



MEETING AGENDA PACKAGE

Policy Makers Liaisons Committee

October 14, 2020
1:00 to 2:30 p.m.

Meeting Being Held by WebEx at:

Florida Municipal Power Agency
8553 Commodity Circle, Orlando, FL 32819

**Dial-in information: 877-668-4493 or 650-479-3208,
Access Code 854 779 090#, PASSWORD 8553#**

+ + + + + + + + + + + + +

Policy Makers Liaisons Committee

- Dan Robuck, Leesburg – Vice Chair
- Bil Spaude, Bushnell
- Kristine Petersen, Clewiston
- Rick Cochrane, Fort Meade
- Tom Perona, Fort Pierce
- Robert Page, Green Cove Springs
- George Forbes, Jacksonville Beach
- Robert Barrios, Key West
- Ethel Urbina, Kissimmee
- Scott Maxwell, Lake Worth
- Bill Conrad, Newberry
- Brent Malever, Ocala
- Keith Trace, St. Cloud
- Scott Roberts, Starke

Community Power + Statewide Strength

MEMORANDUM

TO: Policy Makers Liaisons Committee
FROM: Mark McCain
DATE: October 6, 2020
RE: Policy Makers Liaisons Committee Telephonic Meeting Wednesday, October 14, 2020, 1:00 p.m. to 2:30 p.m. [NOTE TIME]
PLACE: Florida Municipal Power Agency, 8553 Commodity Circle, Orlando, FL 32819
WEBEX: **Via telephone, 877-668-4493 or 650-479-3208, Access Code 854 779 090 #, PASSWORD 8553#**
(If you have trouble connecting, please call 407-355-7767)

Vice Chair Dan Robuck, Presiding

The mission of the Committee is to facilitate the education of elected or appointed governing body members of FMPA's member utility systems, and to foster opportunities for greater communication and knowledge among governing body members regarding the business and projects of FMPA.

AGENDA

1. Call to Order, Roll Call, Declaration of Quorum
2. Set Agenda (by vote)
3. Consent Agenda
 - a. Approval of the Minutes for the Meetings Held April 15 and July 29, 2020
4. Action Items
 - a. Election of Committee Officers (Mark McCain)
 - b. Approval of 2020-2021 Meeting Schedule (Mark McCain)
 - c. PMLC Charter Review (Mark McCain)
5. Report from the General Manager and CEO (Jacob Williams)
6. Information Items
 - a. Fiscal 2021 Management Goals (Jacob Williams)
 - b. Power Cost Trade-Offs of Carbon Reduction Levels Beyond the 50% Reduction Level in Florida (Jacob Williams)
7. Member Comments
8. Announcements
 - a. Next Meeting (if schedule approved): Wednesday, January 20, 2021 at FMPA, 8553 Commodity Circle, Orlando, FL
9. Adjourn

One or more participants in the above referenced public meeting may participate by telephone. At the above location there will be a speaker telephone so that any interested person can attend this public meeting and be fully informed of the discussions taking place either in person or by telephone communication. If anyone chooses to appeal any decision that may be made at this public meeting, such person will need a record of the proceedings and should accordingly ensure that a verbatim record of the proceedings is made, which includes the oral statements and evidence upon which such appeal is based. This public meeting may be continued to a date and time certain, which will be announced at the meeting. Any person requiring a special accommodation to participate in this public meeting because of a disability, should contact FMPA at (407) 355-7767 or 1-(888)-774-7606, at least two (2) business days in advance to make appropriate arrangements.

**AGENDA ITEM 1 - CALL TO ORDER,
ROLL CALL, DECLARATION OF
QUORUM**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

**AGENDA ITEM 2 – SET AGENDA (by
vote)**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

AGENDA ITEM 3 – CONSENT AGENDA

- a. Approval of Minutes for the Meetings
Held April 15, 2020 and July 29, 2020**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

MINUTES
FMPA TELEPHONIC POLICY MAKERS LIAISONS COMMITTEE MEETING
FLORIDA MUNICIPAL POWER AGENCY
8553 COMMODITY CIRCLE
ORLANDO, FL 32819
DATE: WEDNESDAY, APRIL 15, 2020
TIME: 1:00 P.M.

**MEMBERS
PRESENT
VIA
TELEPHONE**

Bob Page, Green Cove Springs
George Forbes, Jacksonville Beach
Robert Barrios, Key West
Kathleen Thacker, Kissimmee
Dan Robuck, Leesburg
Bill Conrad, Newberry
Brent Malever, Ocala
Keith Trace, St. Cloud

**MEMBERS
ABSENT**

Bil Spaude, Bushnell
Kristine Petersen, Clewiston
Rick Cochrane, Fort Meade
Tom Perona, Fort Pierce
Scott Maxwell, Lake Worth
Scott Roberts, Starke

**OTHERS
PRESENT
VIA
TELEPHONE**

John Tompeck, Fort Pierce
Linda Hudson, Fort Pierce
Larry Mattern, Kissimmee
Amy Zubaly, FMEA
Ryan Matthews, Peebles, Smith & Matthews (via telephone)
Michael Nolan, MJN Consulting

**STAFF
PRESENT**

Jacob Williams, General Manager & CEO
Ken Rutter, Chief Operating Officer
Mark McCain, Assistant General Manager, Member Services,
Human Resources and Public Relations
Dan O'Hagan, Assistant General Counsel and Regulatory
Compliance Counsel
Mike McCleary, Manager of Member Services Development
Navid Nowakhtar, Resource and Strategic Planning Manager
Sue Utley, Executive Assistant to CEO / Asst. Secretary to Board
Susan Schumann, External Affairs Administrator
Isabel Montoya, IT Specialist
Melisa Inanc, Public Relations Specialist
Ryan Dumas, Public Relations Specialist

Item 1 – Call to Order, Roll Call

Chair Kathleen Thacker, Kissimmee, called the meeting to order at 1:01 p.m. on Wednesday, April 16, 2020, via WebEx and telephone with staff present at Florida Municipal Power Agency, 8553 Commodity Circle, Orlando, Florida. A roll call was taken and 8 members were present.

Item 2 – Set Agenda (By Vote)

MOTION: George Forbes, Jacksonville Beach, moved to set the agenda as presented. Keith Trace, St. Cloud, seconded the motion. Motion carried 8 – 0.

Item 3 – Consent Agenda

3a – Approval of the Minutes for the meeting held January 15, 2020

MOTION: Bob Page, Green Cove Springs, moved approval of the Minutes of January 15, 2020. Bill Conrad, Newberry, seconded the motion. Motion carried 8 – 0.

Item 4 – Information Items

4a – Electric Utility Response to COVID-19

Jacob Williams presented information related to the municipal electric utility response to COVID-19.

4b – Update on FMPA Solar Projects

Susan Schumann presented an update on FMPA's Solar Project Phase I.

4c – Update on Emissions

Jacob Williams reported on FMPA's emissions for calendar year ending 2019.

Item 5 – Report from the General Manager and CEO (Jacob Williams)

1. Update on Oil and Gas Markets
2. Goals Scorecard

Item 6 – Member Comments

None

Item 7 – Announcements

7a – Next Meeting: Thursday, July 30, 2020 at 3 p.m. at the FMEA Annual Conference, The Breakers, 1 South County Road, Palm Beach, FL

Item 8 - Adjourn

There being no further business, the meeting was adjourned at 2:08 p.m.

Dan Robuck
Vice Chairman

Sue Utley
Assistant Secretary

Date Approved _____

KT/DR/su

MINUTES
FMPA TELEPHONIC POLICY MAKERS LIAISONS COMMITTEE MEETING
FLORIDA MUNICIPAL POWER AGENCY
8553 COMMODITY CIRCLE
ORLANDO, FL 32819
DATE: WEDNESDAY, JULY 29, 2020
TIME: 1:00 P.M.

MEMBERS PRESENT Tom Perona, Fort Pierce (via telephone)
Bob Page, Green Cove Springs
George Forbes, Jacksonville Beach
Robert Barrios, Key West (via telephone)
Kathleen Thacker, Kissimmee (via telephone)
Ethel Urbina, Kissimmee
Dan Robuck, Leesburg
Keith Trace, St. Cloud (via telephone)

OTHERS PRESENT None

STAFF PRESENT Jacob Williams, General Manager & CEO
Mark McCain, Vice President, Member Services & Public Relations
Jody Finklea, General Counsel & CLO
Sue Utley, Executive Assistant to CEO / Asst. Secretary to Board
Susan Schumann, Public Relations & External Affairs Manager
Mike McCleary, Manager of Member Services Development

Item 1 – Call to Order, Roll Call, Declaration of Quorum

Chair Kathleen Thacker, called the meeting to order at 1:00 p.m. on Wednesday, July 29, 2020, via telephone and at Florida Municipal Power Agency, 8553 Commodity Circle, Orlando, Florida. A roll call was taken and 7 voting members were present. A quorum was not declared.

Item 2 – Set Agenda (By Vote)

MOTION: A motion could not be made because a quorum was not present.

Item 3 – Consent Agenda

- a. Approval of the Minutes for the meeting held April 15, 2020

MOTION: A motion could not be made because a quorum was not present.

Item 4 – Action Items

- a. Election of Committee Officers

MOTION: A motion could not be made because a quorum was not present.

- b. Approval of 2020-2021 Meeting Schedule

MOTION: A motion could not be made because a quorum was not present.

Item 5 – Report from the General Manager and CEO (Jacob Williams)

- 1. Goals Scorecard
- 2. JEA Update

Item 6 – Information Items

- a. Update on ARP Sales, Power Costs and Budget Projections

Jacob Williams updated the Committee on ARP Sales, Power Costs and Budget Projections.

