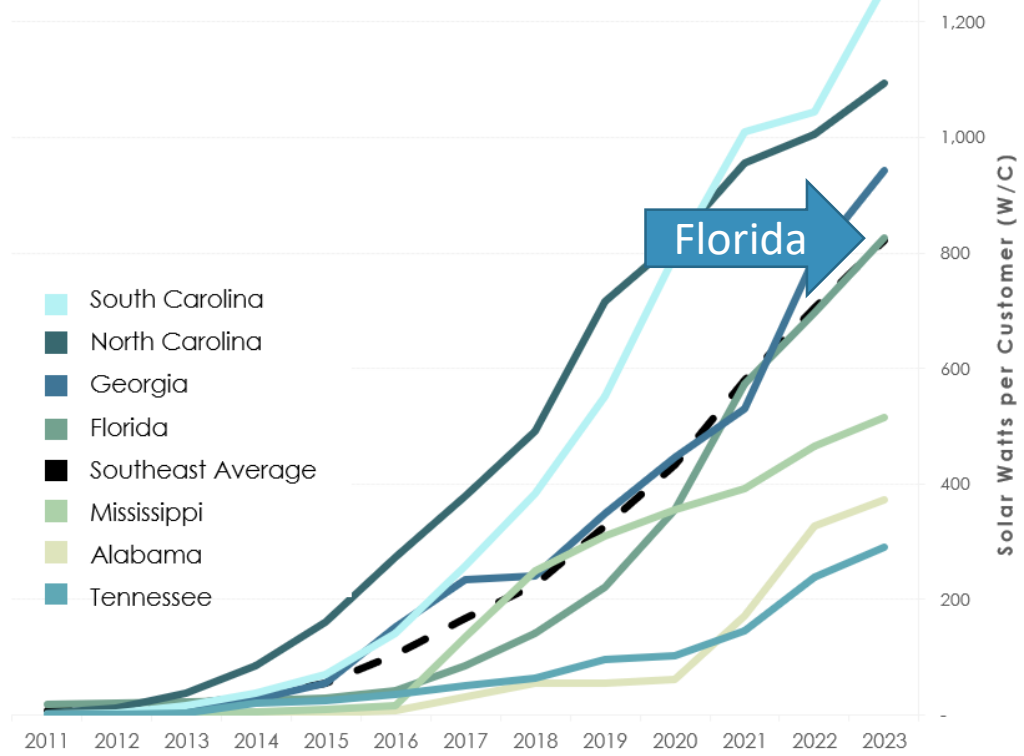
Installed solar capacity by state



For more see SACE annual report:
Solar in the Southeast



Solar watts/customer by state

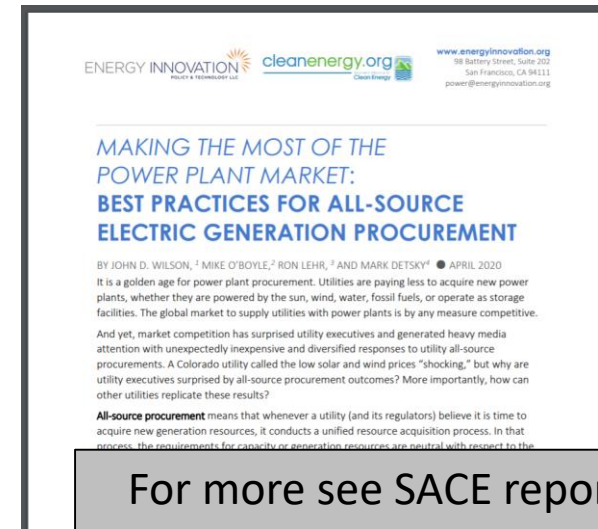


OPPORTUNITY FOR LOWER COSTS: ALL-SOURCE PROCUREMENT

All-Source Procurement is technology neutral and evens the playing field for resources to compete to serve customer load at the lowest possible cost

All-Source Procurement Best Practices

1. Use the resource planning process to determine the technology-neutral procurement need.
2. Require utilities to conduct a competitive, all-source procurement process, with robust bid evaluation.
3. Conduct advance review and approval of procurement assumptions and terms.
4. Renew procedures to ensure that utility ownership of generation is not at odds with competitive bidding.
5. Revisit rules for fairness, objectivity, and efficiency.



