



MEETING AGENDA PACKAGE

# Policy Makers Liaisons Committee

October 16, 2024  
12:30 p.m. to 2:00 p.m.

**Meeting Being Held at:**

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

**Dial-in information: 321-299-0575, Access Code 277  
994 655 028#**

**Link:** [Click here to join the meeting](#)

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## Policy Makers Liaisons Committee

- Robert Page, Green Cove Springs –Chair
- Trish Pfeiffer, Bartow
- Mike Eastburn, Bushnell
- Jimmy Pittman, Clewiston
- Vacant, Fort Meade
- Michael Broderick, Fort Pierce
- Javier Cisneros, Fort Pierce Alternate
- Vacant, Town of Havana
- George Forbes, Jacksonville Beach
- Tim Root, Key West
- Robert Barrios, Key West Alternate
- Ethel Urbina, Kissimmee
- Rae Hemphill, Kissimmee, Alternate
- Jimmy Burry, Leesburg
- Vacant, Newberry
- Jim Hilty, Ocala – Vice Chair
- Kolby Urban, St. Cloud
- Scott Roberts, Starke

Community Power + Statewide Strength

# MEMORANDUM

TO: Policy Makers Liaisons Committee  
FROM: Susan Schumann  
DATE: October 14, 2024  
RE: Policy Makers Liaisons Committee Meeting  
Wednesday, October 16, 2024 at 12:30 p.m. [NOTE TIME]  
PLACE: FMPA 8553 Commodity Circle, Orlando, FL 32819, Board Room  
DIAL-IN: +1-321-299-0575, MEETING NO. 277 994 655 028#  
LINK: [Join the meeting now](#)

Chair Bob Page, 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 Meeting Held August 1, 2024
4. Report from the General Manager and CEO (Jacob Williams)
5. Action Items
  - None
6. Information Items
  - a. Florida Municipal Solar Project Update (Susan Schumann)
  - b. Regional Emissions Reductions Balanced With Rate Impacts (Navid Nowakhtar)
  - c. Federal Legislative Update (Michael Nolan)

7. Member Comments
8. Announcements
  - a. Next Meeting – January 15, 2025 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.*

**QUORUM REQUIREMENT  
(MAJORITY OF AVERAGE NUMBER OF MEMBERS PRESENT FROM LAST  
4 PMLC MEETINGS)**

October 18, 2023 – 8 present

January 17, 2024 – 9 present

April 17, 2024 – 8 present

August 1<sup>st</sup>, 2024 - 9 present

\*\*\*\*\*

**Quorum needed: 8 Members**

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

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

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

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**AGENDA ITEM 3 – CONSENT AGENDA**

- a. Approval of Minutes for the Meeting  
Held August 1, 2024**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**MINUTES**  
**FMPA POLICY MAKERS LIAISONS COMMITTEE MEETING**  
**FLORIDA MUNICIPAL POWER AGENCY**  
**THE BREAKERS**  
**1 SOUTH COUNTY RD, PALM BEACH, FL**  
**August 1, 2024**  
**TIME: 3:15 P.M.**

**MEMBERS  
PRESENT**

Trish Pfeiffer, Bartow  
Jimmy Pittman, Clewiston  
Jim Watts, Fort Meade  
Michael Broderick, Fort Pierce  
Bob Page, Green Cove Springs  
Robert Barrios, Key West  
Ethel Urbina, Kissimmee  
Jim Hilty, Ocala  
Scott Roberts, Starke

**OTHERS  
PRESENT**

Michael Poucher, Bartow  
Tanya Tucker, Bartow  
Javier Cisneros, Fort Pierce  
Erica Avila, Homestead  
Steve Losner, Homestead  
Mona Clark, Keys Energy  
Pat Labrada, Keys Energy  
Steve Wells, Keys Energy  
Jason Terry, Kissimmee  
Doug Peebles, Ocala  
Steve Pearson, Spiegel & McDiarmid LLP  
JJ Haugland, HG  
Michael Nolan, MJN Consulting

**STAFF  
PRESENT**

Jacob Williams, General Manager & CEO  
Sharon Adams, Chief People and Member Services Officer  
Susan Schumann, Public Relations and External Affairs  
Manager  
Dan O'Hagan, Assistant General Counsel and Manager of  
Regulatory Compliance  
Mike McCleary, Manager of Member Services  
Sue Utley, Executive Assistant to CEO / Asst. Secretary to Board  
Rich Popp, Chief Financial Officer  
Lindsay Jack, Senior Administrative and Member Services  
Assistant  
Wayne Koback, IT Manager  
Chris Gouder, VP IT/OT and Systems Ops  
Emily Magg, Public Relations Specialist  
Mary Kathryn Patterson, Senior Public Relations Specialist

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

Chair Bob Page, called the meeting to order at 3:14 p.m. on Thursday, August 1, 2024, at The Breakers, 1 South County Rd, Palm Beach, FL. A roll call was taken and 9 Members were present.

## **Item 2 – Set Agenda (By Vote)**

**MOTION:** Robert Barrios, Key West, moved to set the agenda as presented. Jim Hilty, Ocala, seconded the motion. Motion carried 9-0.

## **Item 3 – Consent Agenda**

- a. Approval of the Minutes for the Meeting Held April 17, 2024

**MOTION:** Ethel Urbina, Kissimmee, moved to approve the minutes of the April 17, 2024 meeting. Robert Barrios, Key West, seconded the motion. Motion carried 9-0.

## **Item 4 – Report from the General Manager and CEO**

Jacob Williams reported on the following topics:

1. FMPA Power Costs Coming back to 2015-2021 Levels
2. FMPA Low Cost Last 12 months
3. Gas Storage All-time highs for July
4. Natural Gas Well Below FY24 Budget
5. Significant Price Certainty for FY25
6. Municipal SAIDI Losing Ground to Goal and IOU's
7. Members below 60 Minute outage goal (SAIDI)
8. EPA Published GHG Rules May 9, 2024
9. Two SCOTUS Rulings Support Affordable / Reliable Power
10. New Nuclear Moving into Energy Future Conversation

## **Item 5 – Action Items**

- a. Election of Officers

**MOTION:** Robert Barrios, Key West, moved to nominate and elect Bob Page, Green Cove Springs, as Chair and Jim Hilty, Ocala, as Vice Chair for The Policy Makers Liaisons Committee. Scott Roberts, Starke, seconded the motion.

Motion carried 9-0.

- b. Approval of 2024-2025 Meeting Schedule  
Policy Makers Liaisons Committee Meeting Minutes  
August 1, 2024  
Page 2 of 3



**MOTION:** Jimmy Pittman, Clewiston, moved to approve the Policy Makers Liaisons Committee meeting schedule for 2024-2025. Robert Barrios, Key West, seconded the motion. Motion carried 9-0.

**Item 6 – Information Items**

- a. Florida Municipal Solar Project

Susan Schumann provided an update on the Florida Municipal Solar Project.

- b. Sunshine Law

Dan O'Hagan presented information on Florida's Sunshine Laws.

**Item 7 – Member Comments**

None

**Item 8 – Announcements**

- a. Next Meeting: October 16, 2024 at FMPA, 8553 Commodity Circle, Orlando, FL.

**Item 9 - Adjourn**

There being no further business, the meeting was adjourned at 4:10 p.m.

\_\_\_\_\_  
Bob Page  
Chairman

\_\_\_\_\_  
Sue Utley  
Assistant Secretary

Date Approved \_\_\_\_\_

BP/su

**AGENDA ITEM 4 – Report from the  
General Manager and CEO**

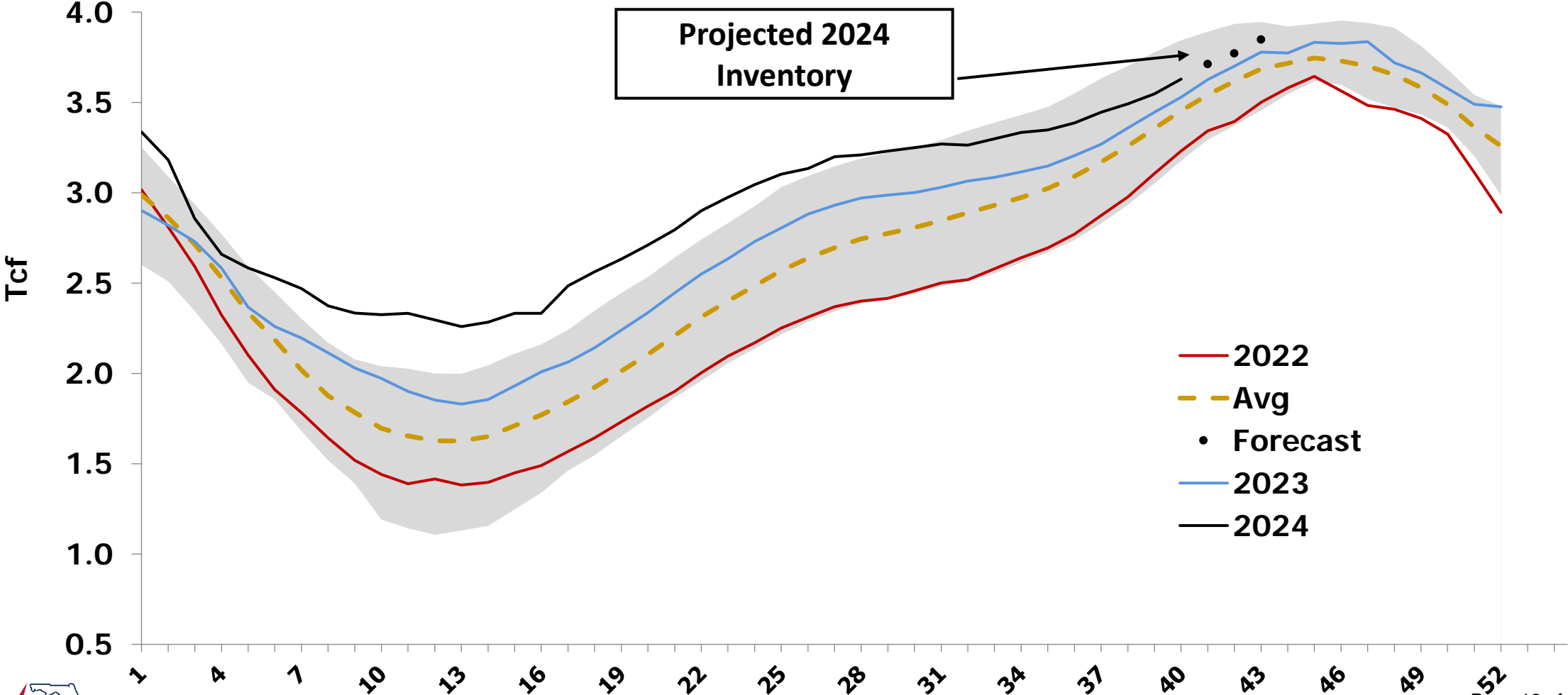
**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

# Fiscal Year 2024 Management Goals – September Data

| Goal  | Status                                   | Actual | YTD Actual | YTD Target | FY 2024 Target | Comment  |
|---|--|--------|------------|------------|----------------|--|
| <b>1. Safety</b>  | Lost-time Accidents                      | 0      | 0          | 0          | 0              |  |
|   | OSHA Recordables                         | 0      | 1          | 0          | 0              |  |
| <b>2. Compliance</b>  | Environmental                            | 0      | 0          | 0          | 0              | Complete Playbook in FY24  |
|   | Financial                                |        |            |            | 0              |  |
|   | <u>Regulatory</u><br>Compliance Playbook | 100%   | 100%       | 100%       | 100%           |  |
| <b>3. Low Cost</b><br>(\$/MWh)  | FY24 Rate Objective                      | 64.22  | 72.18      | 79.32      | 78.72          | FY24 sales 2% > budget thru September. YTD August Rate 9% < YTD Target.<br>YTD fuel 15% < YTD Target.<br>YTD Non-Fuel 6% < YTD Target. |
|   | Fuel                                     | 24.07  | 24.91      | 29.23      | 29.97          |  |
|   | Non-Fuel                                 | 40.15  | 47.27      | 50.09      | 48.75          |  |
| <b>4. Strategic LT Cost Reductions</b>  |  |        |            |            |                | Expand services and <u>Alternative being pursued</u><br>Reduced Stanton to 8% FY24<br>Scheduling & Long-term discussions continue      |
| Pool Expansion Decision or Alternative Structure<br><br>Reduce Cost Exposure to Stanton |  |        |            |            |                |  |

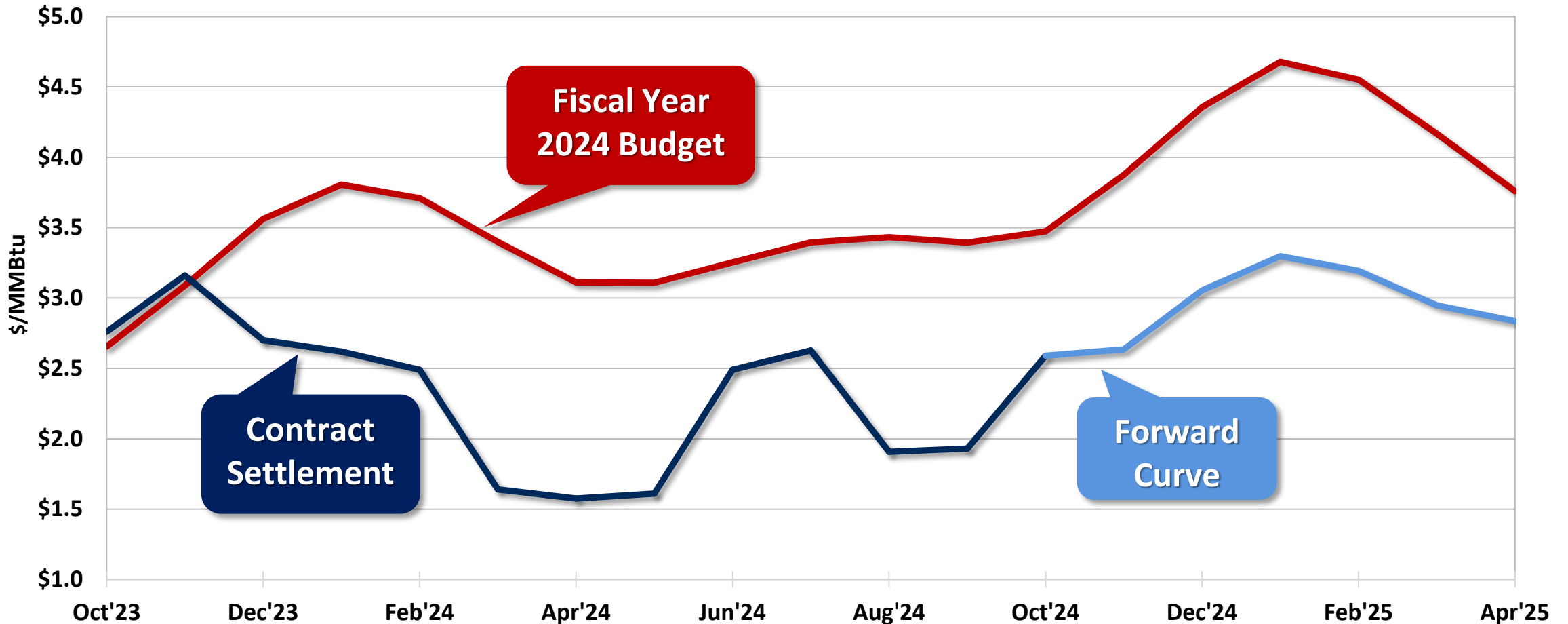
# Gas Storage 176 Bcf Over 5 Year Average