- b. Update on FMPA Solar Projects and Solar Subscriptions

Susan Schumann updated the Committee on FMPA’s Solar Projects and Solar Subscriptions.

- c. Supporting FMPA Members in Reliability Efforts

Mark McCain updated the Committee on Supporting FMPA Members in Reliability Efforts.

Item 7 – Member Comments

None

Item 8 – Announcements

- a. Next Meeting: Wednesday, October 14, 2020 at 1 p.m. at FMPA, 8553 Commodity Circle, Orlando, FL

Item 9 - Adjourn

There being no further business, the meeting was adjourned at 1:47 p.m.

Dan Robuck
Vice Chairman

Sue Utley
Assistant Secretary

Date Approved _____

DR/su

AGENDA ITEM 4 – ACTION ITEMS

a. Election of Committee Officers

**Policy Makers Liaisons Committee Meeting
October 14, 2020**



4a – Election of Committee Officers

Policy Makers Liaisons Committee

October 14, 2020

Committee Charter Describes Officer Election Process

Nominations and Elections by the Committee from the Floor

- Committee elects two officer annually: Chair and Vice Chair
- Elections held every July or when there is a vacancy
- Officers serve until the next July election
- Nominations come from the Committee prior to an elective vote
- Quorum Requirement: Majority of appointed Liaisons (or their alternate) present in person or by electronic means
- Majority vote; one vote per city on the Committee

Current Officers as Elected in July 2019

Need to Elect a New Chair and Vice Chair in 2020

Current Officers

- Chair
Kathleen Thacker
Kissimmee Utility Authority
- Vice Chair
Dan Robuck
City of Leesburg

Nomination Considerations

- Kathleen Thacker served two year as Chair and rotated off KUA's Board in Oct. 2020
- Dan Robuck willing and able to serve as Chair, if nominated

Recommended Motions

- Nominate a Chair and Vice Chair
- Elect a Chair and Vice Chair

AGENDA ITEM 4 – ACTION ITEMS

**b. Approval of 2020-2021 Meeting
Schedule**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**



4b – Approval of Meeting Schedule for 2020-2021

Policy Makers Liaisons Committee
October 14, 2020

Charter States PMLC Shall Meet at Least Annually

Historically, Committee Has Opted to Meet Quarterly

- Committee required to meet at least annually at FMEA Annual Conference
- Over the years, Committee has decided to meet quarterly
- Meetings typically held day before FMPA governing board meetings
- Policy Makers meet informally at noon for lunch
- Business meetings held starting at 1 p.m.

Recommended Meeting Schedule for 2020-2021

Meeting Dates Day Before FMPA Governing Board Meetings

- Wednesday, January 20, 2021
- Wednesday, April 14, 2021
- At FMEA Annual Conference in July 2021 (TBD)

Recommended Motion

Move approval of the Policy Makers Liaisons Committee's meeting schedule for 2020-2021, as recommended.

AGENDA ITEM 4 – ACTION ITEMS

c. PMLC Charter Review

**Policy Makers Liaisons Committee Meeting
October 14, 2020**



4c – PMLC Charter Review

Policy Makers Liaisons Committee

October 14, 2020

PMLC Has a Charter to Guide Committee Functioning

Reviewing Charter Periodically a Good Governance Practice

- PMLC has a Charter that guides the Committee's function, operation
- Charter approved by FMPA's Board of Director
- Charter addresses the Committee's mission, membership, meetings, communications, education, authority and responsibilities
- Reviewing the Charter on regular basis for familiarity and assessment an effective governance practice

Committee May Wish to Review Quorum Requirement

Recommend Modifying Quorum Based on Average Attendance

- At each meeting, FMPA will report the average attendance for previous four Committee meetings (counting only 1 Liaison/city)
- Count Liaisons present in person or participating by electronic means
- Quorum determined as majority of the average attendance for the previous four Committee meetings (e.g., average attendance of previous meetings equals 8, then 5 is a quorum)
- Quorum only necessary for election of officers, but not necessary to hold meetings otherwise

Recommended Motion

Move approval of the recommended revisions to the PMLC Charter for defining the quorum and other minor wording enhancements, and recommend the PMLC Charter changes for consideration by FMPA's Board of Directors.

FLORIDA MUNICIPAL POWER AGENCY

POLICY MAKERS LIAISONS COMMITTEE CHARTER

(as last adopted in revised form ~~on~~as of August 22, 2013~~25, 2011~~)

[NOTE: DATE WILL BE CHANGED TO REFLECT NEW REVISIONS]

This Policy Makers Liaisons Committee Charter is intended to guide the function and operation of the Policy Makers Liaisons Committee (the "Committee") of Florida Municipal Power Agency ("FMPA") in fulfillment of its role as established by the FMPA Board of Directors.

I. MISSION.

The mission of the Committee is to facilitate the education of elected or appointed governing body members of FMPA's member utility systems, and to foster opportunities for greater communication and knowledge among governing body members regarding the business and projects of FMPA. The Committee shall serve as a channel for Committee members (the "Liaisons") to communicate with each other and FMPA staff about the Liaisons' concerns, questions, and suggestions.

II. MEMBERSHIP.

A. Liaisons and Alternates; Appointment. Each Liaison must be an appointed or elected member of the governing body or an individual appointed by the governing body of an FMPA member utility system. There may be one Liaison appointed by each member of FMPA. Appointments of a Liaison shall be made by each FMPA member's director in writing to the Assistant Secretary of the Board of Directors, together with a brief biography of the appointed Liaison, and may include one or more alternates as the member chooses. Appointments of Liaisons or alternates may be made at any time, with each Liaison and alternate serving on the Committee at the pleasure of the FMPA member that he or she represents. (For all other purposes in this charter, unless otherwise provided, references to a Liaison includes the alternate(s) acting in the absence of his or her Liaison.)

III. MEETINGS.

A. Election of Officers. The Committee shall elect two officers: Chair and Vice Chair. Election of officers shall be done by the Committee by majority vote for a regular election or any time there is an officer vacancy, with each Liaison having one vote. (No alternate(s) may vote if the Liaison for whom he or she serves as the alternate is also present.) Nominations of Liaisons to fill the officer positions shall come from the Committee, prior to the elective vote. Regular elections shall be held once each year at the meeting held during the FMEA-~~FMPA~~ Annual Conference.

B. Term of Office. Each elected officer shall serve upon election until the next FMEA-~~FMPA~~ Annual Conference annual meeting.

C. Quorum. At each meeting of the Committee, FMPA staff will report to the Committee the average attendance for the previous four Committee meetings. (No alternate(s) present will be counted if the Liaison for whom he or she serves as an alternate was also present.) A quorum of the Committee is present at a meeting ~~of the Committee~~ when ~~at least a majority of the~~ there is a sufficient number of appointed Liaisons ~~are~~ present and able to participate in the meeting in person or by electronic means to represent a majority of the average attendance for the previous four Committee meetings. (As an example, if the average attendance for the previous four meetings of the Committee is eight, then five Liaisons present is a quorum.) A quorum of the Committee is necessary to hold an election for any officer position, but not necessary for the Committee to hold meetings otherwise.

D. Meeting Requirements. The Committee shall meet at least annually, and must meet, in addition to other meetings the Committee may hold, each year during the FMEA-~~FMPA~~ Annual Conference. Notice of the time, date, and place of each meeting will be provided to each Liaison at least 20 days prior to any meeting. The conduct of the meetings will follow *Roberts Rules of Order Newly Revised*, with the Chair acting as moderator.

IV. COMMUNICATIONS.

The General Manager of FMPA shall appoint a staff person to serve as the staff representative to the Committee (the "Committee Staff Representative"). The Committee Staff Representative shall have responsibility for coordinating the communications of the Committee and coordinating Committee meetings, including providing meeting notices to all Liaisons. Communications with FMPA by the Committee will be handled primarily through the Committee Staff Representative or directly with the General Manager or General Counsel (for legal matters).

V. EDUCATION.

Any Liaison may request that the Committee be provided educational materials, including presentations at a Committee meeting or at the Liaison's member system, on any topic regarding FMPA's projects and business or the municipal electric utility industry generally. Educational materials, including presentations, can be provided to the Committee on a more general level, and also tailored to the needs of a particular Liaison's member system.

VI. AUTHORITY.

The Committee has no authority to bind FMPA or to make any decision on behalf of the FMPA Board of Directors or Executive Committee. The Committee is not advisory to the FMPA Board of Directors, the Executive Committee, nor any other decision-making body of FMPA. The Committee is a facilitator and communication opportunity for Liaisons and the FMPA members represented by Liaisons.

VII. RESPONSIBILITIES.

Liaisons are expected to attend at least one meeting of the Committee each year, with attendance at the FMEA-FMPA Annual Conference meeting greatly encouraged.

The Committee has responsibility for keeping Liaisons informed of FMPA's projects and business matters, and facilitating the opportunity for discussion and feedback on those projects and business matters. Requests for educational opportunities requested by Liaisons, regarding FMPA or the municipal electric industry generally, shall be addressed by the Committee in coordination with the Committee Staff Representative.