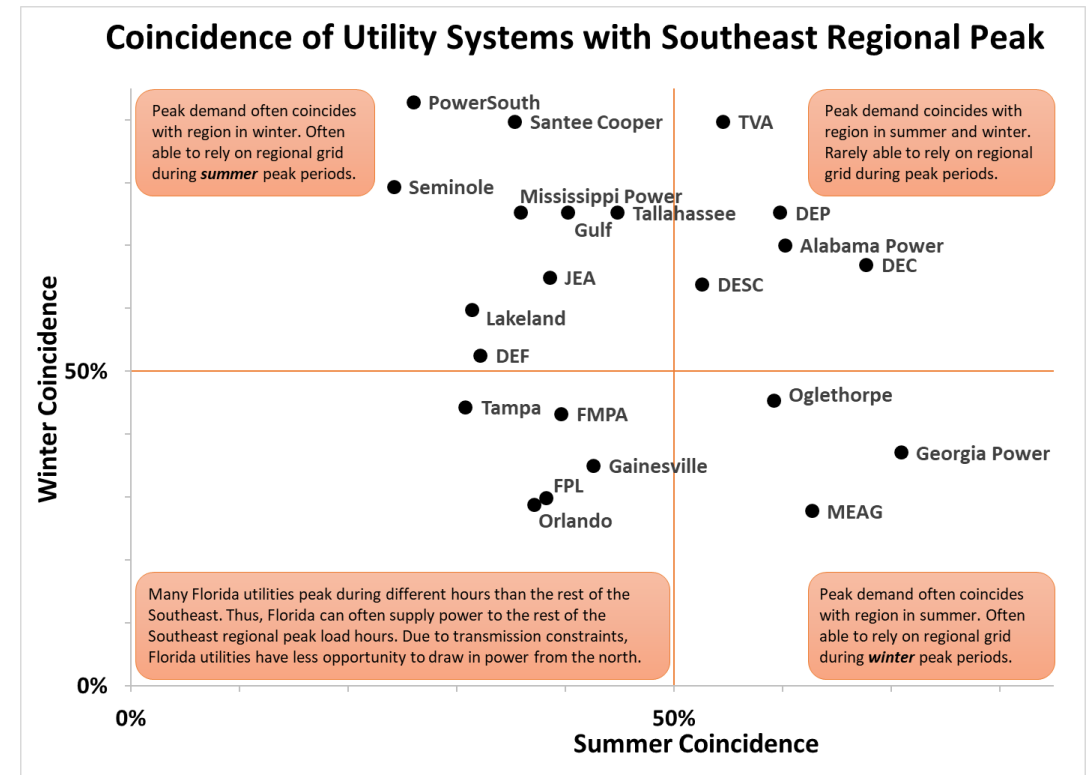
For more see SACE report on Best Practices for All-Source Procurement

OPPORTUNITY FOR LOWER COSTS: REGIONAL RESERVE MARGIN SHARING

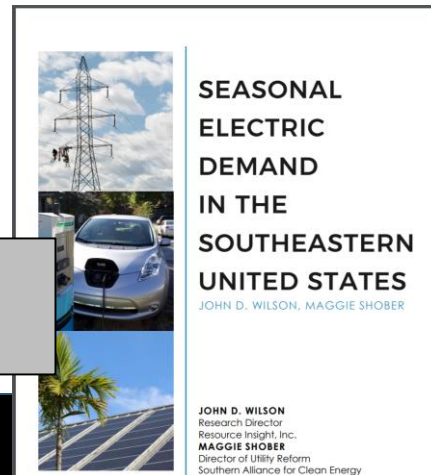
20 years of load data shows that utilities could share resources to meet peak loads instead of building redundant generation

- When utilities in Alabama, Tennessee, Georgia, and the Carolinas are peaking peninsular Florida utilities could sell them surplus power
- Conversely these Florida utilities could import power during peak events, as transmission constraints allow

Hourly Coincidence Rate of Southeastern Utilities with the Regional Peak, 1998-2016