*Two Years of Mild Winters and Healthy Production Lead to Low Prices*



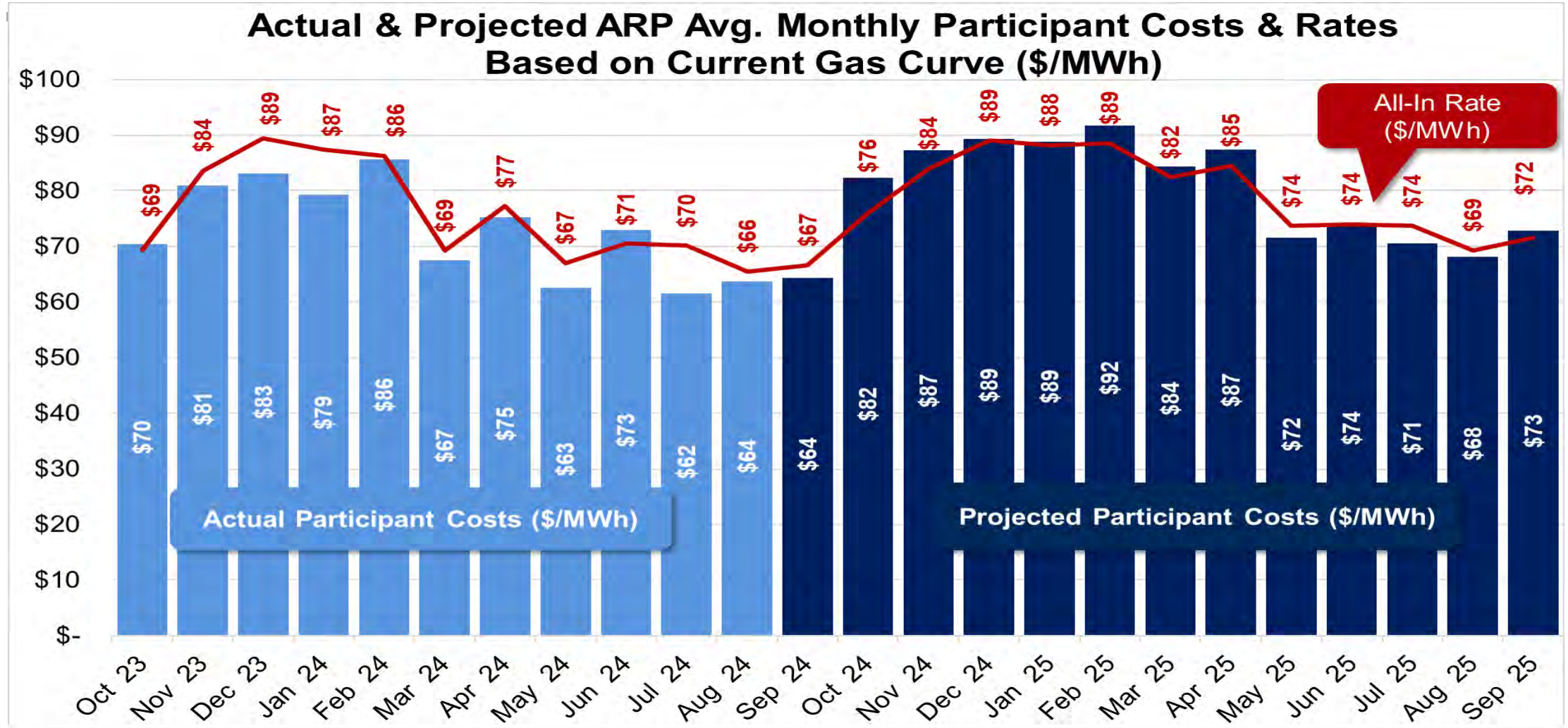
# Gas Prices Continue to Be Soft with Higher Production

## *Forward Natural Gas Curve as of October 11th*



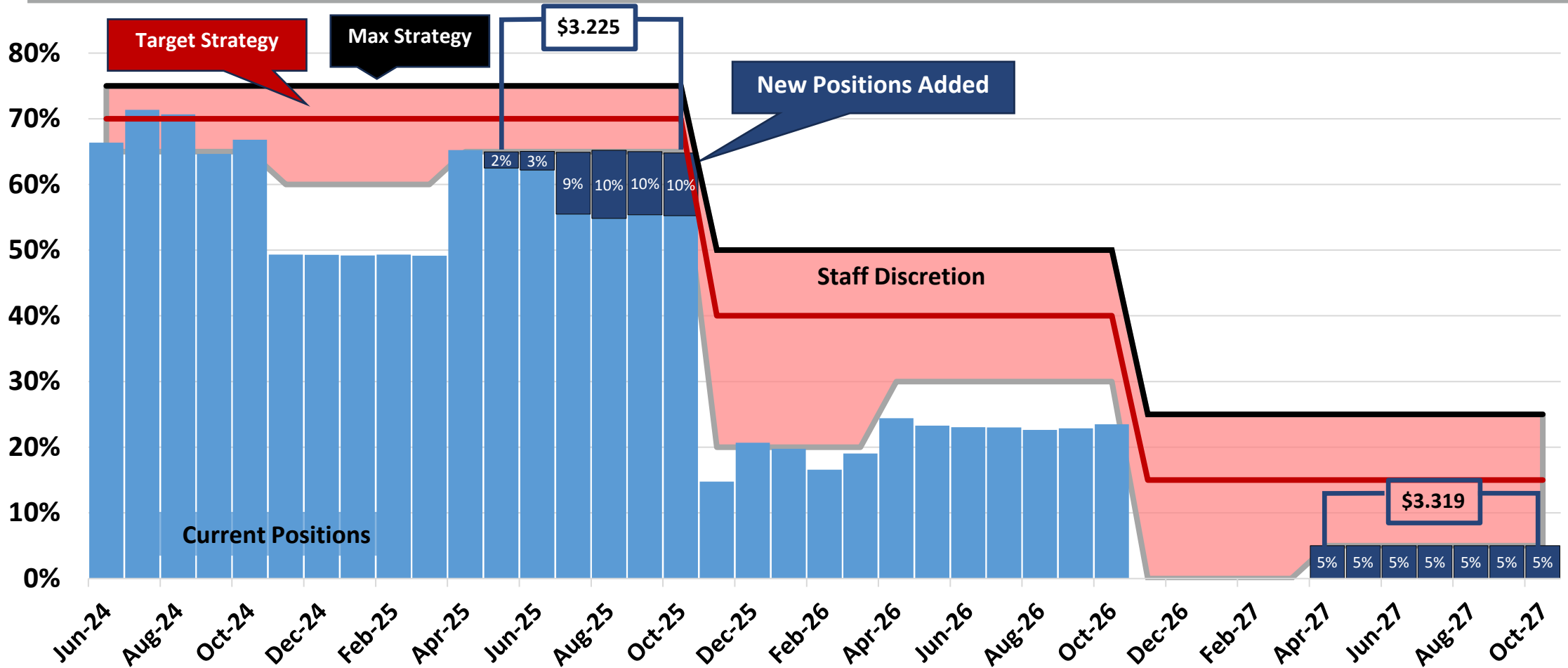
# FY 2024 Costs Preliminarily Finish ~ \$71/MWh

*FY 2025 Currently Projected ~ \$79.50/MWh (~\$2/MWh < Budget)*



# Current Rate Stability Program

*Current Market Down Trends Hit Program Summer Buy Targets*



| Goal                  | Status                                      | Actual      | YTD Actual  | YTD Target    | FY 2024 Target | Comment   |
|-----------------------|---|-------------|-------------|---------------|----------------|---|
| 5. Cyber-security     | Breaches                                    | 0           | 0           | 0             | 0              |   |
|                       | Phishing tests<br>% Acknowledge Phishing    | 3.3%<br>50% | 3.3%<br>62% | <7.5%<br>>60% | <7.5%<br>>60%  | 3 clicks in September.<br>45 people reported the phish test.  |
| 6. Reliability        | CC EAF                                      | 92.6%       | 91%         | 90%           | 90%            | Cane Island Unit 4 tripped on 9/4/2024 monitoring cable fell on the generator terminal. Restored in roughly 5 days. |
|                       | SI black start and trans. backup            | 0           | 98%         | 100%          | 100%           | 0 Starts for tie-line support in Sept. YTD 45 attempts, 44 successful   |
|                       | SI EAF                                      | 90%         | 89%         | 92%           | 92%            | SI MSD 1 was in forced outage due Opacity Issues. SI MSD 2 was in forced outage due to CEM's and Opacity issue.     |
| 7. Member Reliability | Reliability Major                           | 1           | 13          | 12            | 12             | Clewiston MinMax<br>Power Quality Classes at KEYS and Homestead   |
|                       | Reliability Minor                           | 2           | 24          | 18            | 18             |   |
|                       | Aiding Reporting & Doc.                     |             | 4           | 6             | 6              | Starke – Cap Bank analysis  |
| 8. Member Services    | Leadership member visits                    | 5           | 76          | 75            | 75             |   |
|                       | Community/Stakeholder Presentations/Support | 2<br>6      | 13<br>23    | 20            | 20             | Public Service Commission (9/5)<br>MPUA (Sept. 26)<br>23 Energy Policy Post with High Impressions                   |

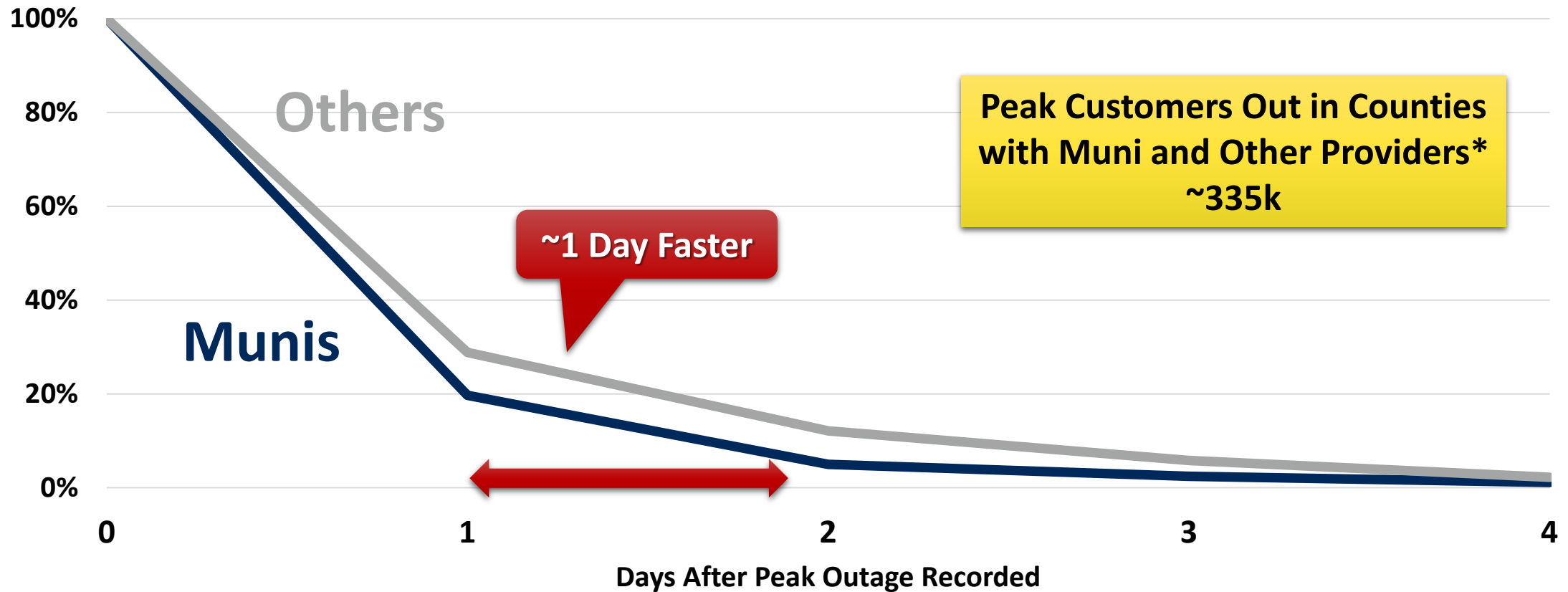


| Goal                               | Status   | Actual              | YTD Actual   | YTD Target  | FY 2024 Target     | Comment   |
|------------------------------------|--|---------------------|--------------|-------------|--------------------|---|
| <b>9. Day 1 Plant Integrations</b> | Operating Vendor Integration Team Members Payroll                        |                     |              |             |                    | Successful integration of both sites with prolonged operation since acquisition.  |
| <b>10. Financing</b>               | Pre-pay Gas/Solar  | 0                   | 1            | 1           | 2                  | Completed summer gas pre-pay After Origis delay, working on combination solar/gas prepay with 7.5% min savings or \$15M NPV |
|                                    | Debt vs R&R Guidelines   | 100%                | 100%         | 100%        | 100%               | Complete  |
| <b>11. People</b>                  | Day 1 Offers to Everyone<br>Minimum Acceptance<br>Agency-wide Engagement | 100%<br>100%<br>85% | 100%<br>100% | 100%<br>80% | 100%<br>80%<br>82% | 10 of 10 Sand Lake offers accepted<br>Mul. 17 offers made - 17 accepted<br>Survey results 85% engagement                    |
| <b>12. Nuclear</b>                 | Explore expansion at existing FL sites                                   |                     |              |             |                    | Energy Legislation included new nuclear study for FY25<br>FCG formed nuclear subcommittee<br>Good discussion with FPSC 9/5  |