**AGENDA ITEM 5 – REPORT FROM
THE GENERAL MANAGER**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

Fiscal 2020 Management Goals Scorecard, as of September 30, 2020



| Goal | Status | Actual | YTD Actual | YTD Target | FY'20 Target | Comment |
|---|-----------------|---------|------------|------------|--------------|--|
| 1. Safety (no lost-time accidents for employees/agents) | | 1 | 1 | 0 | 0 | 1 Lost time accident. CI employee required surgery. |
| 2. Compliance (no violations that are not self-reported) | Environ. | 0 | 0 | 0 | 0 | Zero compliance violations. |
| | Financial | 0 | 0 | 0 | 0 | |
| | Regulatory | 0 | 0 | 0 | 0 | |
| 3. Cyber Security (zero cyber breaches: Corp IT & Plant Ops) | | 0 | 1 | 0 | 0 | |
| Members APPA Scorecard | | 0 | 11 | 12 | 12 | |
| Phishing Testing | | 1.4% | 5.3% | 5% or < | 5% or < | Campaign Subject: "RemotePC login detected from a device" One person clicked on the link. We did not meet the YTD Goal. |
| 4. Low Costs (\$/MWh) | Non-Fuel | \$38.61 | \$48.32 | \$48.55 | \$48.55 | September 2020 will be updated for the meeting. * August 2020 YTD MWh sales 0.4% below target. Main drivers of all-in costs ~11% (\$7.06/MWh) below target include: Gas Costs (30%), O&M Expenses (~10%), Assigned Project Costs (~8%), A&G and Direct Charges (~8%) below targeted levels, but TXMS Expenses (~18%) above target. |
| | Fuels | \$19.64 | \$17.74 | \$24.09 | \$24.09 | |
| | All-in | \$58.25 | \$66.06 | \$72.64 | \$72.64 | |
| 5. Reliability | CC EAF | 85% | 92% | 90% | 88% | Cane Island Unit 3 was in scheduled outage and TCEC was in forced outage. |
| | KWS Blk Start | | | | | None |
| | SAIDI Reduction | 5 | n/a | n/a | 7 | Beaches, NSB, Bushnell, Havana, Newberry |

(Continued) Management Goals Scorecard, as of September 30, 2020



| Goal | Status | Comment |
|---|--------|---|
| <p>6. Energy/Capacity Sales -
Execute wholesale agrmts. with projected margin value \$3.5M for FY2020-2024</p> | | <p>Leveraging TEA relationship to cover power needs during unit outages this fall. TEA has also identified some potential sales opportunities for this upcoming winter.</p> |
| <p>7. Enhance Pool – for future significant solar resources
- Hire new Exec. Dir.
- Devel. practices for extra reserves and fast start needs
- Devel. mkt. compensation products to manage new solar resources</p> | | <ul style="list-style-type: none"> •Reserves policy concept and direction agreed to and approved by FMPP Steering Committee. Now working on formalizing documents and implementation details. •General agreement also obtained on changing how generator variable O&M costs are allocated, which would help align market compensation with actual costs. •Executive Director looking to establish metrics for the Pool, exploring utilizing FMPPA's data management tools. |
| <p>8. Member Services
Visits by Leadership Team (75 visits)</p> | | <p>10 member city visits in September. Total for the year is 79.</p> |
| <p>Member Services 15 project oversight</p> | | <p>30 YTD. Added 4 in September: Chattahoochee Budget Support, Bushnell Mapping Update, Keys Energy storm response tabletop exercise, Clewiston Transf. #1 Investigation</p> |
| <p>Assist solar subscription service - 6</p> | | <ul style="list-style-type: none"> • KUA and Ocala marketing subscriptions to customers. • FPUA and KEYS developing programs. • Mount Dora and New Smyrna Beach considering programs for Phase II |

(Continued) Management Goals Scorecard, as of September 30, 2020



| Goal | Status | Comment |
|---|--------|--|
| <p>9. Promoting Value of Utilities
 Update Member Reports – 16
 Public Presentations by Members or FMPSA - 10</p> | | <ul style="list-style-type: none"> • 16 Reports completed and shared. • Information shared individually with Lake Worth Beach City Commission and Ocala City Council. • Public Presentation at Newberry (9/28) • Public Access TV interview at Leesburg (scheduled for 10/21). • FMPSA worked with several members during COVID19 to assist in telling stories publicly. |
| <p>10. Solar Project
 - Execute Phase 2 Solar Agreements
 - Assist Members marketing Phase 1 groundbreaking & energize Phase 1</p> | | <ul style="list-style-type: none"> • Phase II Agreements fully executed. • Solar Promotional "toolkit" available to members. • Successful nationwide positive publicity for FMSP Groundbreaking and Commercial Operation. • FMSP Groundbreaking event won an Award of Distinction at the 2020 Golden Image Awards. • Harmony and Taylor Creek facilities completed on schedule June 30, 2020. • FMPSA investigating development of real-time solar energy graphic website for FMSP participants. |
| <p>11. ARP Restructuring -
 Reach agreement on desired path of Members</p> | | <p>Completed</p> |
| <p>12. People
 - Development opportunities/cross training/Back-Up – at least 8</p> | | <p>10 Development opportunities completed. Member Services, Accounts Payable, SCADA, Facilities, Human Resources, Public Relations, Financial and Rates Analyst, Information Technology, Operational Technology and Cyber Security.</p> |
| <p>- FMPSA Fleet Team Sharing – 80 days</p> | | <p>Total of 112 days FYTD. FMPSA to Stock Island for 3 days and Treasure Coast for 3 days.</p> |

**AGENDA ITEM 6 – INFORMATION
ITEMS**

a. Fiscal 2021 Management Goals

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

Fiscal 2021 Management Goals

| Goal | Status | Actual | YTD Actual | YTD Target | FY'21 Target | Comment |
|--|---------------------|--------|------------|------------|--------------|---------|
| 1.Safety | Lost-time Accidents | | | | 0 | |
| | OSHA Recordables | | | | 0 | |
| 2.Compliance | Environmental | | | | 0 | |
| | Financial | | | | 0 | |
| | Regulatory | | | | 0 | |
| 3.Low Cost | Under \$70/MWh | | | | < \$70.00 | |
| | Fuel | | | | \$24.09 | |
| | Non-Fuel | | | | \$47.80 | |
| 4.Stanton I and Stanton II
Decision from OUC to reduce power costs and emissions | | | | | | |

| Goal | Status | Actual | YTD Actual | YTD Target | FY'21 Target | Comment |
|-------------------|--|--------|------------|------------|--------------|---------|
| 5.Cyber Security | Breaches | | | | 0 | |
| | Phishing tests | | | | 5% or < | |
| | Member assessments | | | | 5 | |
| 6.Reliability | CC EAF | | | | 90% | |
| | Stock Island black start and trans. backup | | | | 100% | |
| | SAIDI Reduction | | | | 10 | |
| 7.Member Services | Leadership member visits | | | | 75 | |
| | Projects managed for members | | | | 20 | |
| 8.Value of Muni | Member info updates | | | | 16 | |
| | Presentations Social media | | | | 10 | |

| Goal | | Status | Actual | YTD Actual | YTD Target | FY'21 Target | Comment |
|--------------------------|--|--------|--------|------------|------------|--------------|---------|
| 9.Load Management | Dev. opportunities for 5 MW | | | | | | |
| 10.Financing | Restructure debt | | | | | 1 | |
| | Extend debt to include R&R funding | | | | | 1 | |
| | Prepd gas min. svgs. Of \$0.20/mmBtu | | | | | 1 | |
| 11.Transmission | Neg. service upgrade for LWB & Homestead | | | | | | |
| 12.People | 360 training for Leadership & mgmt. | | | | | 11 | |
| | Mgmt. outreach to diverse prof. groups | | | | | 3 | |
| | Individual development plans | | | | | 50 | |
| | FMPA Fleet Team Sharing – 80 days | | | | | 80 | |

**AGENDA ITEM 6 – INFORMATION
ITEMS**

- b. Power Cost Trade-Offs of Carbon
Reduction Levels Beyond the 50%
Reduction Level in Florida**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**



6b – Power Cost Trade-offs of Carbon Reduction Levels Beyond the 50% Reduction Level in Florida

October 2020

Increased CO₂ Reduction Means Much More Solar in FL

Depending on CO₂ Reduction Level, Battery Costs Are the Wildcard

- FMPA/FL currently on a path to meeting 50 percent CO₂ reduction by ~2027 from 2005 levels in a very cost-effective manner
- High level analysis to understand the relative electric price impacts using currently known technologies and expected cost improvements to meet higher levels of CO₂ reduction by 2035
- Recognizes FL has limited transmission import capability (5%) due to geography, so generation likely to come from within state
- The Southeast US has very limited renewable resources with no new hydro available and limited wind resources
- For FL, more CO₂ reductions means more local solar and batteries and less low cost gas generation
- Assumes 4 hour battery back-up systems with multiple sets needs to cover 24 hour or longer period