For more see SACE report on demand in the Southeast



CONCLUSION AND RECOMMENDATION

- Florida's TYSP process is an outlier and a bad deal for customers
- The lack of transparency, stakeholder involvement, and resource competition has led to a future that increases Florida's reliance on gas instead of turning to clean, inexpensive resources
- Over-reliance on gas increases utility costs and customer bills, fails to address the climate crisis, and exposes customers to further costs through stranded assets
- To address these concerns, we recommend the Commission hold a workshop on resource planning methods

FURTHER READING

For more on these issues see SACE's [report library](#)



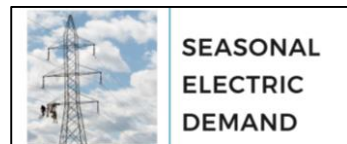
Energy Efficiency in the Southeast: bit.ly/SEEEReport2020



Solar in the Southeast: bit.ly/SeSolarReport2020



Best Practices for All-Source Electric Generation Procurement: bit.ly/AllSourceProcurementReport



Seasonal Electric Demand in the Southeastern United States: bit.ly/SeasonalLoadDemandReport

And coming soon: SACE's Decarbonization in the Southeast report, tracking utility and state emissions and emission goals

**A non-profit organization
working to make solar a
mainstream energy resource
across the U.S.**

**We bring technical expertise,
public engagement and
policymaker support to drive
common sense solar policy at
the state level.**