# Helene Restoration Municipal Performance Strong

## *Continuing Performance of Sooner Return Versus Others\**

For Customers Who Lost Power, Percentage Out by Day

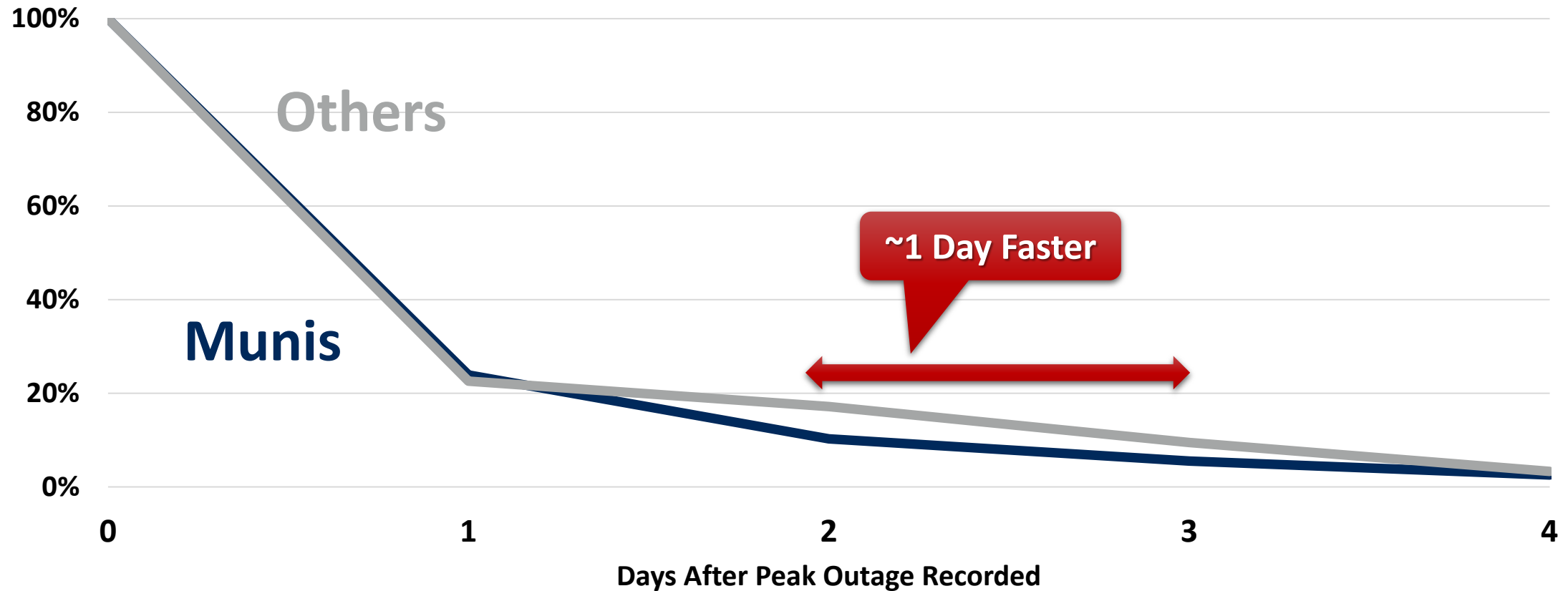


\*Reflects only counties where municipals and others provide service (Alachua, Clay, Leon, Levy, Marion, and St. Johns counties) with significant outage impacts. Duval not included as no "other provider".

# Alachua County Helene Restoration Strong

## *Continuing Performance of Sooner Return Versus Others*

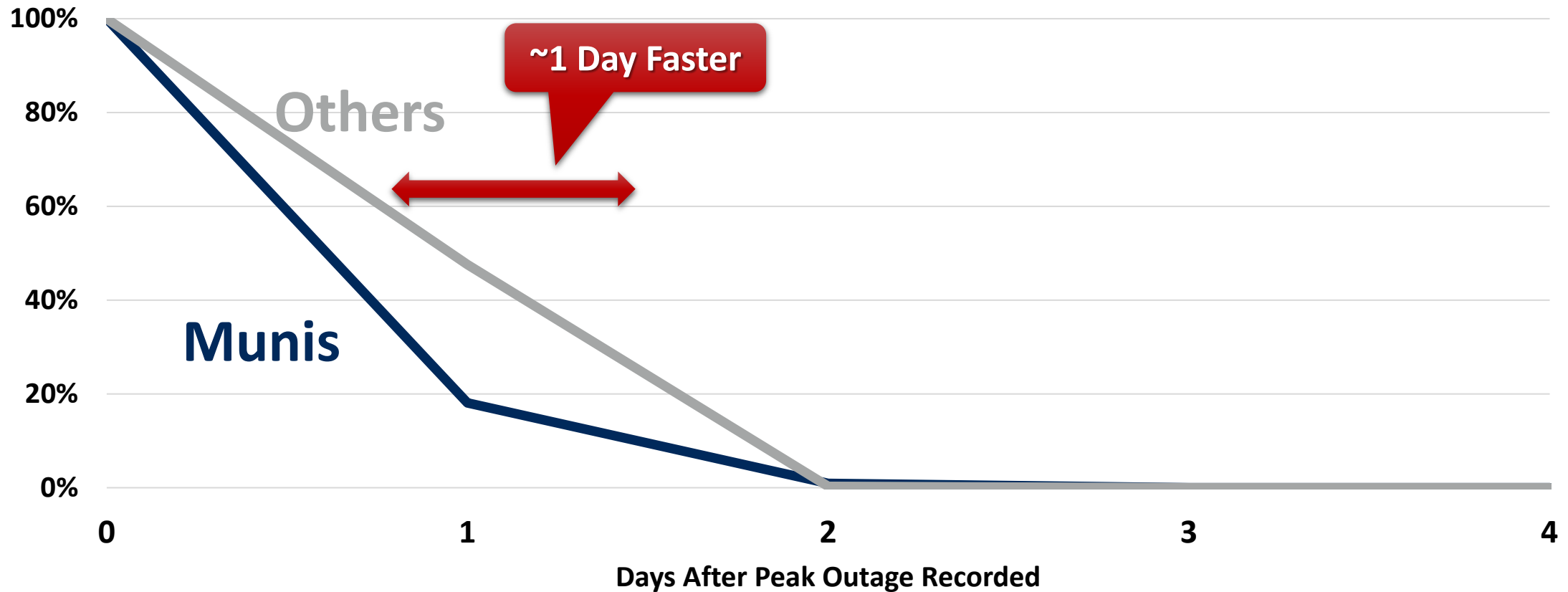
For Customers Who Lost Power, Percentage Out by Day



# Leon County Helene Restoration Strong

## *Continuing Performance of Sooner Return Versus Others*

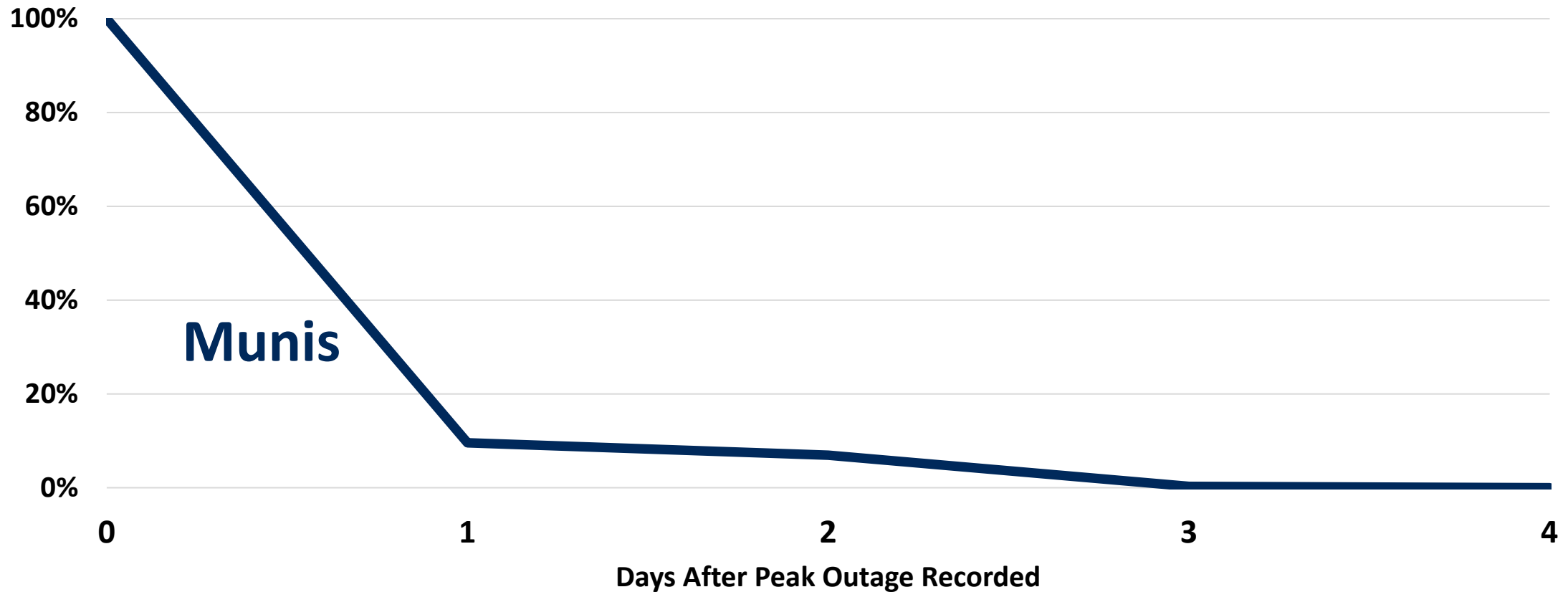
For Customers Who Lost Power, Percentage Out by Day



# Duval County Back from Helene in ~3 Days

*~90% Restored Within 1 Day of Storm Passing*

For Customers Who Lost Power, Percentage Out by Day



# Fiscal Year 2025 Management Goals

| Goal  | Status                                | Actual | YTD Actual | YTD Target | FY 2025 Target | Comment  |
|---|---------------------------------------|--------|------------|------------|----------------|--|
| <b>1. Safety</b>                            | Lost-time Accidents                   |        |            |            | 0              |  |
|   | OSHA Recordables                      |        |            |            | 0              |  |
| <b>2. Compliance</b>                        | Environmental                         |        |            |            | 0              | No audit findings  |
|   | Financial                             |        |            |            | 0              |  |
|   | <u>Regulatory</u><br>Successful Audit |        |            |            | 0              |  |
| <b>3. Low Cost</b><br>(\$/MWh)              | FY25 Rate Objective                   |        |            |            | \$78.00        | Target \$3.36/MWh < Budget Rate of \$81.36   |
|   | Fuel                                  |        |            |            | \$27.34        |  |
|   | Non-Fuel                              |        |            |            | \$50.66        |  |
| <b>4. Stanton Cost Reduction Resolution</b> |                                       |        |            |            |                | Ensure Stanton 1 Operating Costs End 1/26<br><br>SEC2 Meaningful Cost Reduction /Elimination Plan 6/25 |

| Goal                  | Status   | Actual | YTD Actual | YTD Target | FY 2025 Target | Comment |
|-----------------------|--|--------|------------|------------|----------------|---------|
| 5. Cyber-security     | Breaches   | 0      | 0          | 0          | 0              |         |
|                       | % Acknowledge Phishing   |        |            |            | <6%<br>>60%    |         |
| 6. Reliability        | Base Generation EAF  |        |            |            | 90%            |         |
|                       | Intermediate Gen EAF   |        |            |            | 89%            |         |
|                       | Peaking Generation EAF   |        |            |            | 92%            |         |
|                       | Successful SI Starts   |        |            |            | 100%           |         |
| 7. Member Reliability | Reliability Major  |        |            |            | 12             |         |
|                       | Reliability Minor  |        |            |            | 18             |         |
|                       | RP3  |        |            |            | 6              |         |
| 8. Member Services    | Leadership member visits   |        |            |            | 75             |         |
|                       | Member training attendance   |        |            |            | 275            |         |
|                       | Stakeholder Presentations & Major Policy Advocacy (Bal. Energy/Nuke) Posts |        |            |            |                |         |

| Goal   |   | Status | Actual | YTD Actual | YTD Target | FY 2025 Target | Comment   |
|--|---|--------|--------|------------|------------|----------------|---|
| <b>9. Long-Term Plant Reliability</b>                | Complete 90% of Tier 1 plant capital projects     |        |        |            |            | 90%            |   |
|  | Complete Keys long-term resource reliability plan |        |        |            |            | Complete       |   |
| <b>10. Financing &amp; Long-Term Rate Reductions</b> | Pre-pay Gas/Solar                                 |        |        |            |            | 1              |   |
|  | External Sales – Margins                          |        |        |            |            | \$12M          |   |
|  | Complete Bond Financings                          |        |        |            |            | 3              |   |
| <b>11. People</b>                                    | Plant Succession/Training                         |        |        |            |            |                | Complete Succession by 1/25 - Training throughout year    |
|  | Agency Succession Plan Refresh                    |        |        |            |            |                | Complete by 3/25  |
|  | Agency & Plant Engagement                         |        |        |            |            | 80%            |   |
| <b>12. Balancing Authority Direction</b>             |   |        |        |            |            |                | Recommendation for Best Option for FMPA ARP to EC by 3/25 |



**NONE**

**AGENDA ITEM 5 – ACTION ITEMS**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**AGENDA ITEM 6 – INFORMATION  
ITEMS**