Accelerated CO₂ Reduction Would Raise Costs

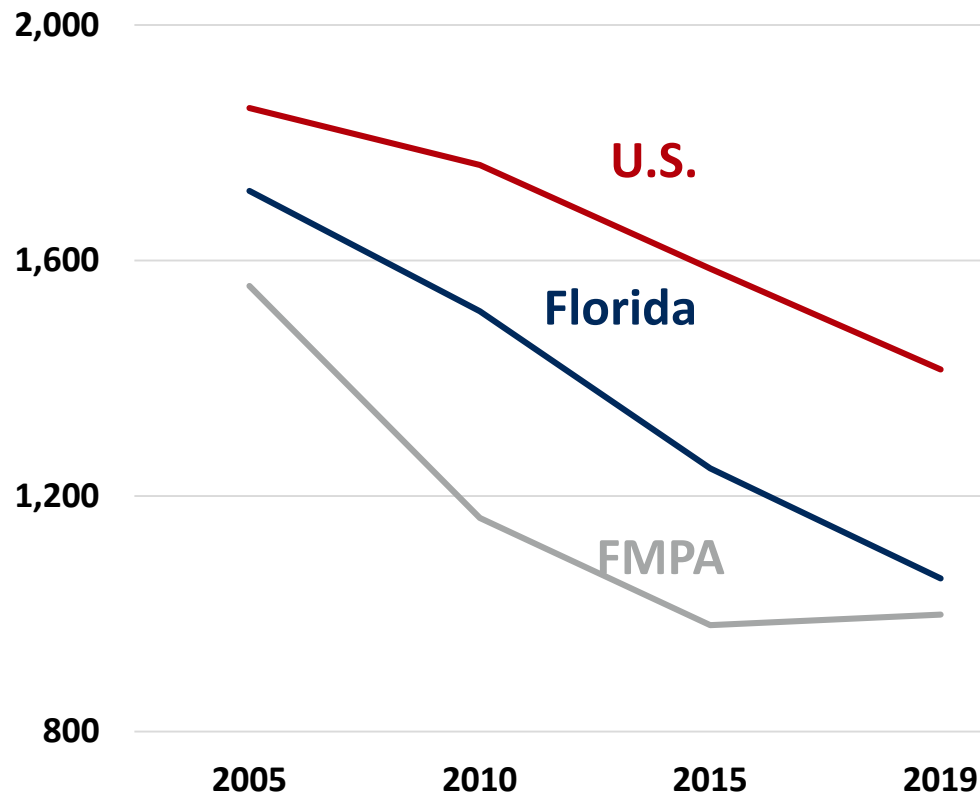
Range of Cost Increase Depends on Amount of CO₂ Reductions

- Wholesale power costs expected to increase at ~inflationary levels through 2027 while achieving 50% CO₂ reduction from 2005 levels
- Wholesale power costs could increase between ~20% - 250% above projected costs by 2035 as CO₂ reduction moves from ~70% to 100% levels
- A 70% CO₂ reduction achievable with relatively small (20%) cost increases using natural gas generation for reliability and peaking; solar capacity increased to 55 GW plus some additional batteries (5 GW)
- A ~97% CO₂ reduction has a significant cost increase (75%) with solar/battery mix plus natural gas for emergency use, increasing solar capacity to 115 GW with 86 GW of new storage
- A 100% decline in CO₂ has a dramatic cost impact (250%) with a 4-day storage reserve to cover consecutive cloudy days, increasing solar capacity to 150 GW (83X current solar) with over 650 GW of new batteries
- Investment required in transmission/substation reconfiguration for ~60-800 GW of new generation depending on the amount of new capacity added
- Real issue for policymakers is how much more cost can be placed on customers to achieve CO₂ reduction goals?

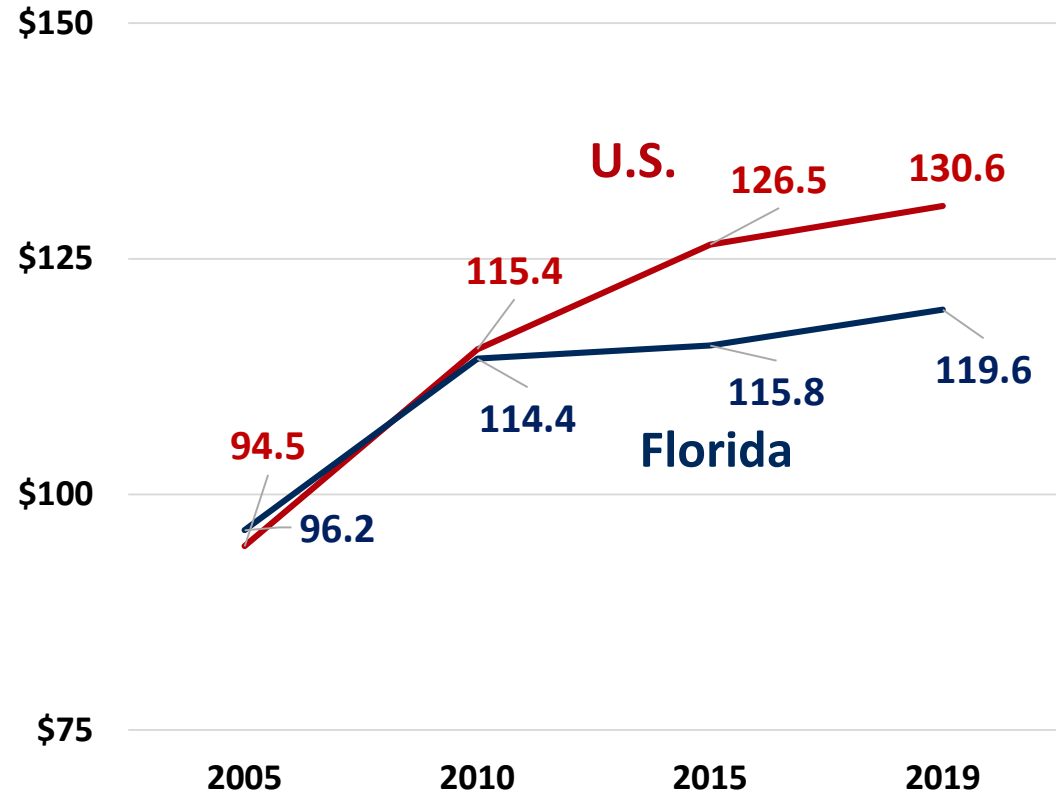
FL CO₂ Declined ~40% Over Last 15 Years, Prices Up 25%

FL CO₂ Levels Well Below US Even as US Power Prices Rise 38%

CO₂ Emissions (lbs./MWh)

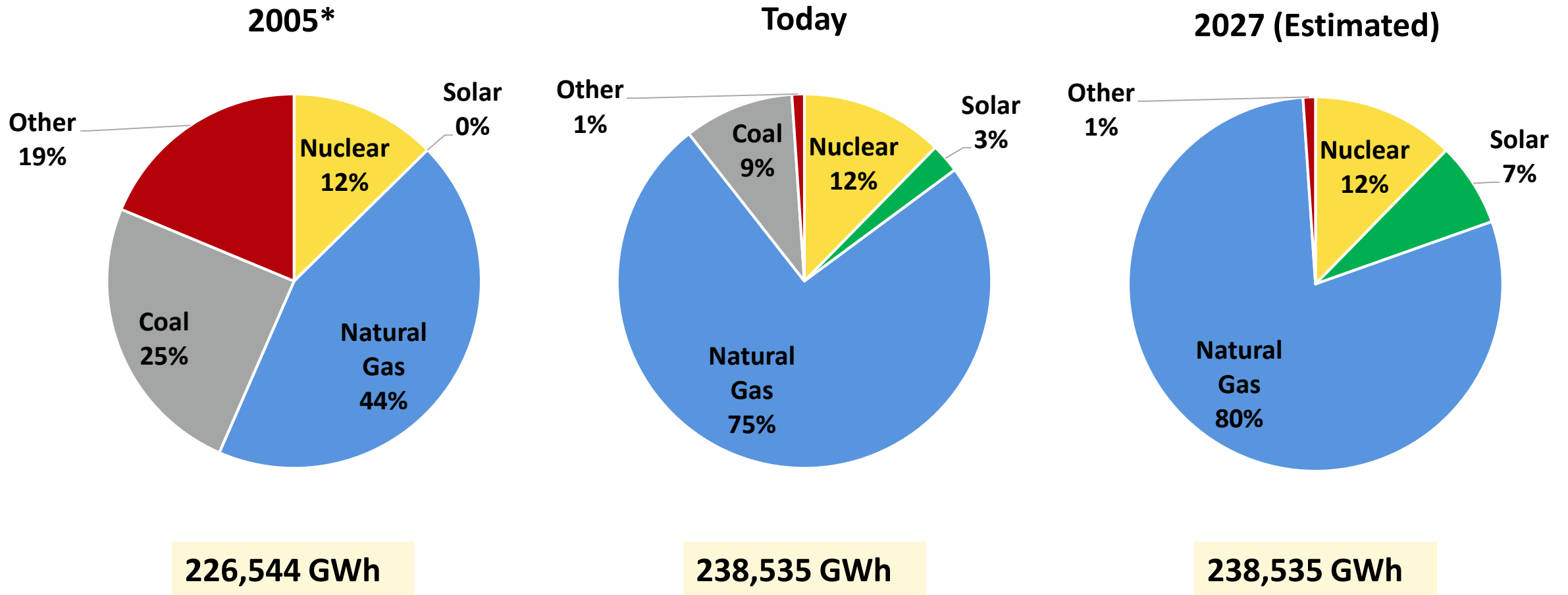


Residential Rate (\$/MWh)