VOTE SOLAR

6 questions the Commission should ask as it reviews the 2020 site plans

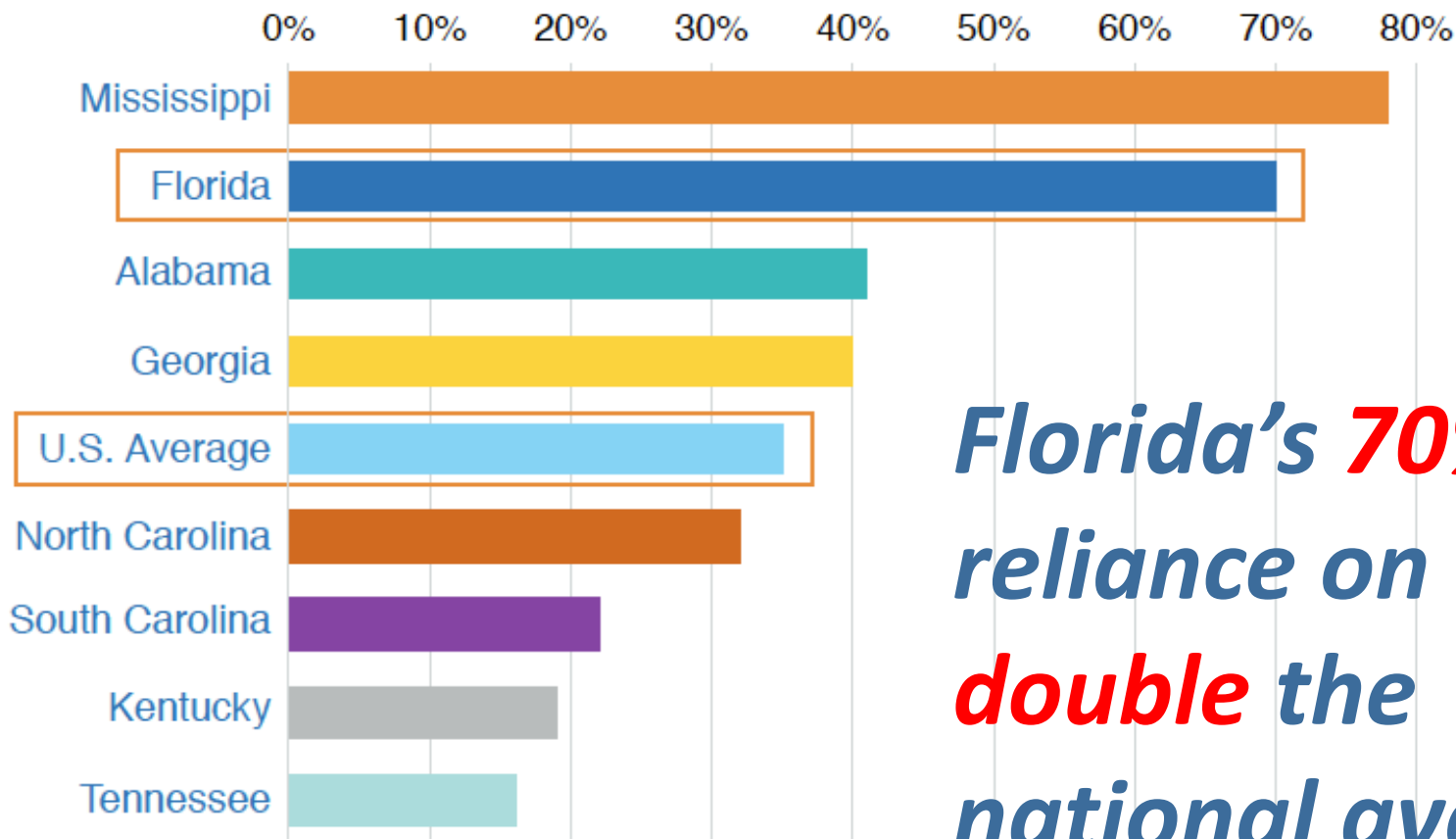


- 1: How will utilities address gas over-dependence?
- 2: When and how will proposed new investments be reviewed?
- 3: How can Florida modernize its resource planning?
- 4: How does Florida stack up on clean energy?
- 5: Are utilities preparing for a carbon-constrained world?
- 6: Are utilities protecting their most vulnerable customers?

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

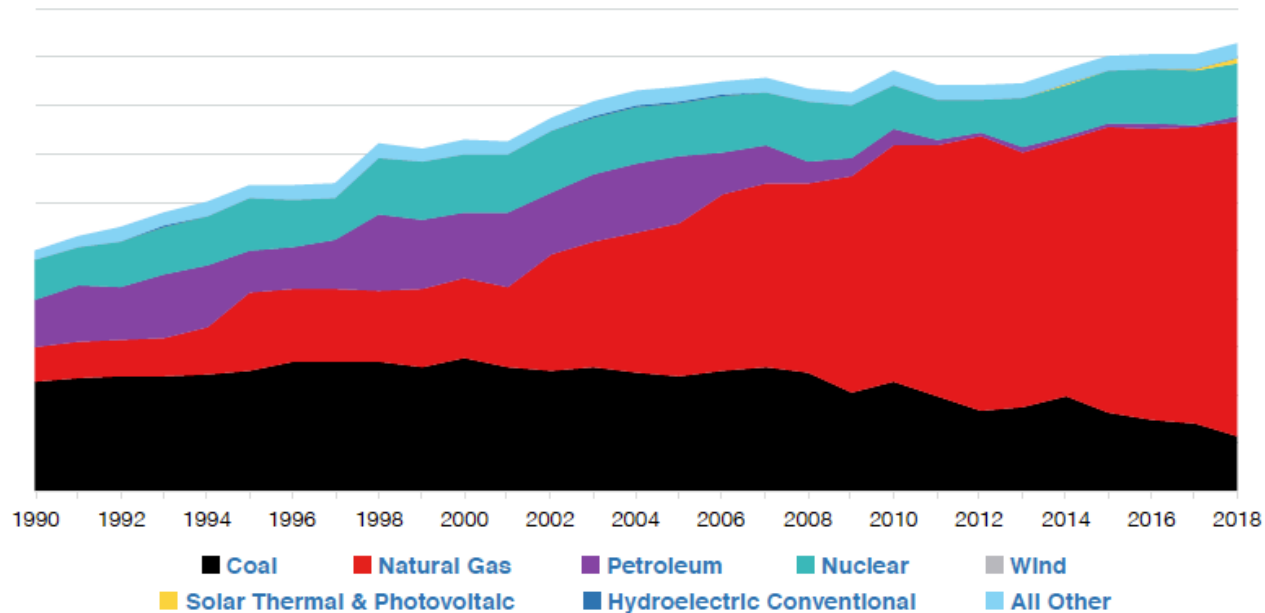


VOTE SOLAR



*Florida's 70%
reliance on gas is
double the
national average*

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



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



VOTE SOLAR

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.

2: When and how will new investments be reviewed?