**a. Florida Municipal Solar Project Update**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**



## **6a – Florida Municipal Solar Project Update**

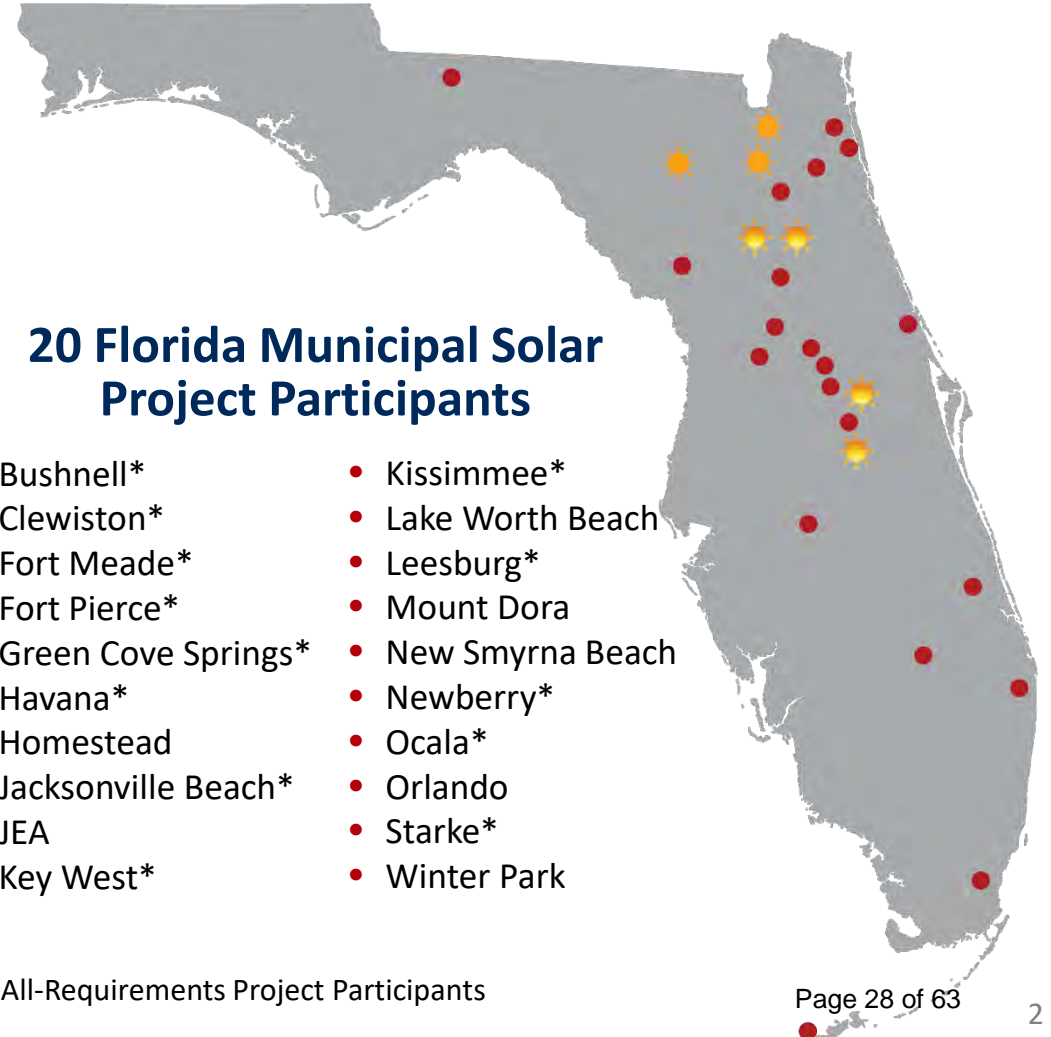
Policy Makers Liaisons Committee

October 16, 2024

# FMPA to Provide 20 Cities Low-Cost Solar

*Three Phases, seven facilities, ~525MW total*

- Florida Municipal Solar Project **Phase I**
  - Six members currently receiving solar
  - Two sites online totaling 149 MW
- Two **Phase II** sites delayed to 2024-2025
  - Rice Creek online November 2024
  - Whistling Duck online December 2025
- Three additional **Phase III** solar sites by 2027
- No current plans to expand beyond Phase III



\*All-Requirements Project Participants

# Participant Allocations by Facility – All Phases

*ARP total ~160 MW, including individual member allocations*

| Participant<br>*ARP Member | Taylor Creek<br>(OUC) | Harmony<br>(OUC) | Rice Creek<br>(FPL) | Whistling Duck<br>(DEF) | Leyland<br>(DEF) | Hampton<br>(FPL) | New River<br>(FPL) | Total            |
|----------------------------|-----------------------|------------------|---------------------|-------------------------|------------------|------------------|--------------------|------------------|
| ARP*                       |                       |                  |                     |                         | 31.175*          |                  |                    | 31.175* (159.33) |
| JEA                        |                       |                  |                     |                         |                  | 74.9             | 74.9               | 149.8            |
| FPUA*                      |                       | 2.1              | 7.5                 |                         |                  |                  |                    | 9.6*             |
| Havana*                    |                       |                  | 0.125               |                         |                  |                  |                    | 0.125*           |
| Homestead                  |                       |                  | 2.5                 | 9                       | 3.5              |                  |                    | 15               |
| Jacksonville Beach*        |                       | 7                | 7.5                 |                         |                  |                  |                    | 14.5*            |
| Key West*                  |                       | 3.5              | 12.5                | 27                      | 9.5              |                  |                    | 52.5*            |
| Kissimmee*                 |                       | 20.9             | 10                  |                         |                  |                  |                    | 30.9*            |
| Lake Worth Beach           |                       |                  | 13.25               | 20.900                  | 20.725           |                  |                    | 54.9             |
| Mount Dora                 |                       |                  | 1                   |                         |                  |                  |                    | 1                |
| New Smyrna Beach           |                       |                  | 5                   |                         |                  |                  |                    | 5                |
| Newberry*                  |                       |                  | 0.5                 |                         |                  |                  |                    | 0.5*             |
| Ocala*                     |                       | 7                | 10                  |                         | 3                |                  |                    | 20*              |
| OUC                        | 74.5                  | 34               |                     |                         |                  |                  |                    | 108.5            |
| Winter Park                |                       |                  | 5                   | 18                      | 7                |                  |                    | 30               |
| Total                      | 74.5                  | 74.5             | 74.9                | 74.9                    | 74.9             | 74.9             | 74.9               | 523.5            |

# Rice Creek Preparing for Commercial Operation

## *Delays reported, due to Force Majeure claims by Origis*



- Facility began producing test energy late August
- Force Majeure events:
  - Fire at one inverter temporarily halted testing
  - Hurricane Helene impacts
  - Hurricane Milton – pending site assessment
- COD revised to December 4
- Ribbon-Cutting Ceremony canceled

**AGENDA ITEM 6 – INFORMATION  
ITEMS**

- b. Regional Emissions Reductions  
Balanced with Rate Impacts**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**



## **6b - Regional Emissions Reductions Balanced With Rate Impacts**

Policy Makers Liaisons Committee

October 16, 2024



# Balance Affordability, Reliability & Lower Emissions

## *Affordably Reduce CO2 Emissions by 65% from 2005 Levels by 2040*

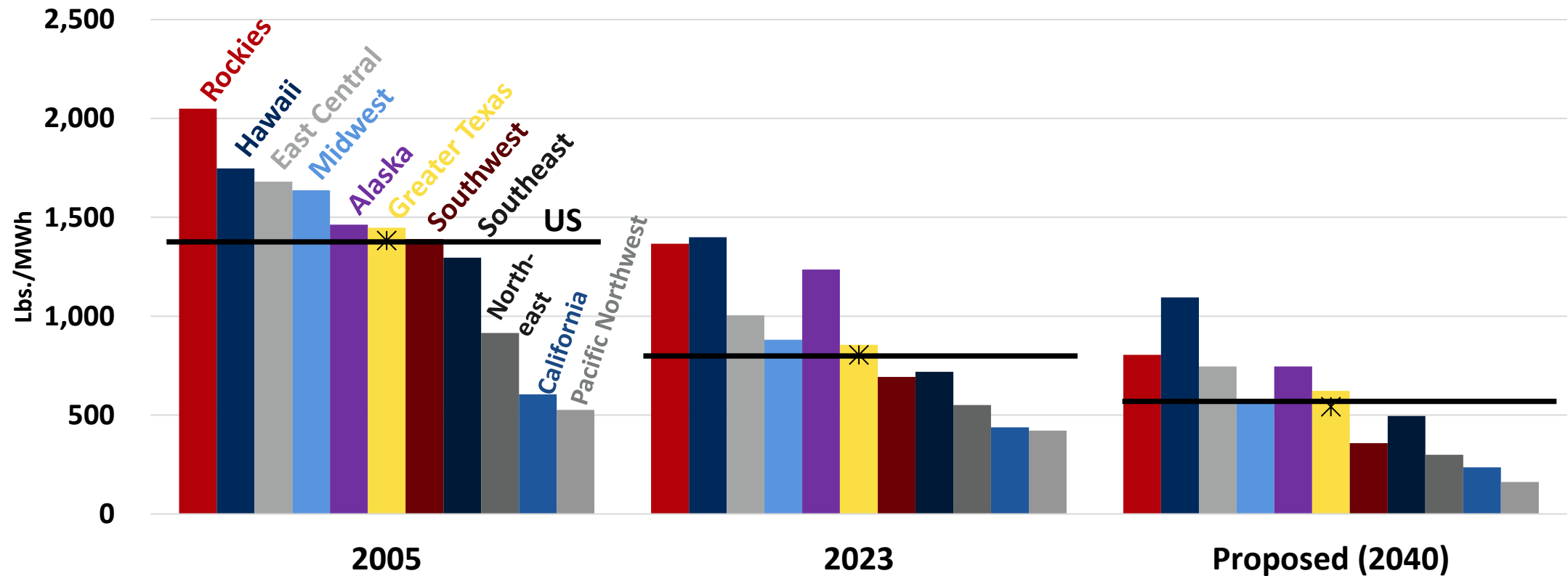
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- Practical, regional approach of increasing solar and wind with storage, while also increasing natural gas and nuclear to provide reliable and affordable generation
- Hydro generation is held relatively constant as costly to add more
- Coal generation is decreased but not eliminated
- Balances affordability and reliability of power for all customers while lowering CO2 emissions
- Leads to CO2 emission rate reductions of 65% from 2005 levels and 30% from current levels by 2040
- Limits average price increases to residential customers to 2% annual increases above inflationary increases (2% annual real increases)
- Some regions add hydrogen burning generation, shown as part of natural generation since fuel is likely blended
- Assumes U.S. load growth of 1% per year

# Affordable, Reliable Regional Effort - Actionable Now

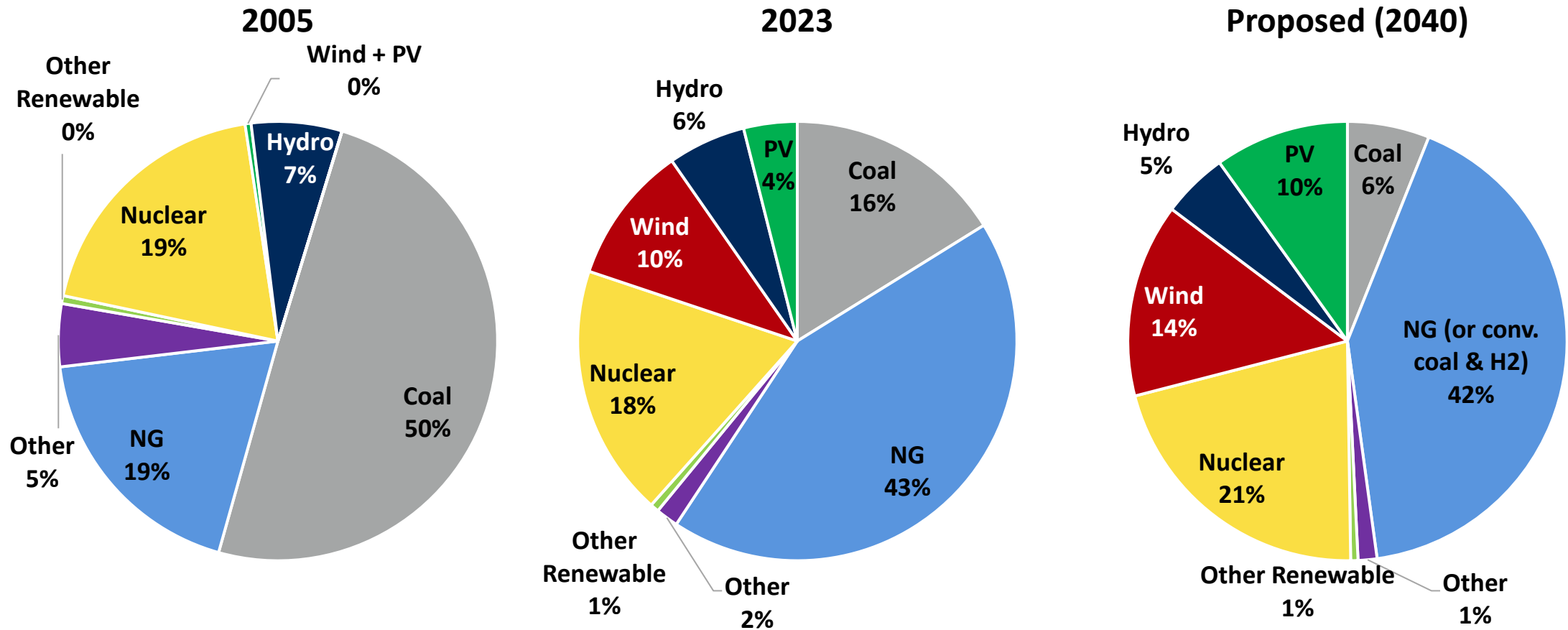
*US Rate Down ~40% vs. '05 w/ Proposed ~65% Overall Reduction*

Regional Historical, Current, and Proposed Emission Rates (lbs./MWh)



# U.S. Generation Mix – Solar/Wind Displacing Coal

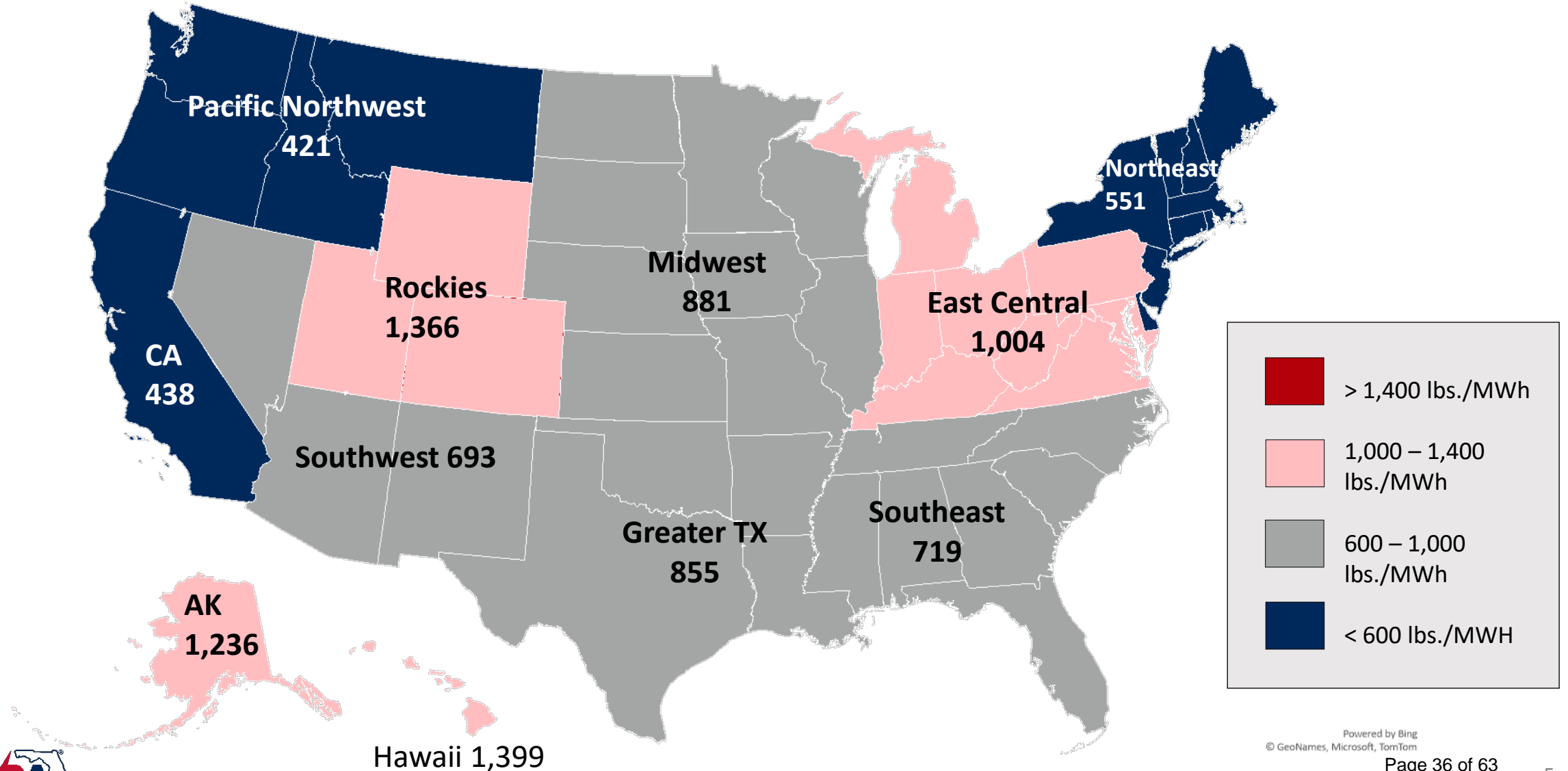
*Rest of Generation Mix Relatively Constant - Reliable & Affordable*



Note: Study assumes 1% long-term load growth. Generation curtailments uncertain.