FL Energy Sources Already Shifting Towards Less CO₂

Coal/Oil Replaced by Natural Gas Leads to 40% Decline from 2005

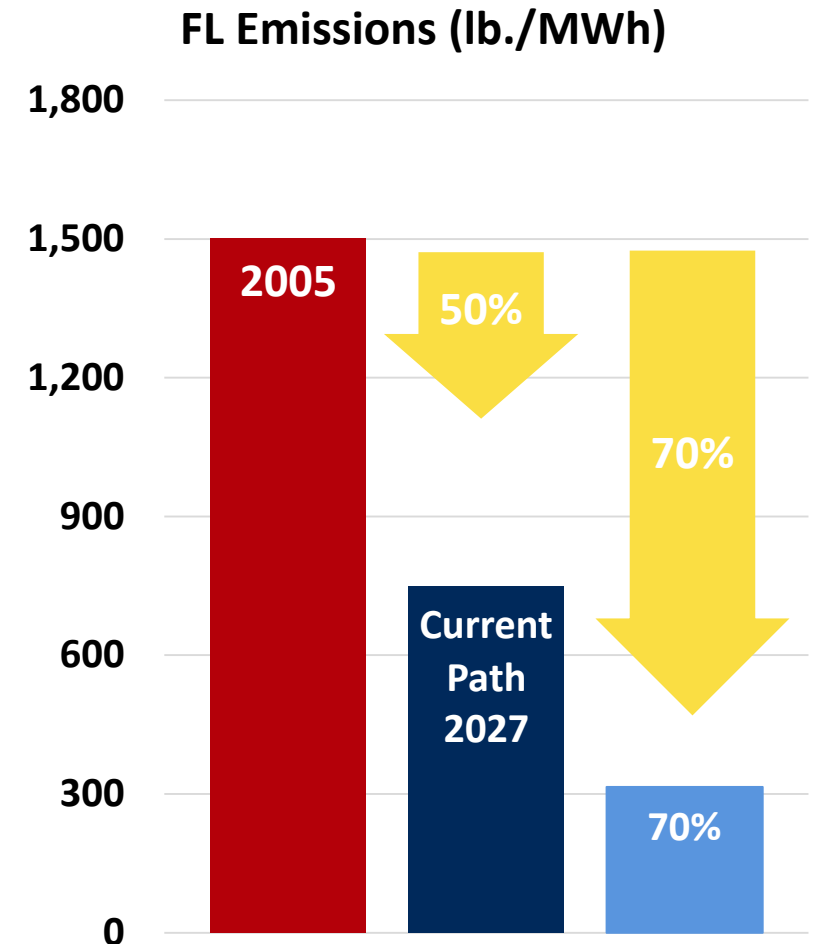


*Other includes residual and distillate fuel oil.

70% CO₂ Reduction – Balancing Solar with Natural Gas

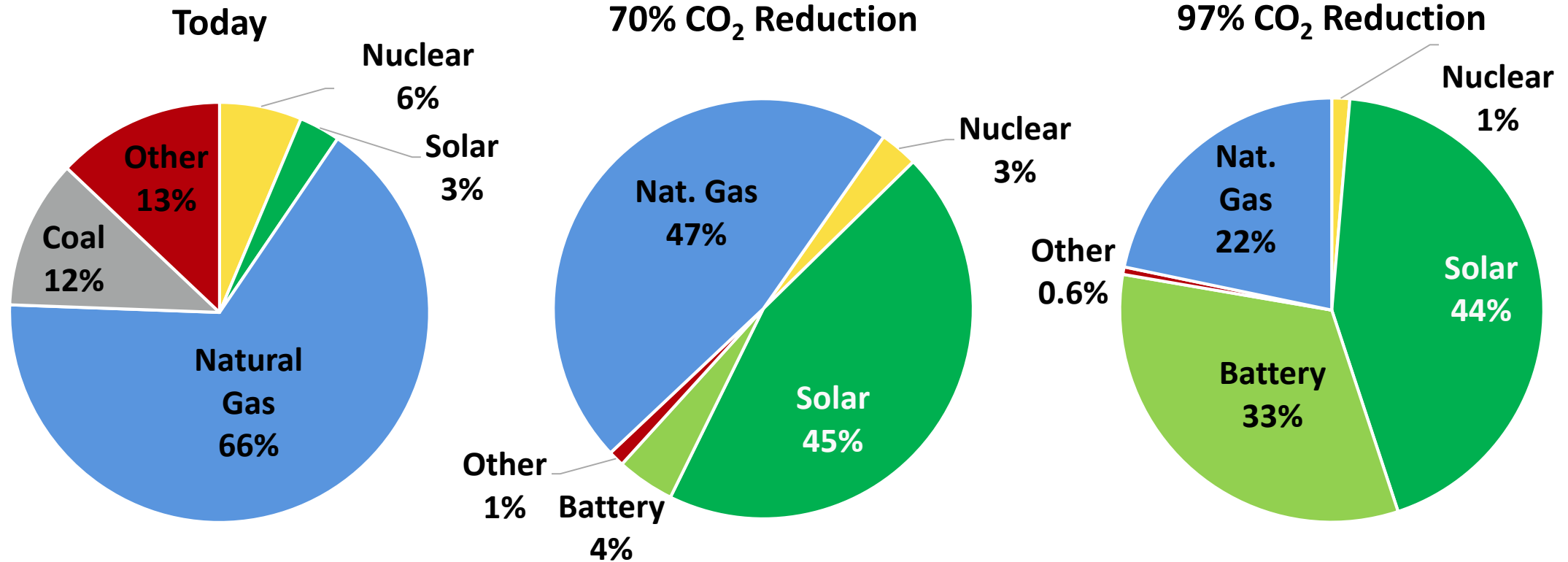
Solar for Energy and Thermal Generation for Capacity & Energy

- Adding solar curbs gas generation during high sun hours of day
- Keeping low cost, clean gas fleet has several significant benefits
 - Lower cost than adding batteries
 - Provides needed reliability and grid stabilization
- As coal and oil retires, additional gas units will be needed to meet required capacity



Significant CO₂ Reduction via Solar Capacity Adds by '35

Natural Gas Back-up Remain with Various Levels of Batteries Increases



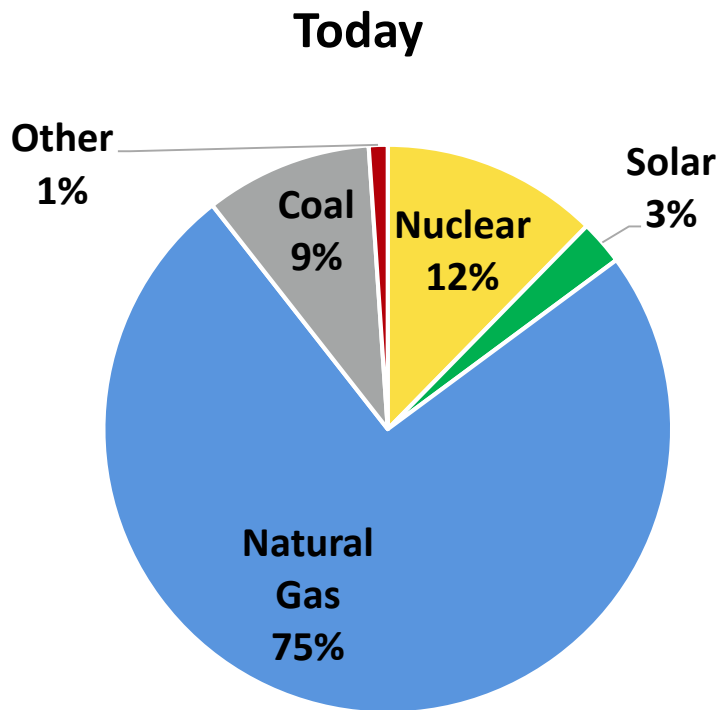
57,194 MW

123,247 MW

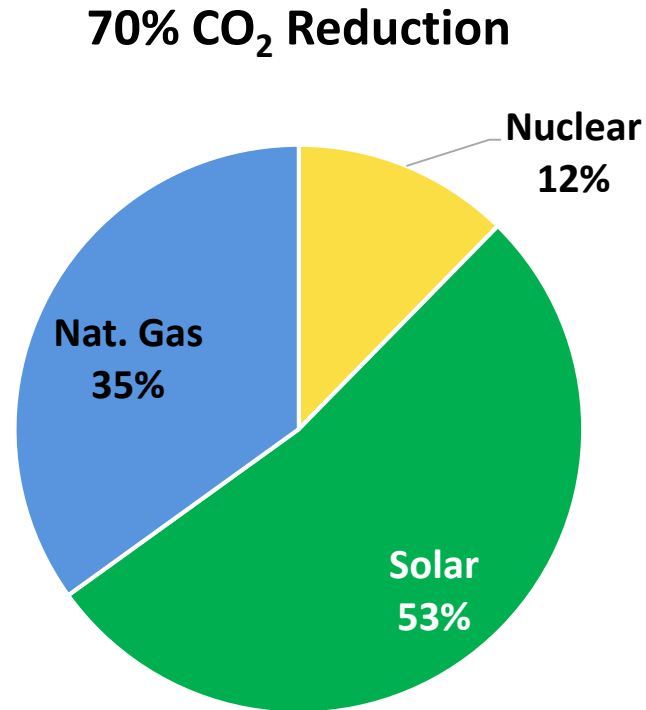
265,112 MW

Solar Predominant Source for Additional CO₂ Reduction

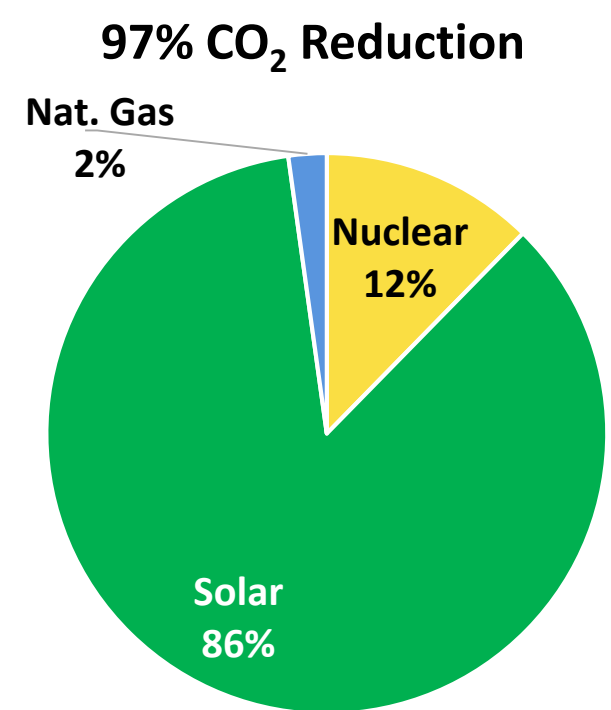
Gas Energy Share Reduced, Nuclear Energy Stable