VOTE SOLAR

Most of utilities' proposed gas investments aren't subject to Power Plant Siting Act review – meaning they can be constructed BEFORE PSC review

- » FPL: 800 MW combined cycle upgrades
- » Gulf Power: 938 MW new combustion turbines
- » Duke: 492 MW new combustion turbines
- » Estimated capital cost: **\$1.63 billion dollars**

3: How can FL modernize its resource planning?



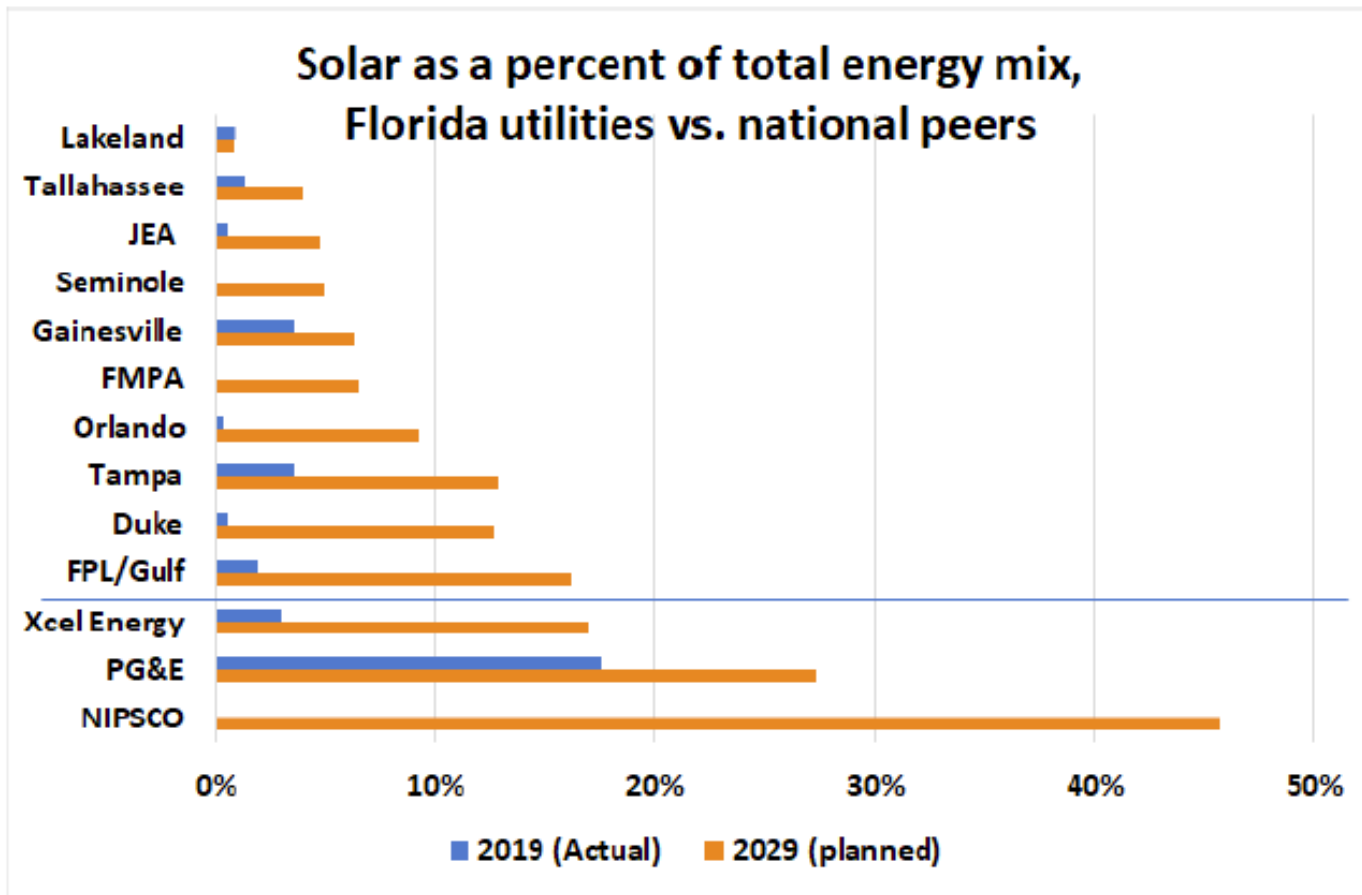
VOTE SOLAR

- » Distinct docket with clear opportunity and timeline for public comments
- » Require utilities to file both preferred plans and alternatives beginning next year, with clear price comparisons
- » Include recommendations for next year's filings

4: How does FL stack up on clean energy?