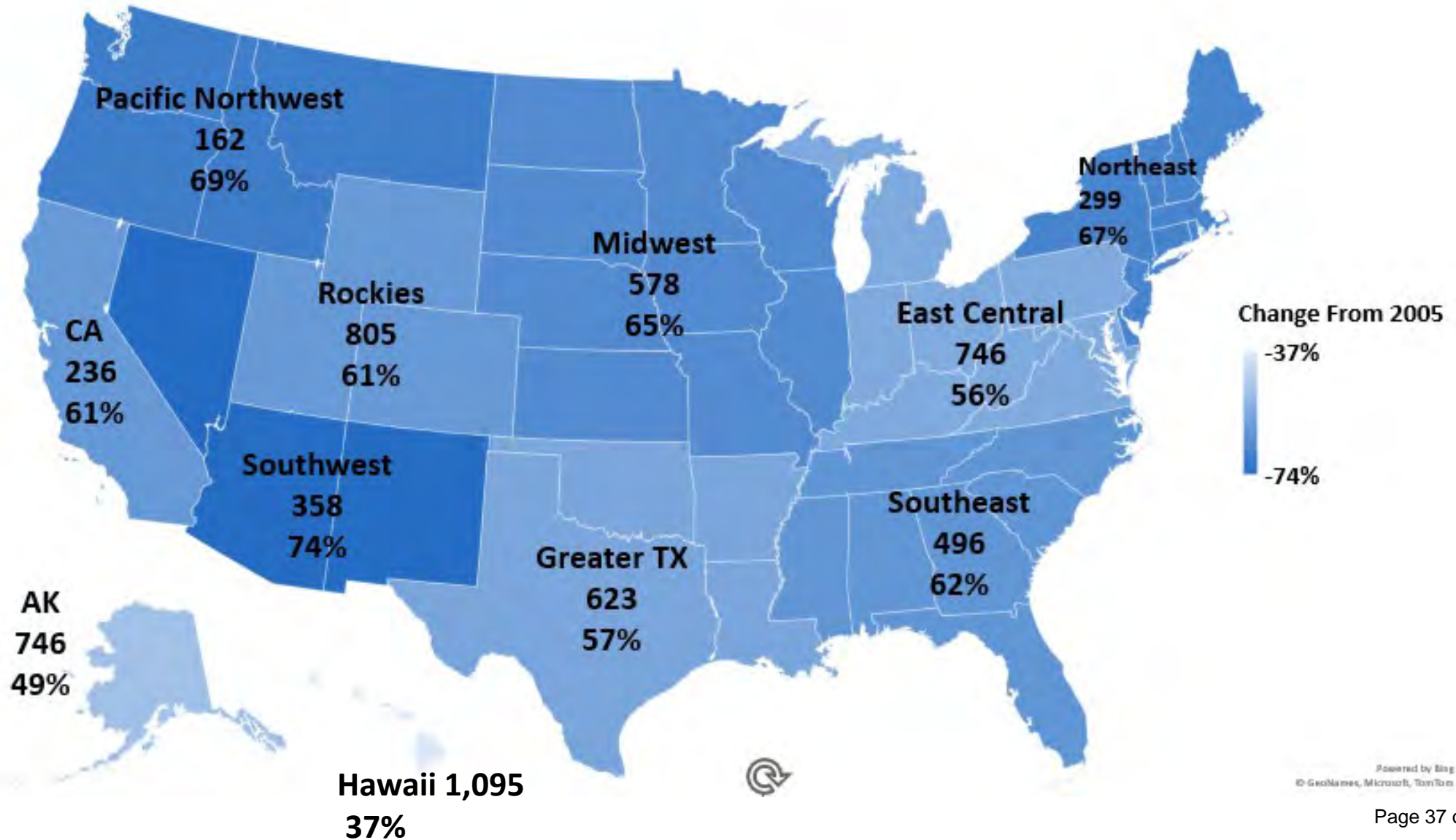
# 2023 U.S. Regional Electric Generation Emissions (lbs./MWh)

*Emissions Driven in Part by Access to Natural Resources*



# 2040 U.S. Regional Electric Generation Emissions (lbs./MWh)

## *Biggest Regional Emission Reductions From Displacing Coal*



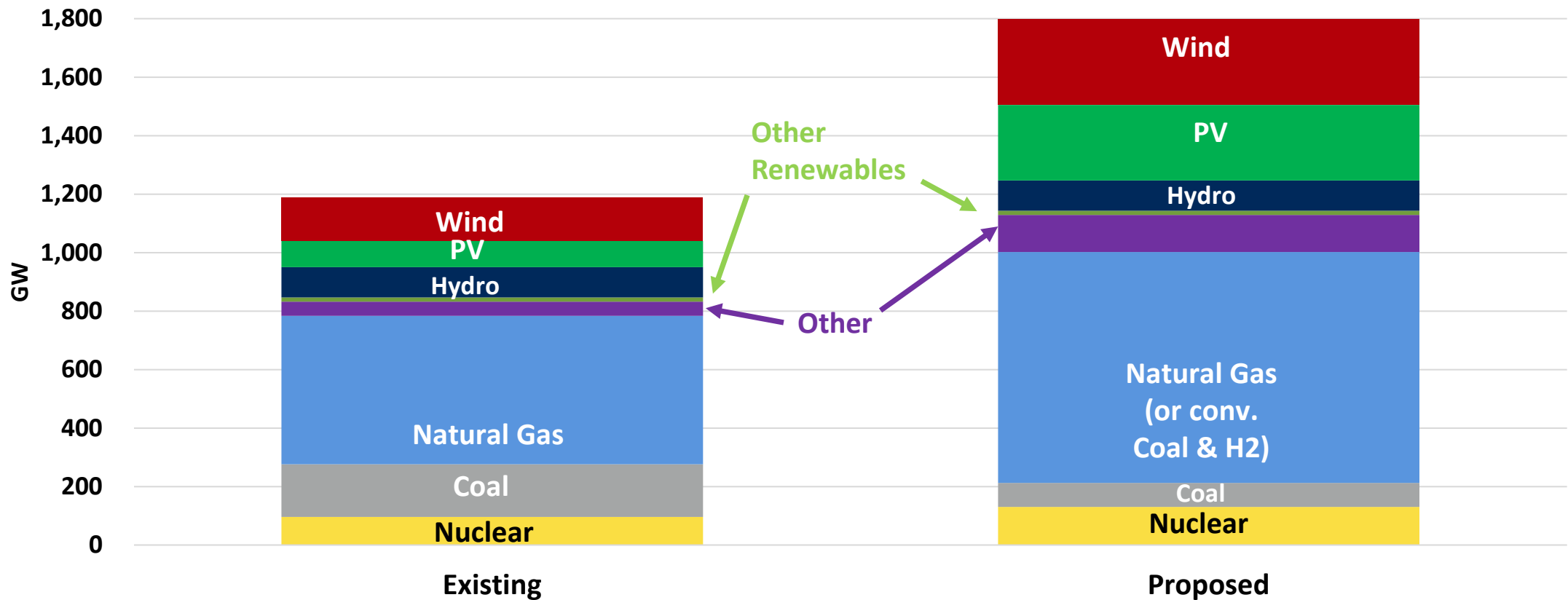
# Changes In Coal from 2023 to 2040 w/Proposed Case

| Region            | Coal Energy Decrease as % of Existing Coal Share (%) | Coal Energy As Total of All Generation (2023/2040) (%) |
|-------------------|--|--|
| Rockies           | 50%  | 49% / 25%  |
| Southwest         | 100%   | 11% / 0%   |
| Alaska            | 100%   | 11% / 0%   |
| Pacific Northwest | 100%   | 8% / 0%  |
| Midwest           | 50%  | 30% / 15%  |
| Greater TX        | 66%  | 12% / 4%   |
| Southeast         | 100%   | 11% / 0%   |
| East Central      | 50%  | 24% / 12%  |
| California        | 100%   | <1% / 0%   |
| Northeast         | 100%   | <1% / 0%   |

# US Gas & Nuclear Firm Adds, Solar Non-Firm Adds

## *Solar Capacity Increases Significantly – Storage Partially Firms*

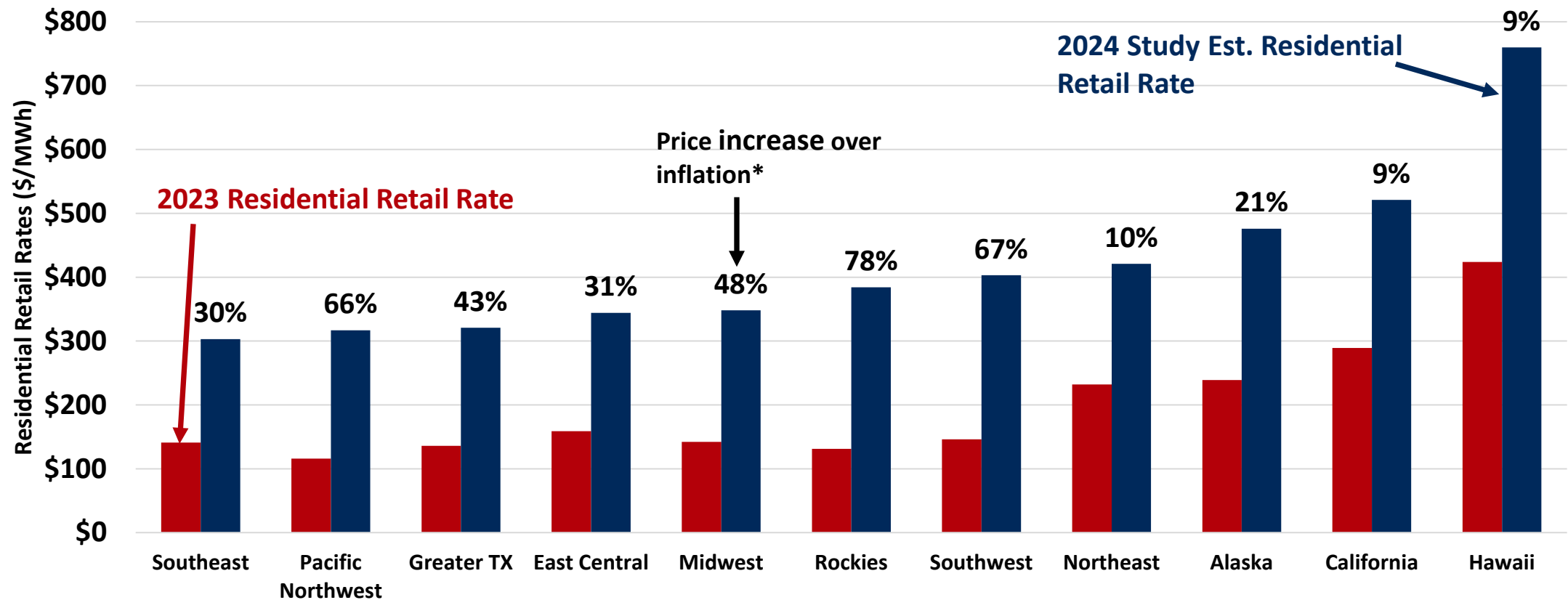
US Capacity Existing and Proposed w/Load Growth at 1% (GW)



New solar & wind, as energy only resource, does not contribute to load growth capacity need. New solar & wind nameplate capacity shown. Storage included in "Other" category in both Existing and Proposed representations (4-hour limited duration).