238,535 GWh



238,535 GWh

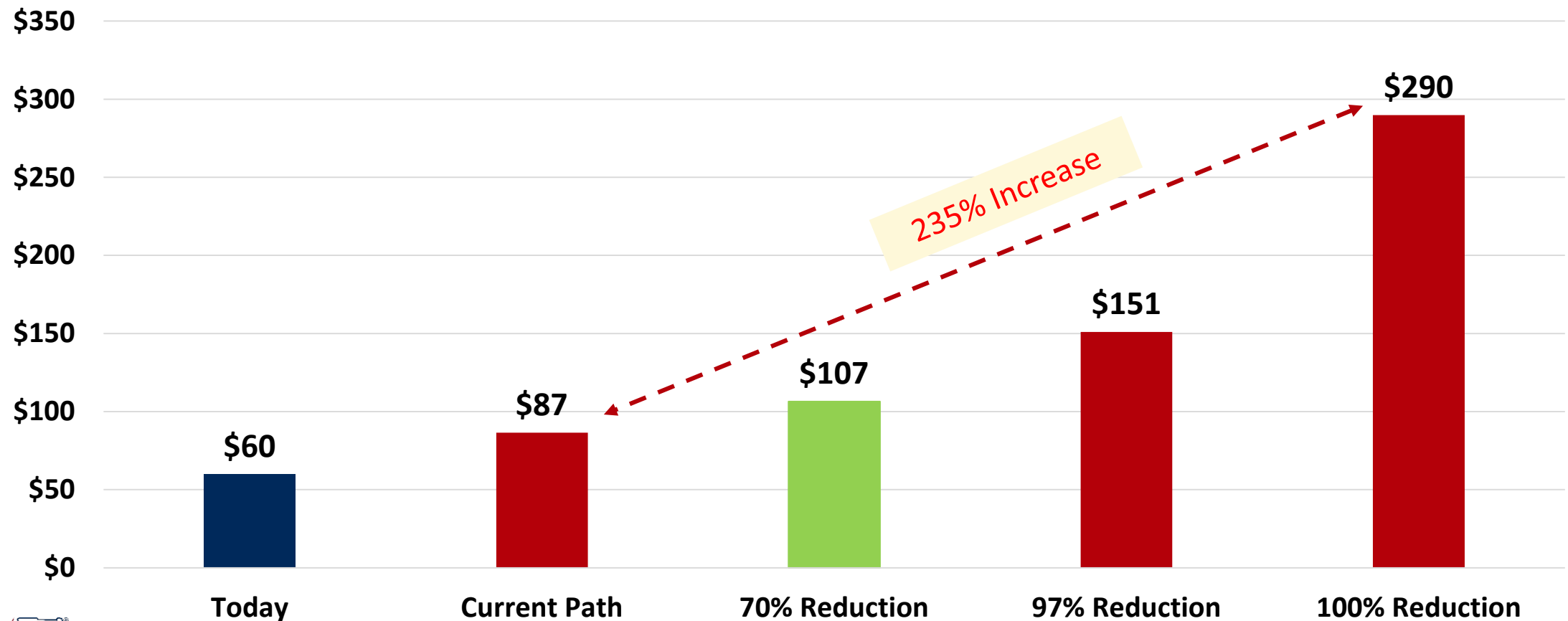


238,535 GWh

Prices Increase Materially by 2035 at High End of CO₂ Reduction

Dramatic Increase In Batteries Beyond Current Capacity Drives Costs

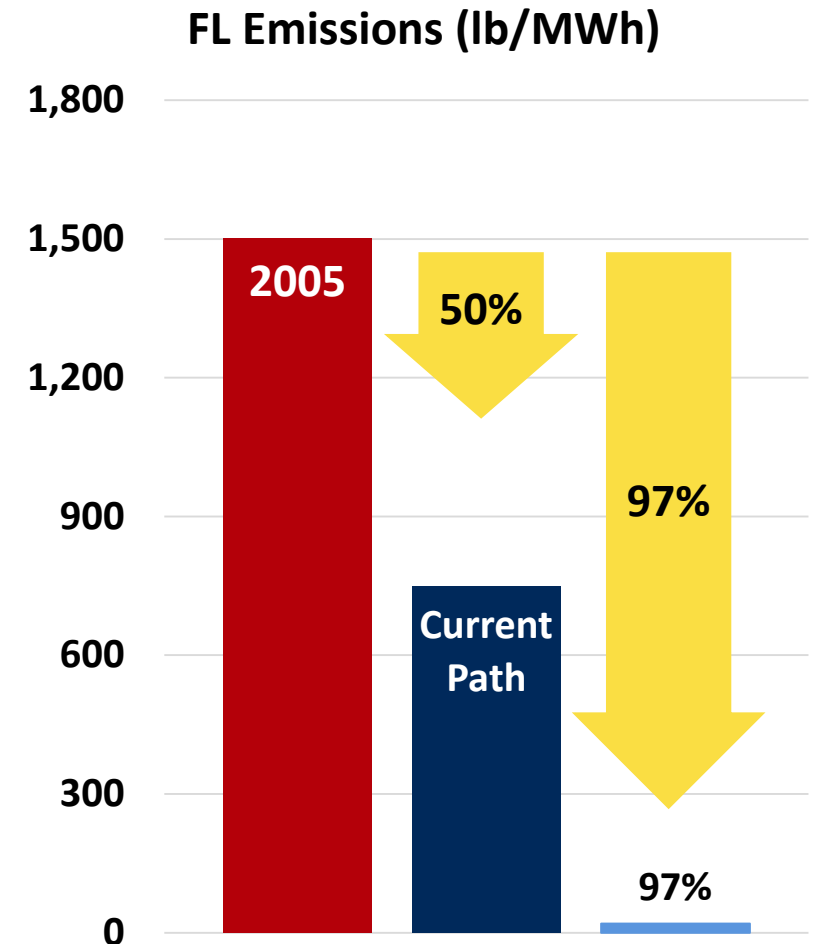
Wholesale FL Energy Prices – Excludes A&G and Retail Distribution (\$/MWh)



97% CO₂ Reduction - Solar with Batteries & Natural Gas

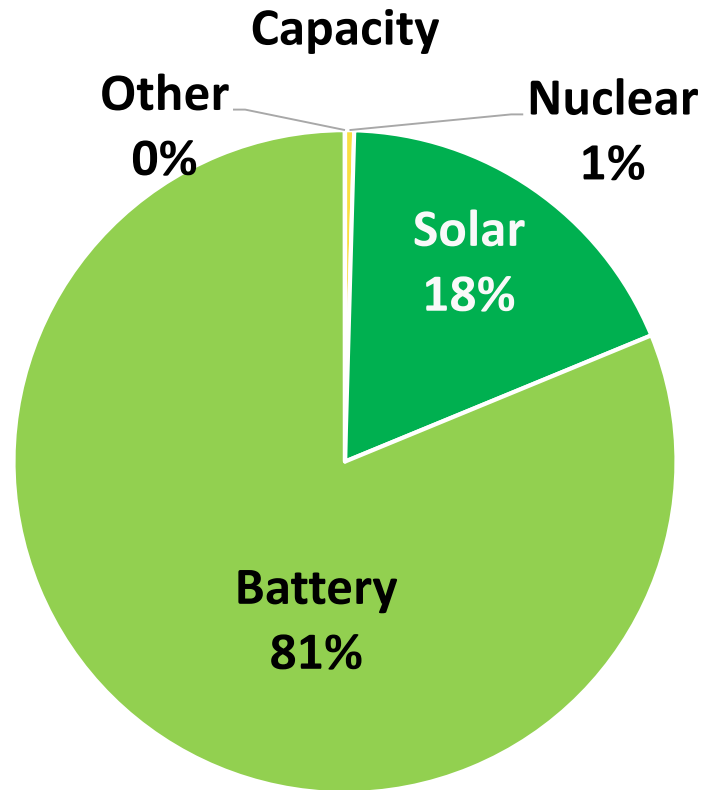
Battery Mix Further Reduces CO₂, But Still At Very High Cost

- Solar and Batteries are 4X current FL System
 - Solar energy sufficient to serve load and charge battery
 - Batteries sufficient to serve load during non daylight hours
 - Gas generation serves load and charges batteries when solar energy is insufficient to meet all load ~ 50% of days
- Gas fleet maintained for peaking/reliability
 - Prevents reliability and stability problems when intermittent resource not available
 - Keeping gas peaking units lower cost than more batteries