VOTE SOLAR

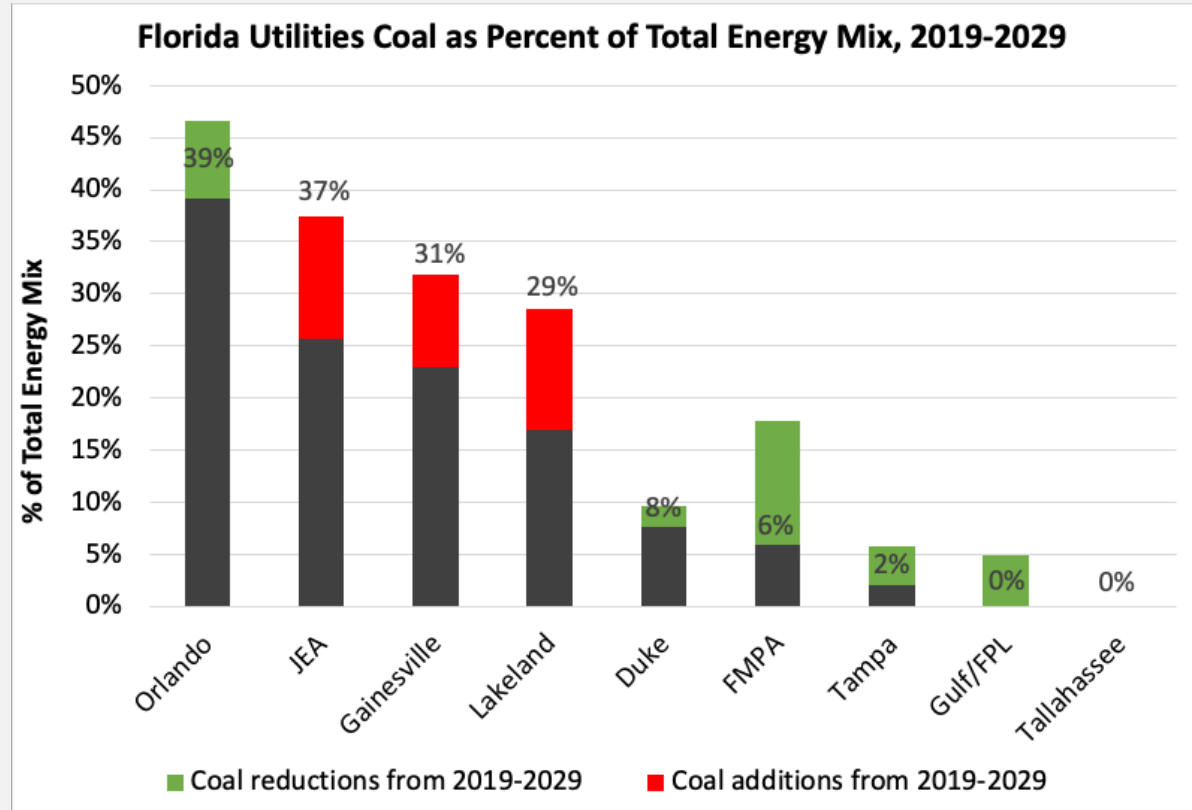


5: Are utilities ready for a carbon constrained world?



VOTE SOLAR

- » Utilities should assume a carbon price in planning to make prudent investments now
- » Give customers options to meet clean energy goals and attract global corporations
- » Seriously explore battery storage paired with solar
- » **Red flag: planned increases in coal energy**