# Existing High-Cost Regions See Smaller Cost Increase *Infrastructure Changes Vs. Today Drive Prices Over Inflation*

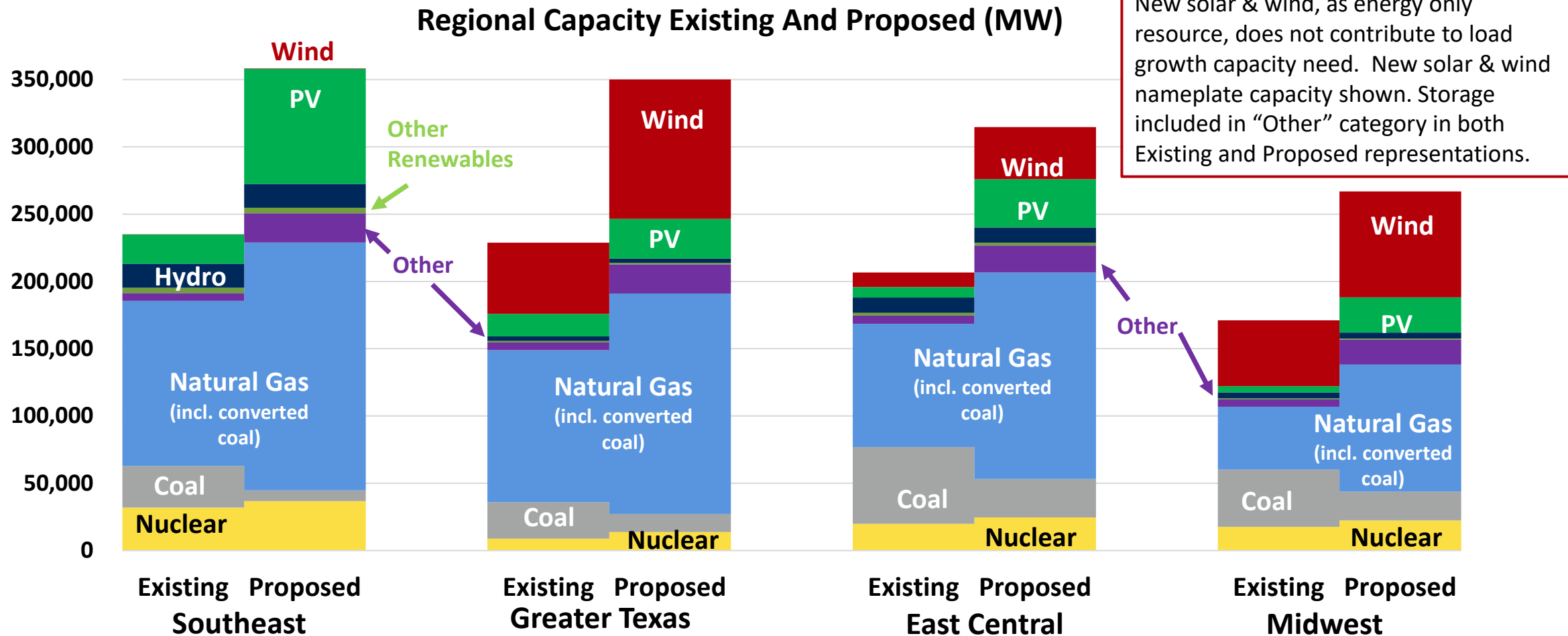
2023 Residential Retail Rate vs 2040 Study Est. Residential Retail Rate (\$/MWh)





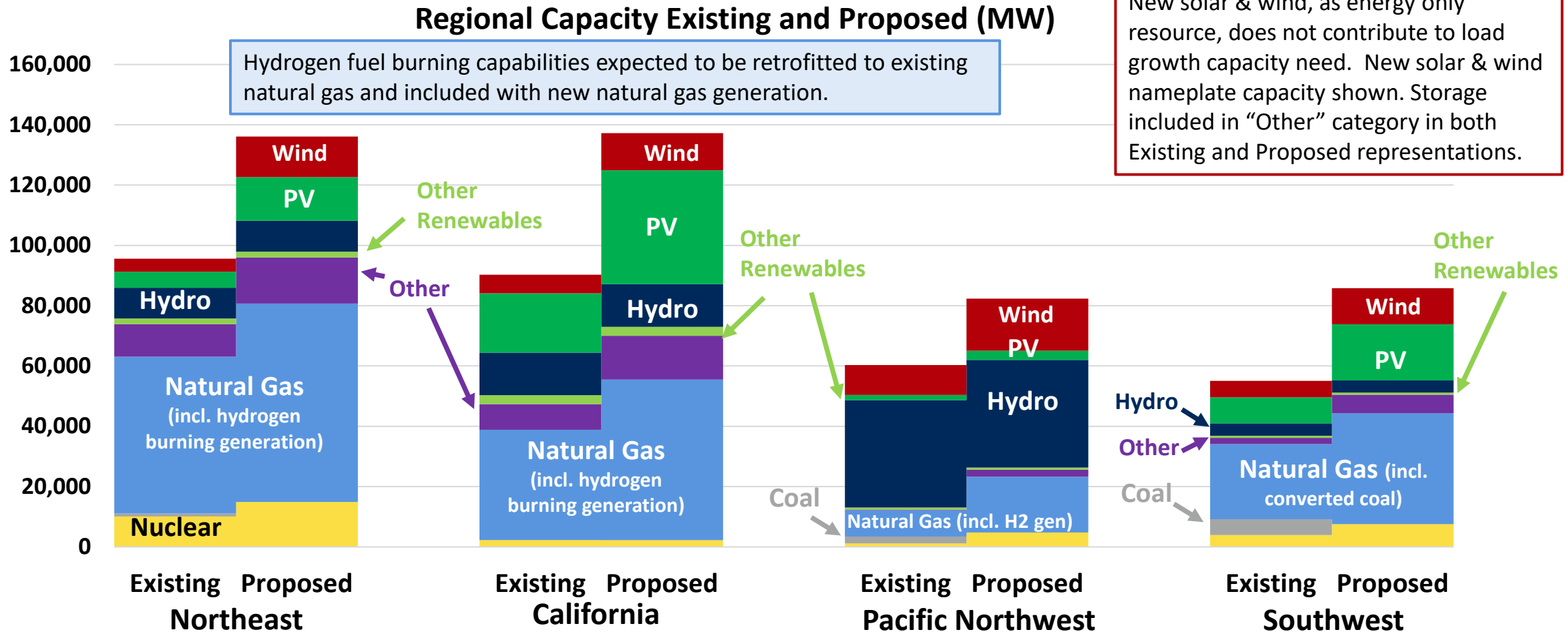
# Coal & Natural Gas Heavy Regions Add PV & Wind

## *Regions Add More of Prevalent Renewables for Load Growth*



# Coal Light/Heavy Import Regions Grow Solar/Storage

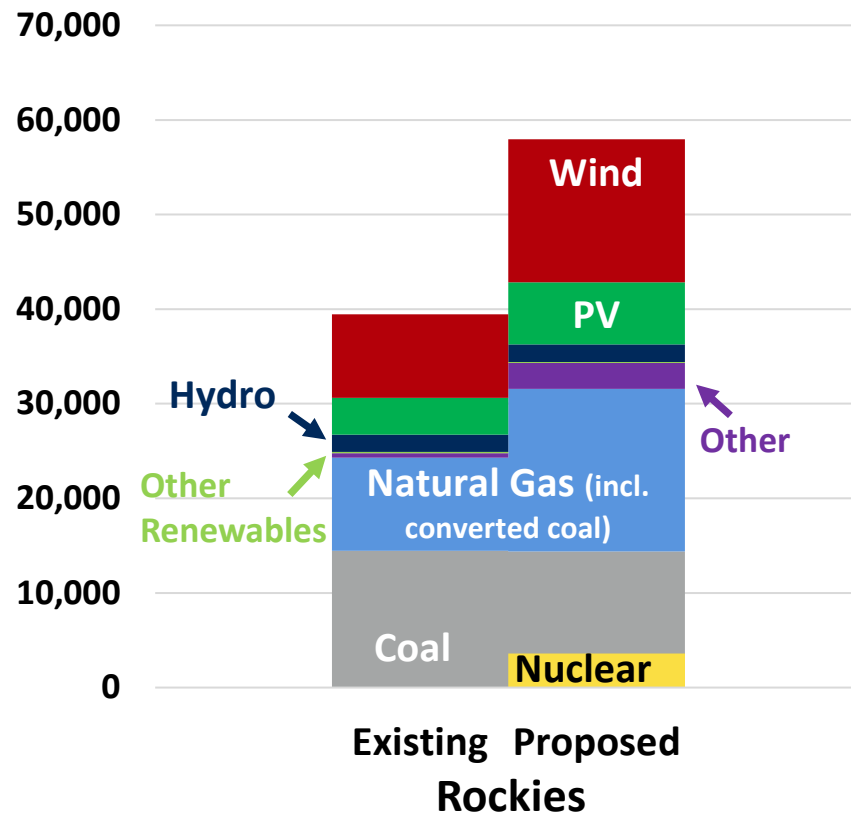
## *Small Inc. in Nuclear & Gas w/ H2 Capabilities for Load Growth*



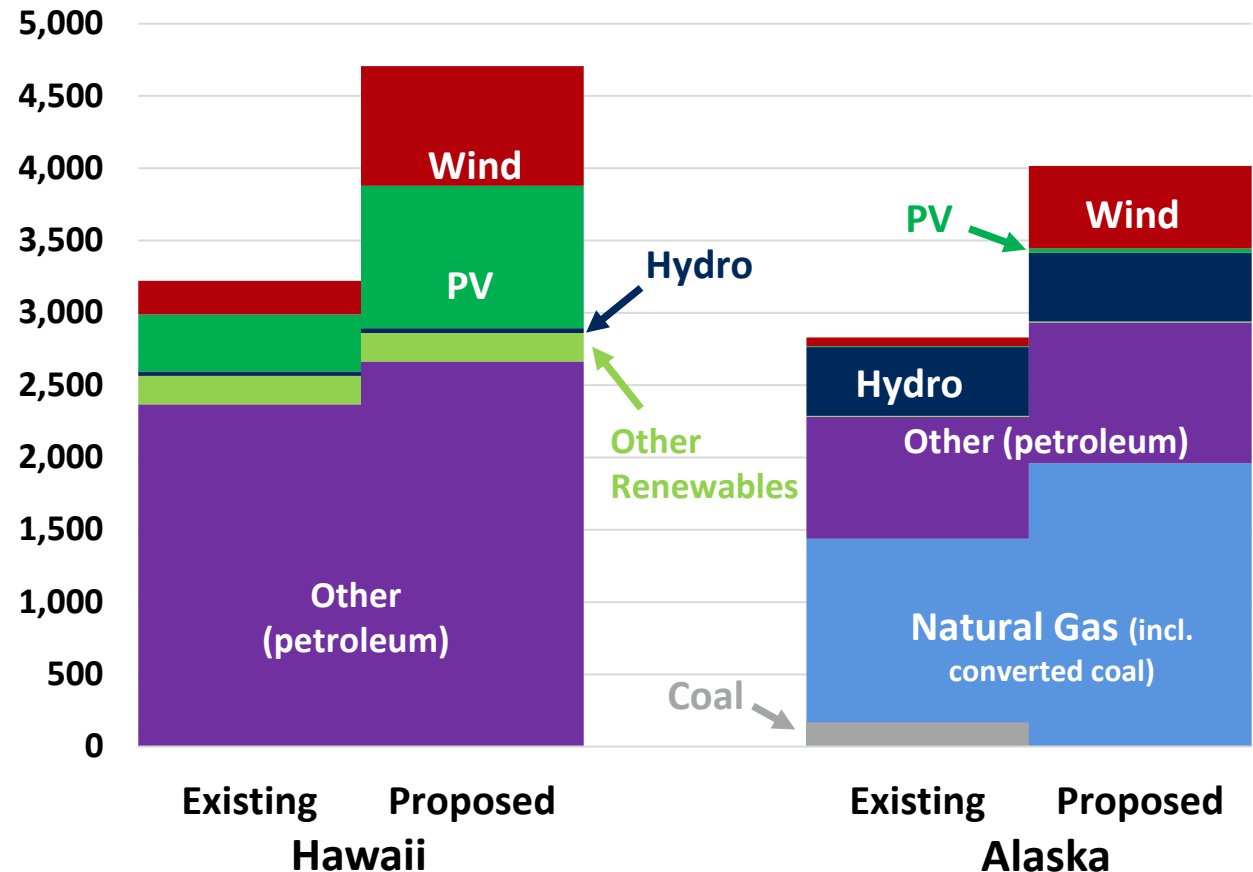
# Less Interconnected Regions, Unique Capacity Needs

## *Islanded Regions Require More Infrastructure, Diff Resources*

Regional Capacity Existing and Proposed (MW)



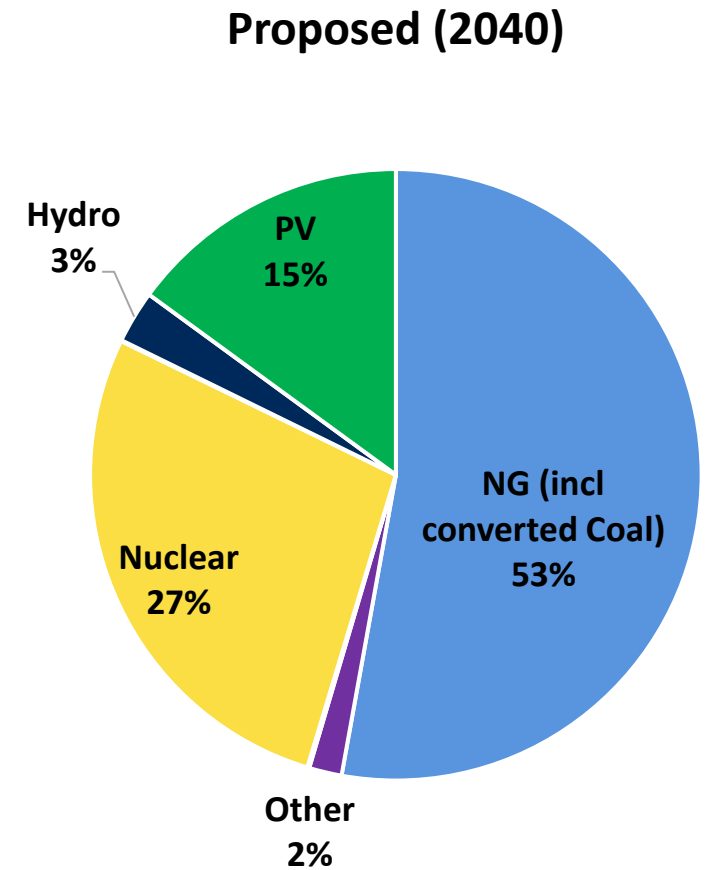
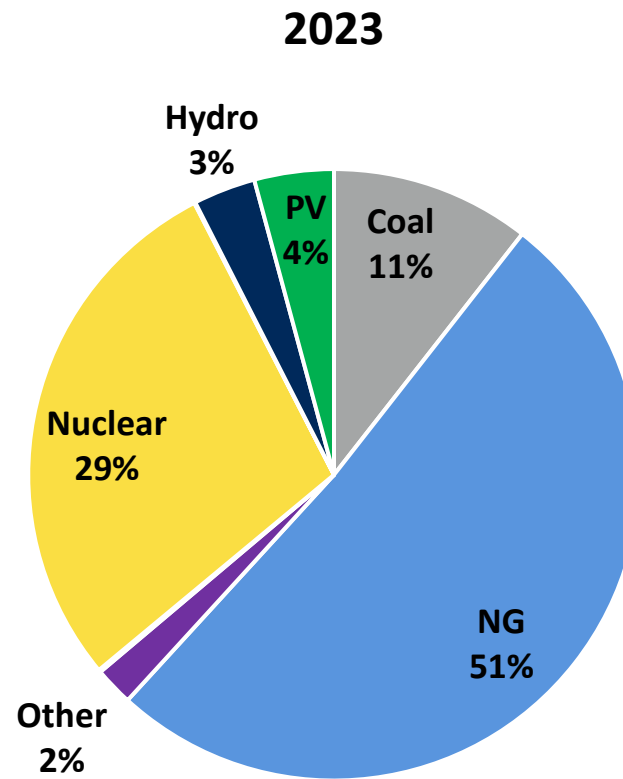
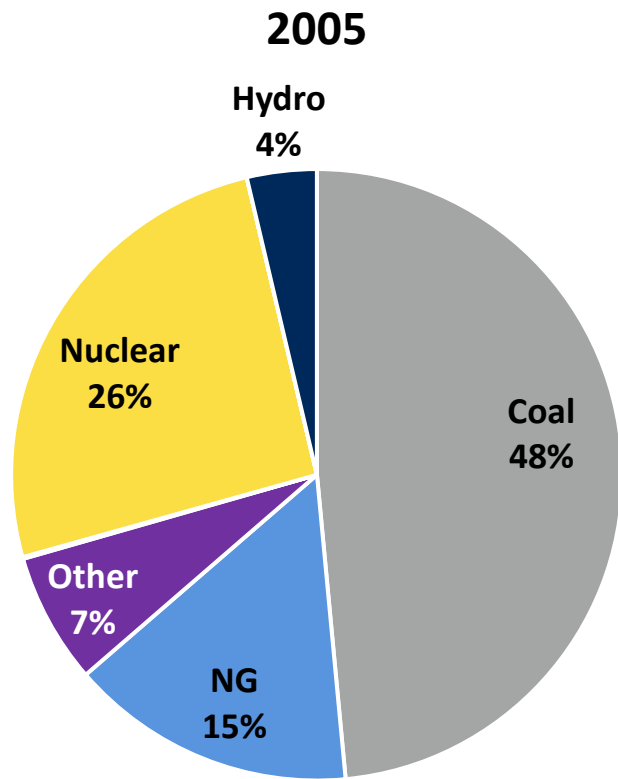
Regional Capacity Existing and Proposed (MW)



New solar & wind, as energy only resource, does not contribute to load growth capacity need. New solar & wind nameplate capacity shown. Storage included in "Other" category in both Existing and Proposed representations.