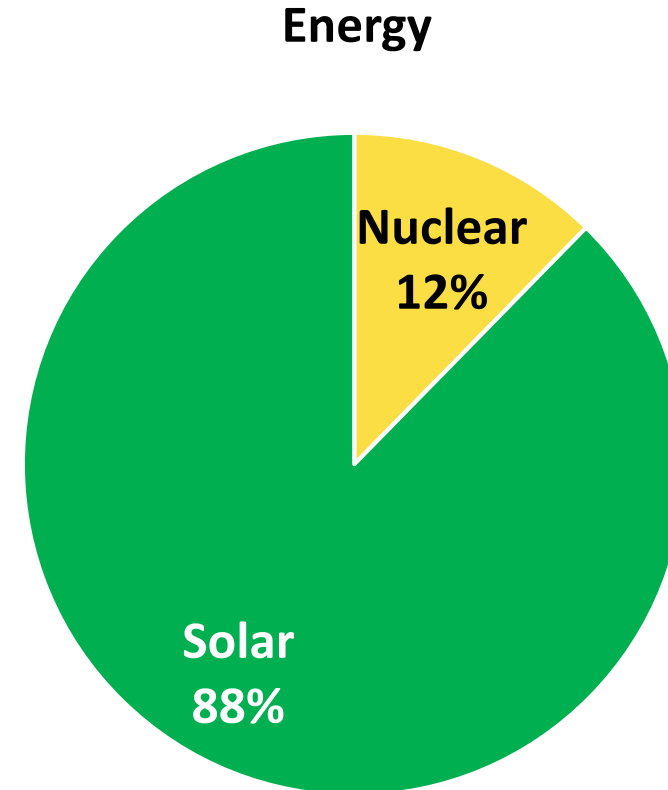


100% CO₂ Reduction Requires Extensive Overbuild

Excess Solar is Required With Batteries at 11X Current Capacity



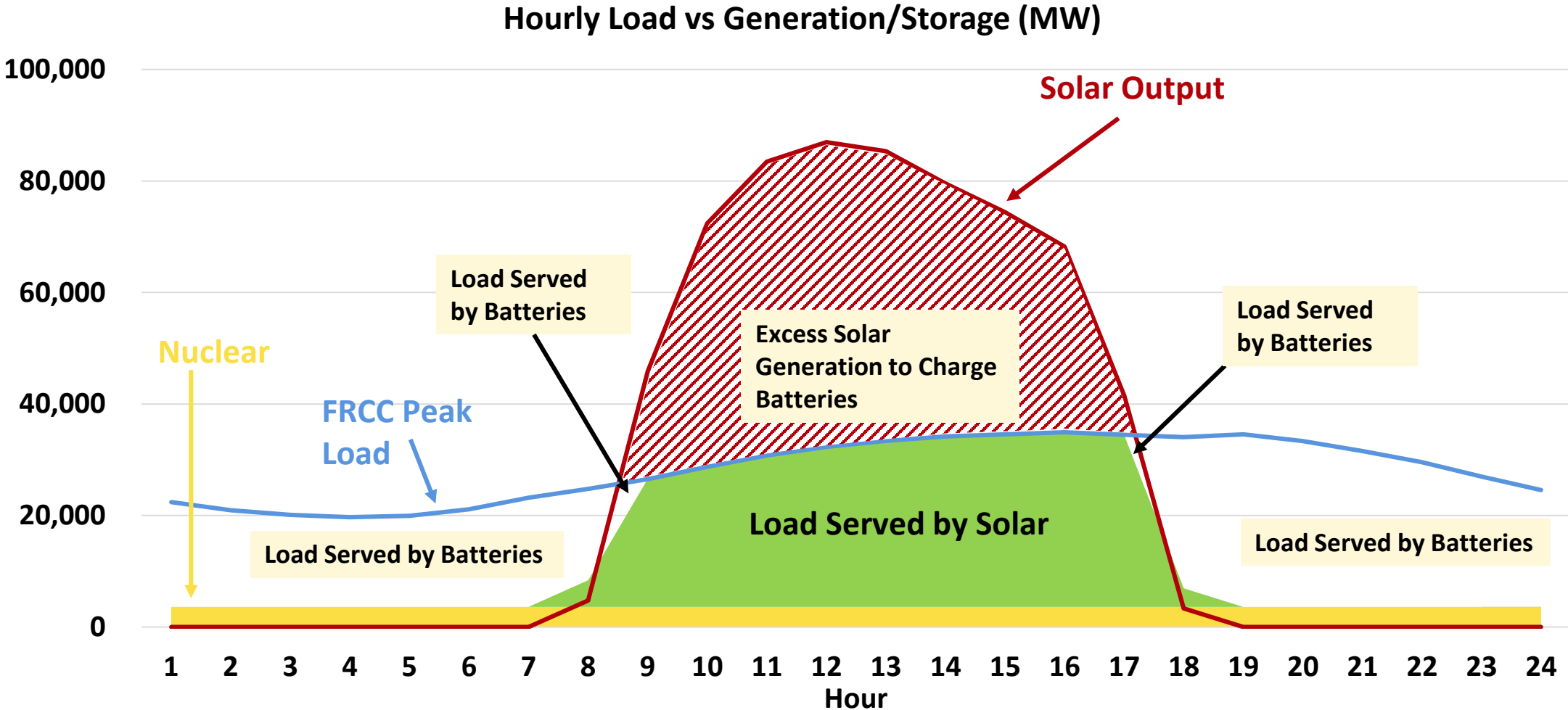
816,998 MW



238,535 GWh

Operational Challenges with Significant Solar

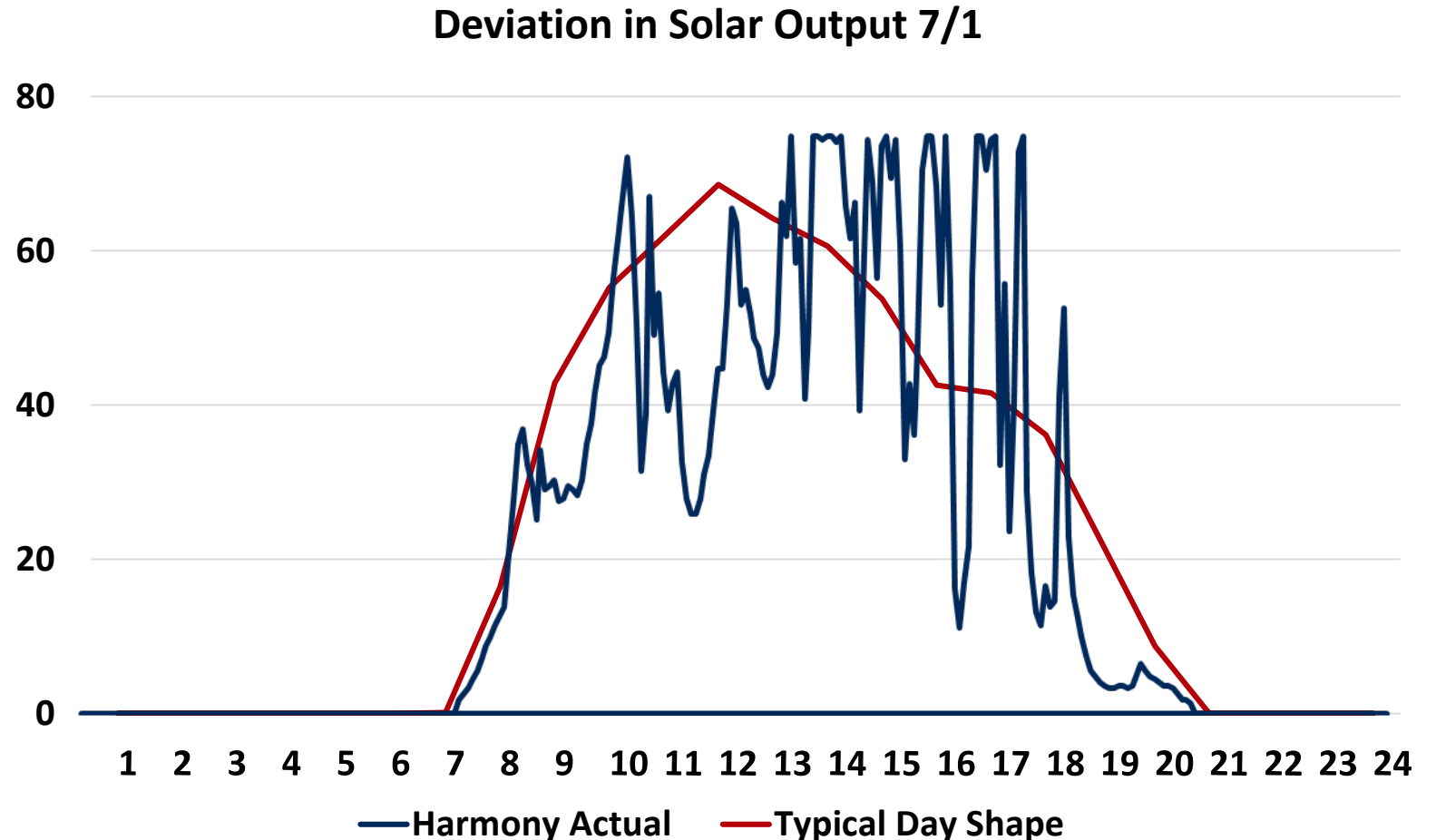
Lights Must Stay on Even as Solar Peak Different Time From Load Peak



Florida Solar Swings Significant Compared to SW

A Small Swing in Solar Output Can Drastically Affect Energy

- Florida cloud patterns much different than the SW US
 - 5 min output may differ significantly from expected
 - Solar output varies constantly requiring normalizing equipment and storage/on-line gas generation to supply load
 - Many large generating sites will likely need to be converted to synchronous condensers
- Reactive power for grid stability



Florida is Sunny ~68% of Time, Far Less Than AZ/CA

*Interior FL with Land Less Sunny - Orlando Averages 234 Sunny Days**

| | Max Sunny Days | Average Sunny Days |
|-----------------|----------------|--------------------|
| Florida | 281 | 248 |
| Orlando | 265* | 234 |
| California | 281 | 263 |
| Arizona | 310 | 299 |
| United States** | 310 | 217 |

Orlando is roughly (on average):