VOTE SOLAR

78 COMPANIES

69 MILLION MWH
OF DEMAND FOR
RENEWABLE ENERGY

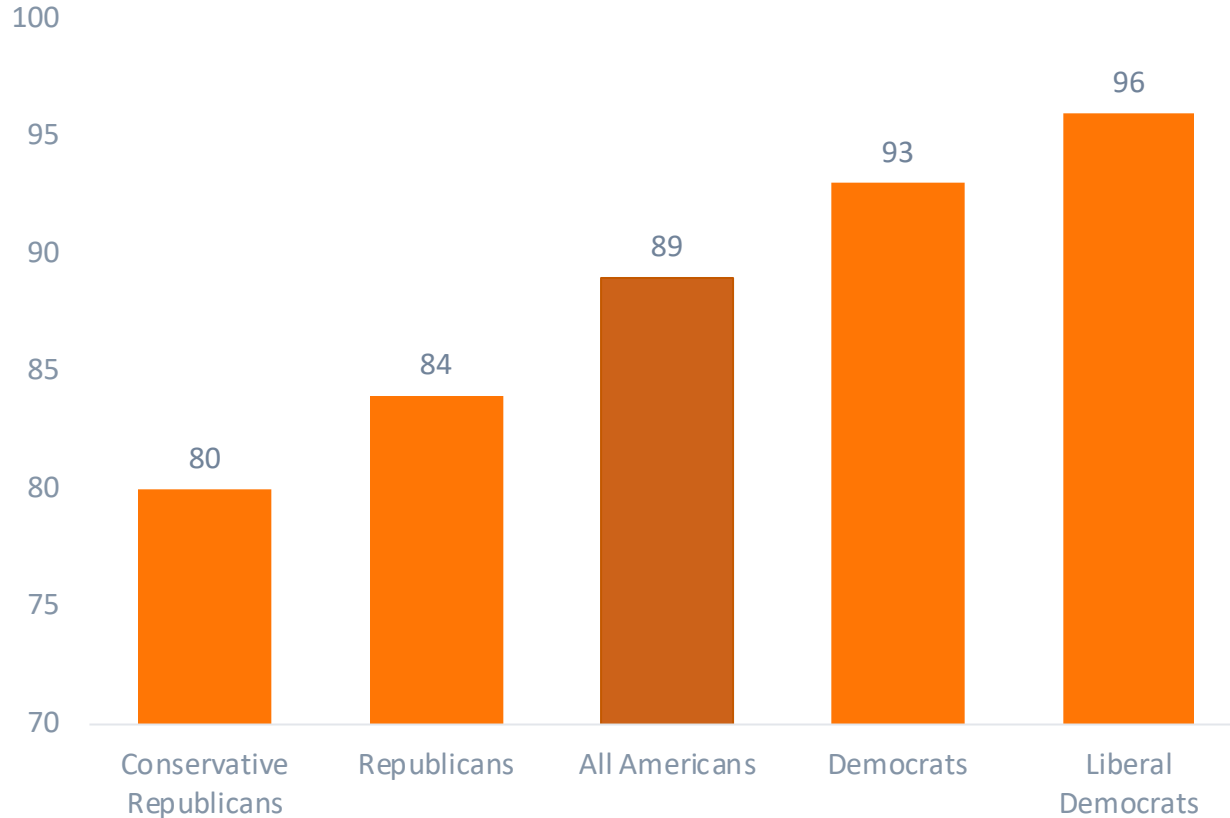
\$7.8 TRILLION IN
MARKET CAP



Solar is popular with all Americans – 89% support across political spectrum



VOTE SOLAR



6: Are utilities protecting the most vulnerable ratepayers?



VOTE SOLAR

- » Floridians' rates may be low, but bills are higher than the national average
- » Historic under-investment in energy saving programs (TECO, Duke and FPL rank near bottom of ACEEE list)
- » Opportunity to create bill stability now during COVID by pairing energy saving programs with arrearage management to incentivize customers

2020 grades are in



VOTE SOLAR

 **Renewable Energy
and GHG Reductions**

 **Gas Over-dependence**

 **Uneconomic Coal**

 **Consumer Protection
and Affordability:**

 **Customer Choice**

 **Market Competition:**

 **Electric Vehicle
Promotion:**

 **Investment in
Resilient Storage:**

Utility Provider

Grade

Tampa Electric Company (TECO)	B+
Florida Power & Light (FPL)	B
Orlando Utilities Commission (OUC)	B-
Duke Energy	B-
City of Tallahassee Utilities	C
Gainesville Regional Utilities (GRU)	C-
Seminole Electric Cooperative	D+
Florida Municipal Power Authority (FMPA)	D+
JEA	D
Lakeland Electric	F



VOTE SOLAR

Katie Chiles Ottenweller
katie@votesolar.org