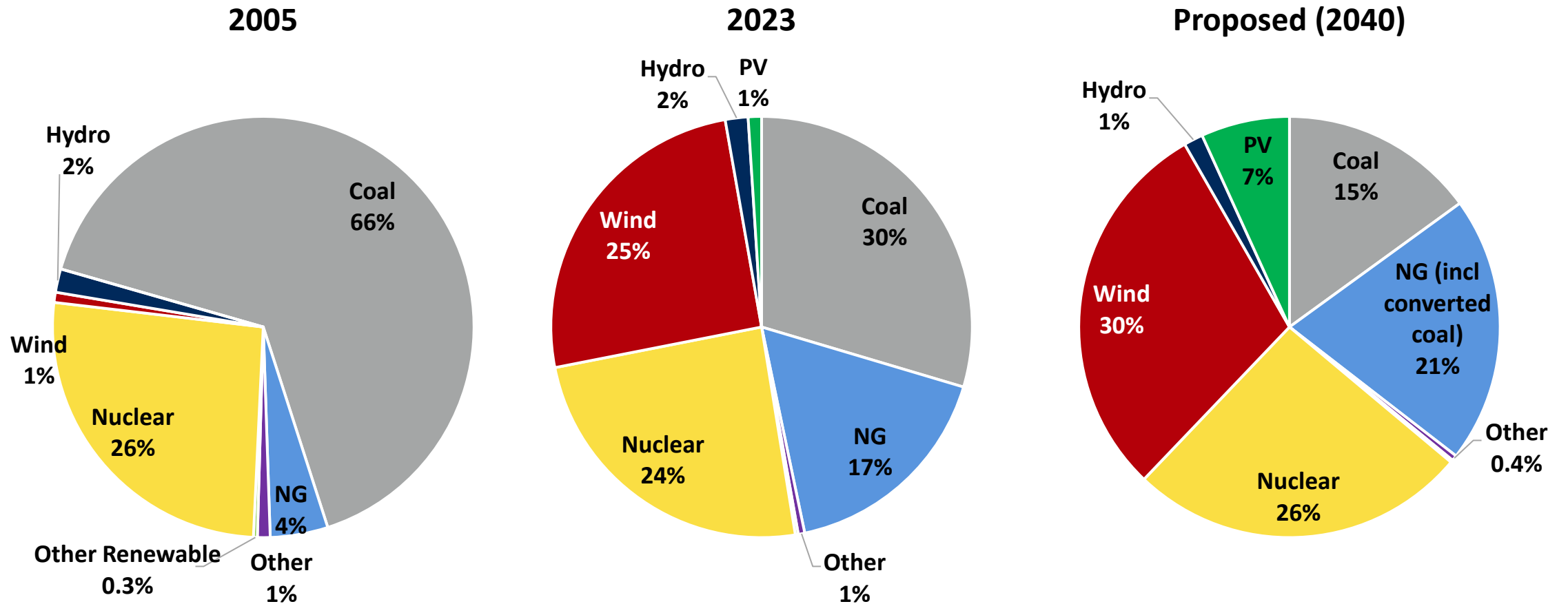
# Southeast Energy Mix to Reduce Emissions ~62% vs. '05

*Coal Convert, New Gas/Nuclear For Reliability, Add PV Energy*



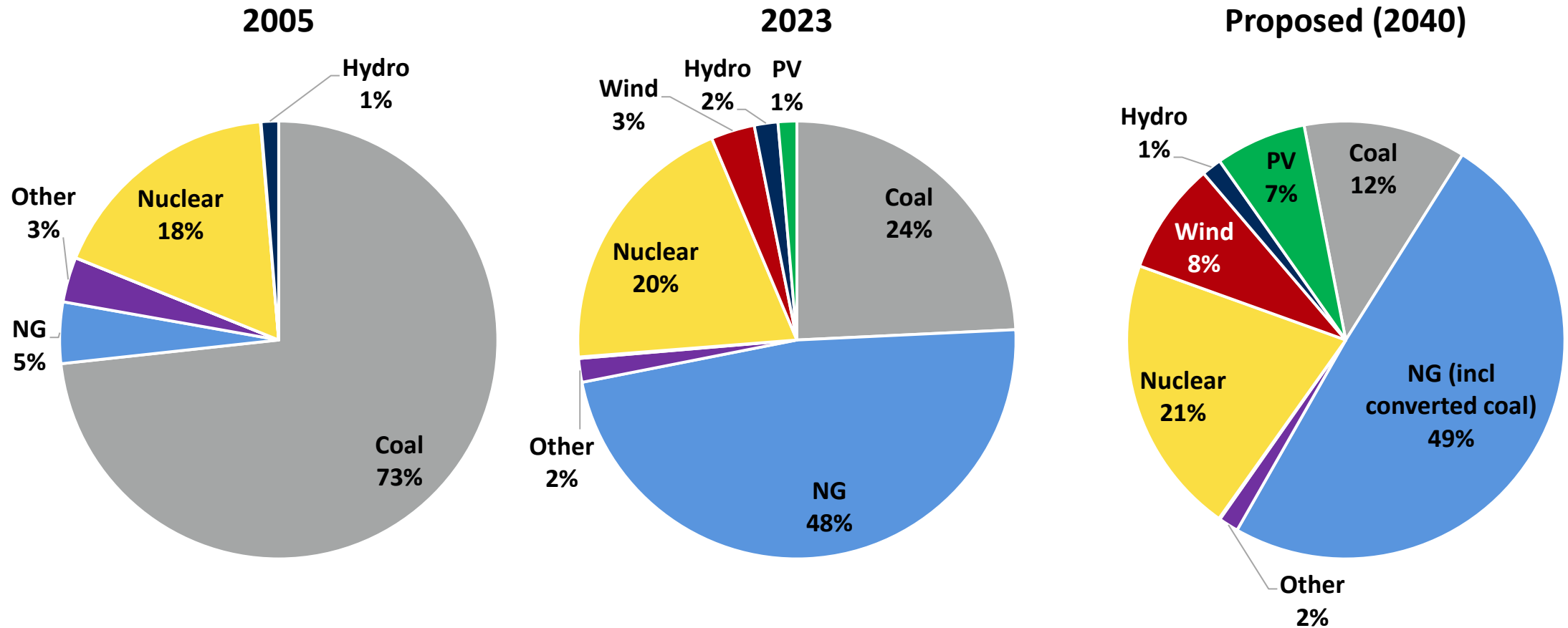
# Midwest Energy Mix to Reduce Emissions ~65% vs. '05

*Reduce Coal, Add. Wind Coupled w/ Nuc. & Gas For Reliability*



# East Central Energy Mix Reduces Emissions ~56% vs. '05

## *Convert/Retire Coal, Add Nuclear & Gas for Reliability*



# Study Balances Costs, Reliability & Lower Emissions

## *Solar & Wind w/ BESS, Natural Gas, Nuclear Added - All-Of-The-Above*

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- EIA regional topology for average revenue and emissions/capacity for 2005 and today leveraged from prior study work (e.g. CCS/green hydrogen study)
- Gradual glide path for reduced coal, where practical, by 2040, replaced with blend of nuclear (60-year amortization) and far cleaner natural gas (30-year amortization for new or conversion from coal to gas)
  - No more than 3-4 new nuclear reactors in a given region; gradual coal reductions and conversions to gas for capacity and energy share to maintain reliability; some regions (e.g. CA, Hawaii) special constraints/existing paths considered
  - Some regions (e.g. CA, Northeast, Pacific Northwest) add hydrogen fuel burning capabilities to new and existing natural gas generation
- 1% long term load growth by region - requires new capacity from nuclear & natural gas to maintain reliability
- All regions required to achieve at least 15% solar and/or wind energy (study assumes interchangeability)
  - Solar MWs were added as an energy only resource w/ associated storage capacity of 1/4 in favor of solar MWs
  - Solar energy charges the battery, with remaining solar energy going to the grid (w/overbuild likely driving curtailments)
  - All regions to add PV/wind energy to gain at least a 5% increase from '23 PV/Wind energy share to reflect likely momentum
- All other energy sources remain at 2023 energy values (i.e. static to today's levels).
- Cost implications modeled for 2040 implementation, using escalated capital costs for nuclear, gas, solar, and BESS from FMPA's 2023 IRP, with reductions in coal energy; other base costs up at ~3% inflation

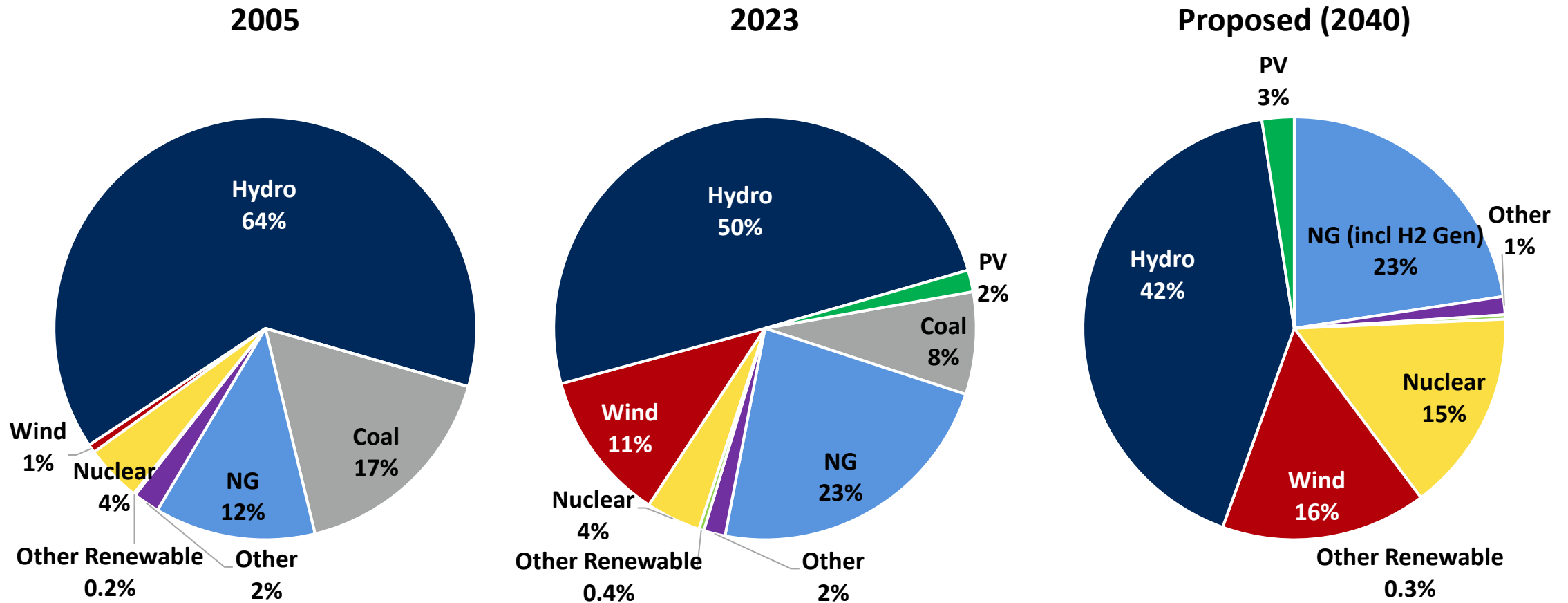


# **Appendix – Additional Regional Energy Profiles and Key Assumptions**



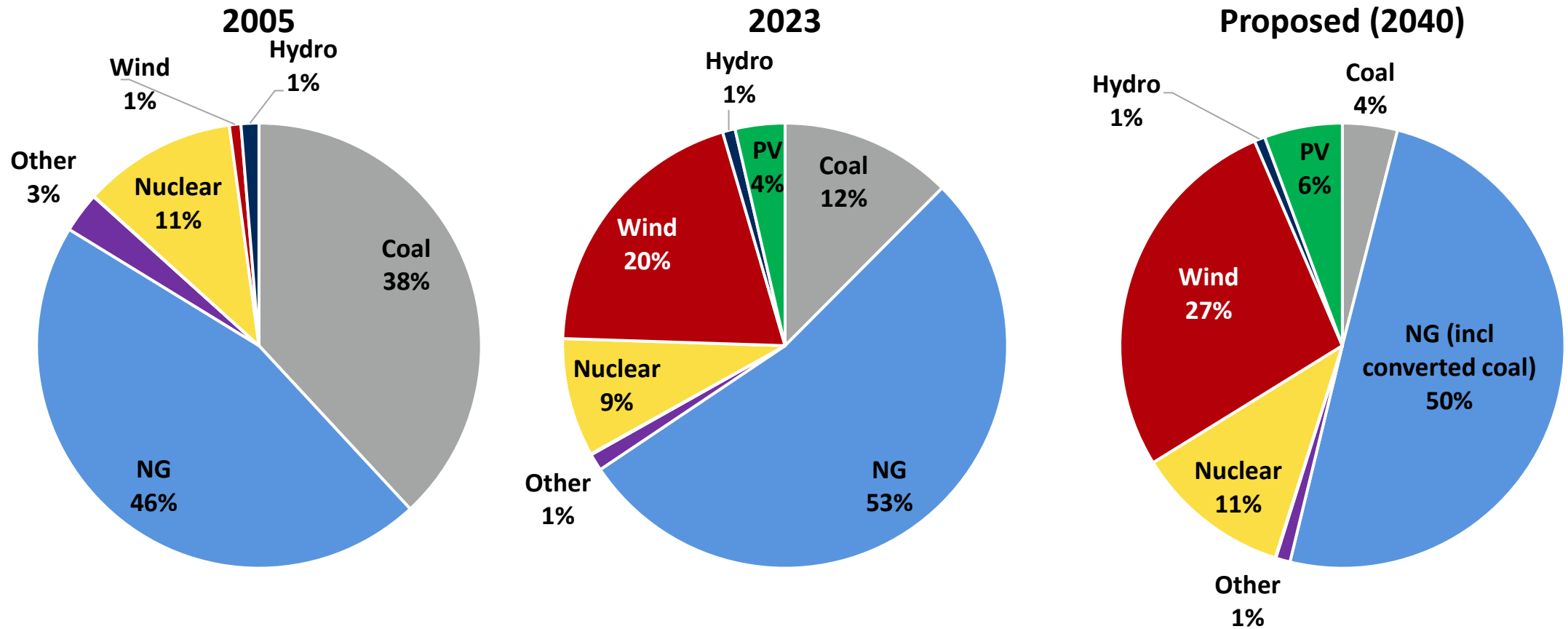
# Pacific NW Energy Mix Reduces Emissions ~69% vs. '05