- 11% less sunny than Los Angeles, CA
- 7% less sunny than San Diego, CA
- 25% less sunny than Phoenix, AZ

| Location | Sunshine Ave % Possible | Clear Days | Partly Cloudy Days | Cloudy Days |
|--------------------|-------------------------|------------|--------------------|-------------|
| <u>FL Average*</u> | <u>68</u> | <u>95</u> | <u>145</u> | <u>126</u> |
| Jacksonville, FL | 64 | 94 | 127 | 144 |
| Key West, FL | 77 | 104 | 155 | 107 |
| Miami, FL | 70 | 74 | 175 | 115 |
| Pensacola, FL | 60 | 105 | 123 | 137 |
| Tampa, FL | 69 | 101 | 143 | 121 |
| Orlando, FL | 64* | 89 | 147 | 130 |
| <u>AZ Average*</u> | <u>82</u> | <u>189</u> | <u>93</u> | <u>84</u> |
| Phoenix, AZ | 85 | 211 | 85 | 70 |
| Tucson, AZ | 85 | 193 | 91 | 81 |
| <u>CA Average*</u> | <u>72</u> | <u>169</u> | <u>91</u> | <u>105</u> |
| Los Angeles, CA | 72 | 186 | 106 | 73 |
| San Diego, CA | 69 | 146 | 117 | 102 |

Source: NOAA Comparative Climate Data For the United States Through 2018

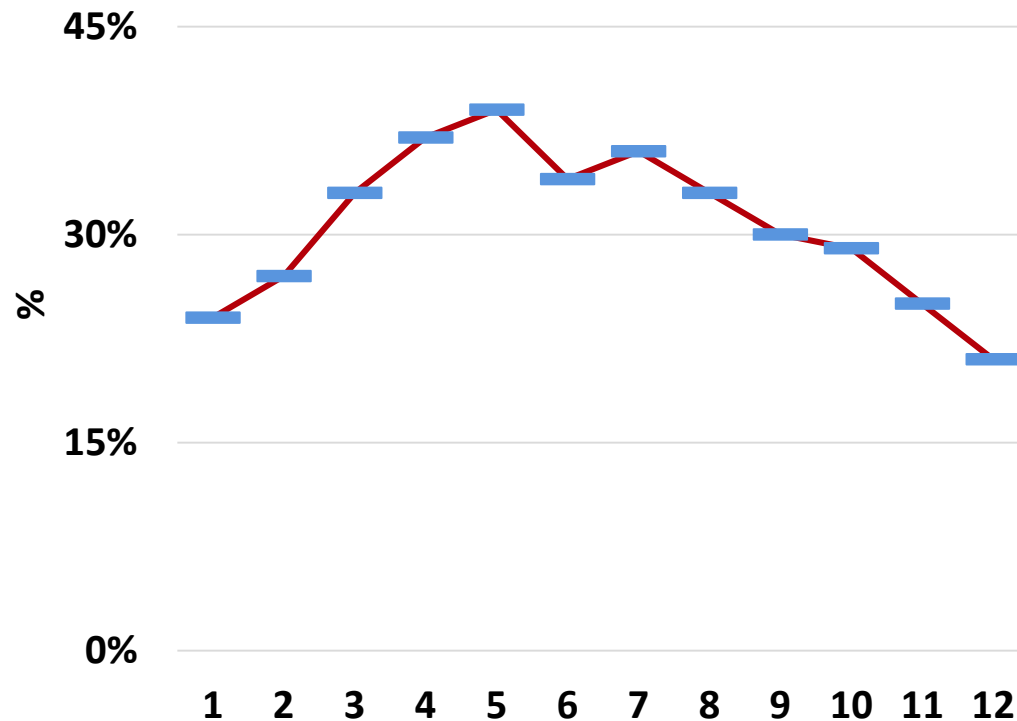
*Average of above source, <http://bestplaces.net/climate/city/florida/orlando>, and <http://currentresults.com/weather/florida/annual-days-of-sunshine.php>. Max sunny days for Orlando estimated based on FL level variance between average and max.

**Calculated from all weather stations in the source document.

Monthly Avg Solar Efficiency Variations Drive Needs

Solar Capacity Factor Drives Storage Required

Monthly Solar Capacity Factor (%)



- Solar has lower capacity in winter with fewer hours of high over-head sun
- Fall has lower capacity factor than spring due to less full sunny days in fall
- Highest capacity factor month is typically May which is not longest month, but is sunniest month
- August and September are challenging with high heat/humidity levels and short days/plenty of mid-day storms

Under Significant Reduction, Large Solar Land Needed

Tight Buildable Land May Limit Availability

- Suitable land
 - Close to existing transmission and infrastructure
 - No environmental restraints
- FL total land area = 34,647,040 acres¹
 - Farm land 8,417,200 Acres (2016) (24% of FL)²
 - Solar land estimated to be required 1,294,800 Acres (4% of FL)
 - Battery footprint 53,120 Acres
- Cost per acre for suitable solar and battery varies and would likely increase as demand surges
 - Leases range from \$250-\$2,000 / acre in more rural areas
 - Model assumes \$10,000 / acre costs financed over 20 years

| Conversion | Units | Value |
|---|-------------|-------|
| Solar Land Use (1 Axis, >20MW) ³ | Acres/MW-AC | 8.3 |
| Battery Land Use ⁴ | Acre/MWh | .02 |

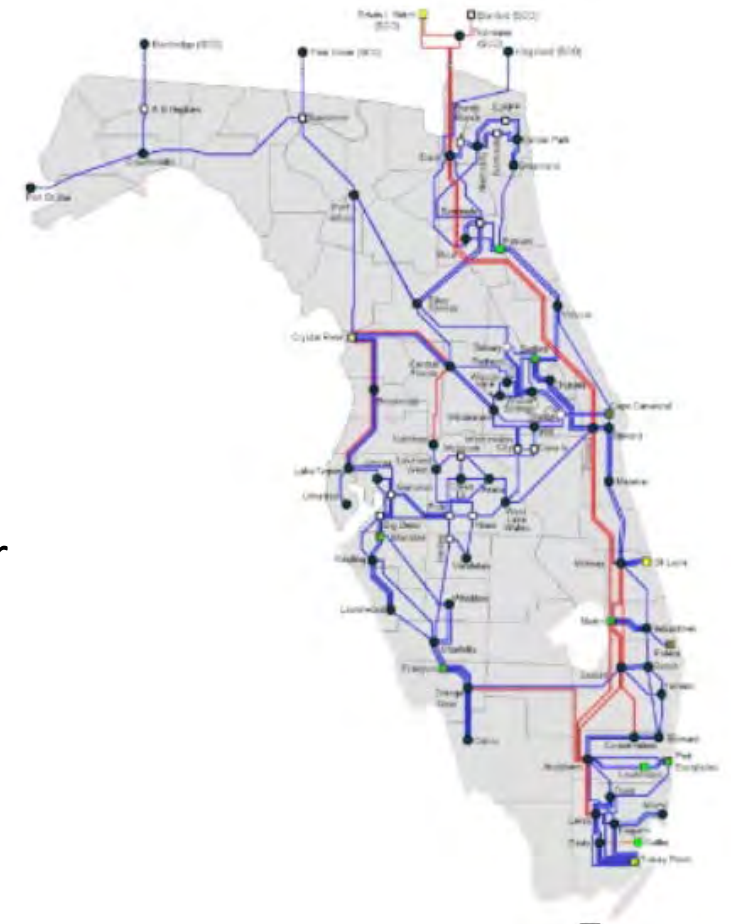
Placing all solar in one condensed area implies a lot of compounded risk from single events.

1. <https://dos.myflorida.com/florida-facts/quick-facts/>
 2. <https://farmlandinfo.org/statistics/florida-statistics/>
 3. HDR June 2019 Energy-Storage-Technology-Assessment for Platte River Power Authority (for lithium ion)
 4. NREL Land-Use Requirements for Solar Power Plants in the United States (2013)

Transmission Growth is Inevitable

Thermal Generation Keeps the Grid Stable

- The additional capacity of solar and batteries requires additional transmission lines for transport since new generation will likely be sited elsewhere (new locations)
- New substations will need to be built in great numbers to connect new solar and storage sites to the grid
- Grid stability requires many balancing elements to prevent black outs
 - Synchronous condensers support grid inertia and reactive power
 - Voltage regulators and frequency response solutions needed
- Assumption of \$100M per 1 GW new solar or battery installation for transmission upgrades



Florida's CO₂ Reductions Continuing to 50% by 2027

Additional CO₂ Reductions Have Moderate to Significant Costs

- FMPPA/FL currently on a path to meeting 50 percent CO₂ reduction by ~2027 from 2005 levels while FL costs stayed flat while US rose by ___%
- In 2027, Florida will be 80% gas generation and 20% CO₂-free (nuclear and solar)
- Increases in CO₂ reductions beyond 50% require varying levels of additional solar and batteries within FL
- Wholesale power costs could increase between ~20% - 250% above projected costs by 2035 as CO₂ reduction moves from ~70% to 100% levels
- Costs accelerate exponentially once reductions levels require significant battery installations of 2 – 10 times the current total generation capacity in FL
- Step function improvements in batteries could lead to lower power cost increases
- Investment required in transmission/substation reconfiguration for ~60-800 GW of new generation depending on the amount of new capacity added
- Real issue for policymakers is how much more cost can be placed on customers to achieve CO₂ reduction goals?

AGENDA ITEM 7 – MEMBER COMMENTS

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

AGENDA ITEM 8 – ANNOUNCEMENTS

- a. Next Meeting (if schedule approved):
Wednesday, January 20, 2021 at 1 p.m. at
FMPA, 8553 Commodity Circle, Orlando, FL**

**Policy Makers Liaisons Committee Meeting
October 14, 2020**

AGENDA ITEM 9 – ADJOURN

**Policy Makers Liaisons Committee Meeting
October 14, 2020**