*Add. Nuclear Similar Benefits as Hydro, Replace/Convert Coal*



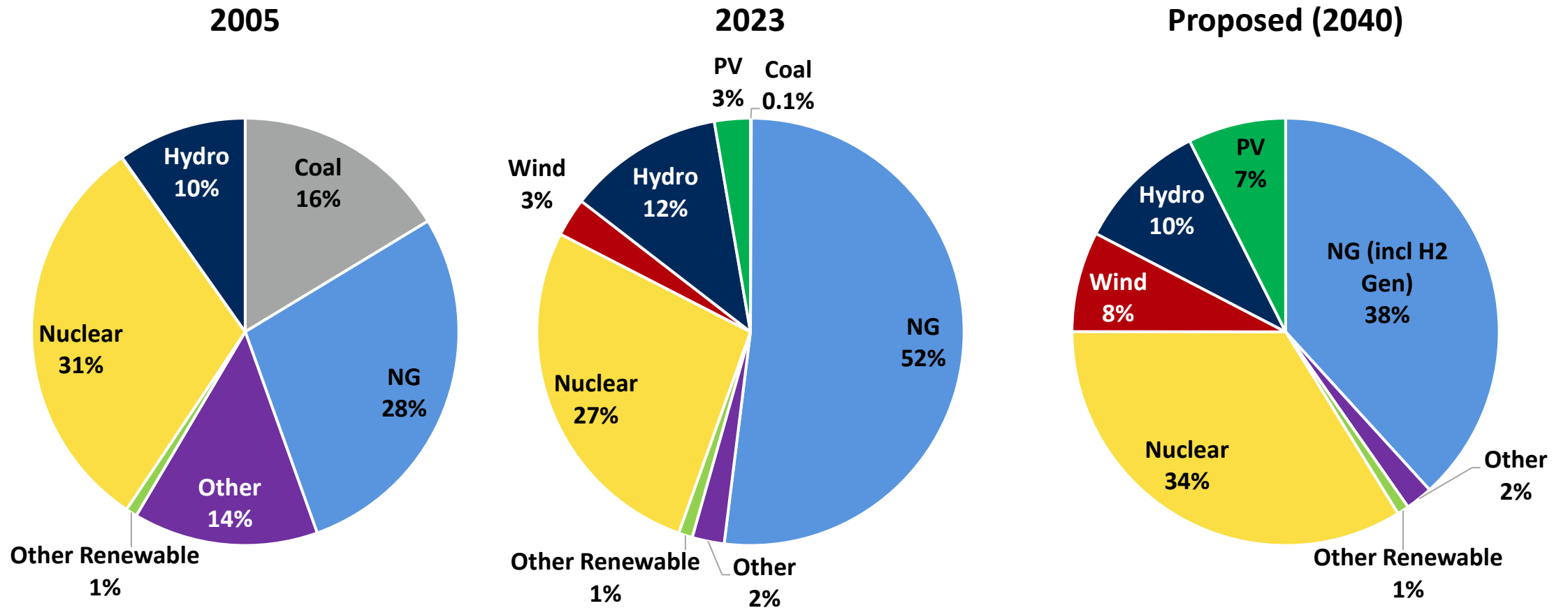
# Greater TX Energy Mix Reduces Emissions ~57% vs. '05

*Halve Coal Capacity, Add Wind w/ Nuc. & Gas For Reliability*



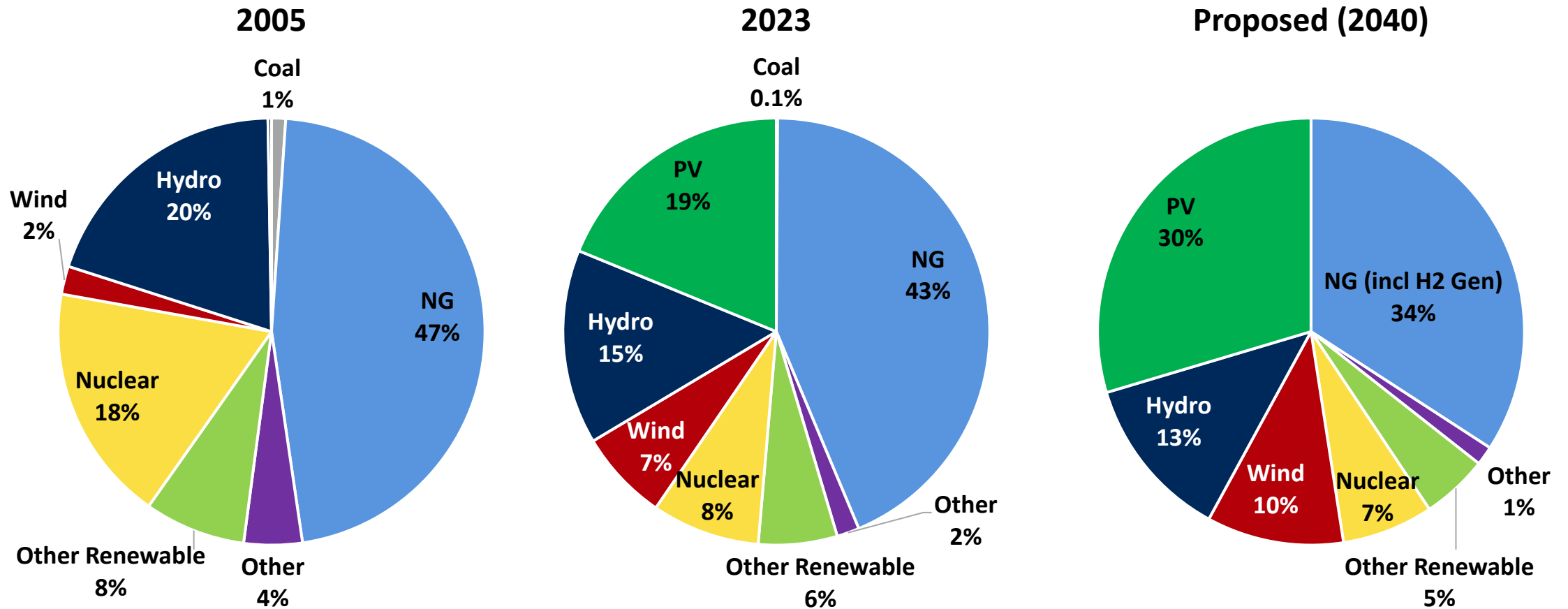
# Northeast Generation Mix to Reduce Emissions ~67%

*Large PV Adds for Energy Coupled w/ Nuc./Gas For Reliability*



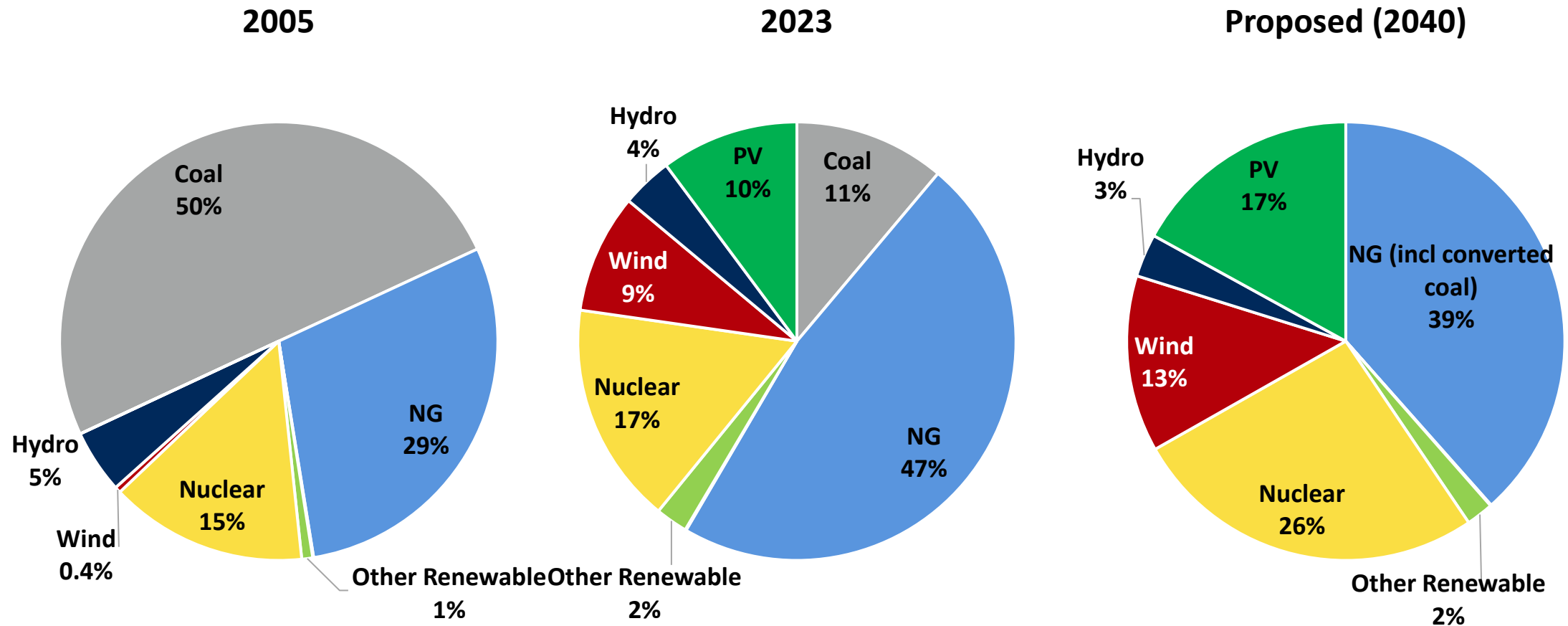
# CA Energy Mix to Reduce Emissions ~61% vs. '05

## *Large PV Adds for Energy Coupled with New Gas For Reliability*



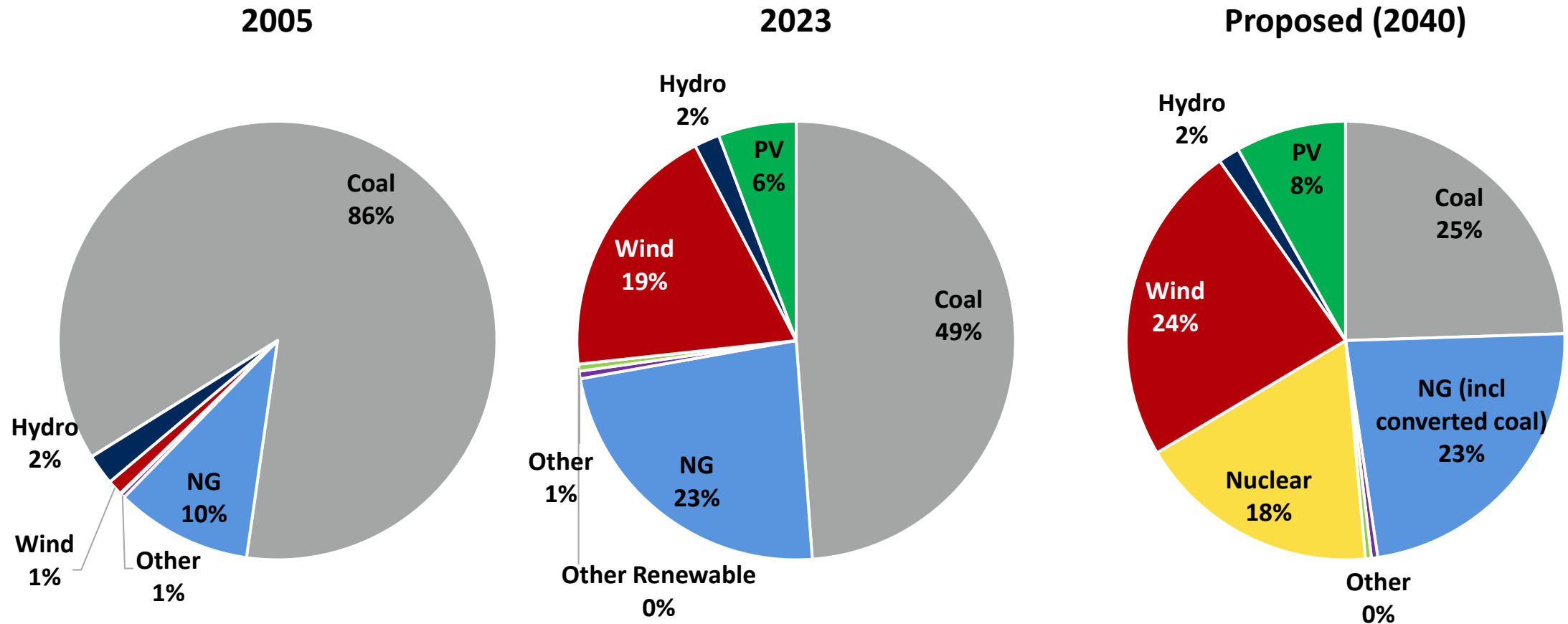
# Southwest Energy Mix Reduces Emissions ~74% vs. '05

*Retire/Convert Coal, Add Nuclear & Gas with Add. PV Energy*



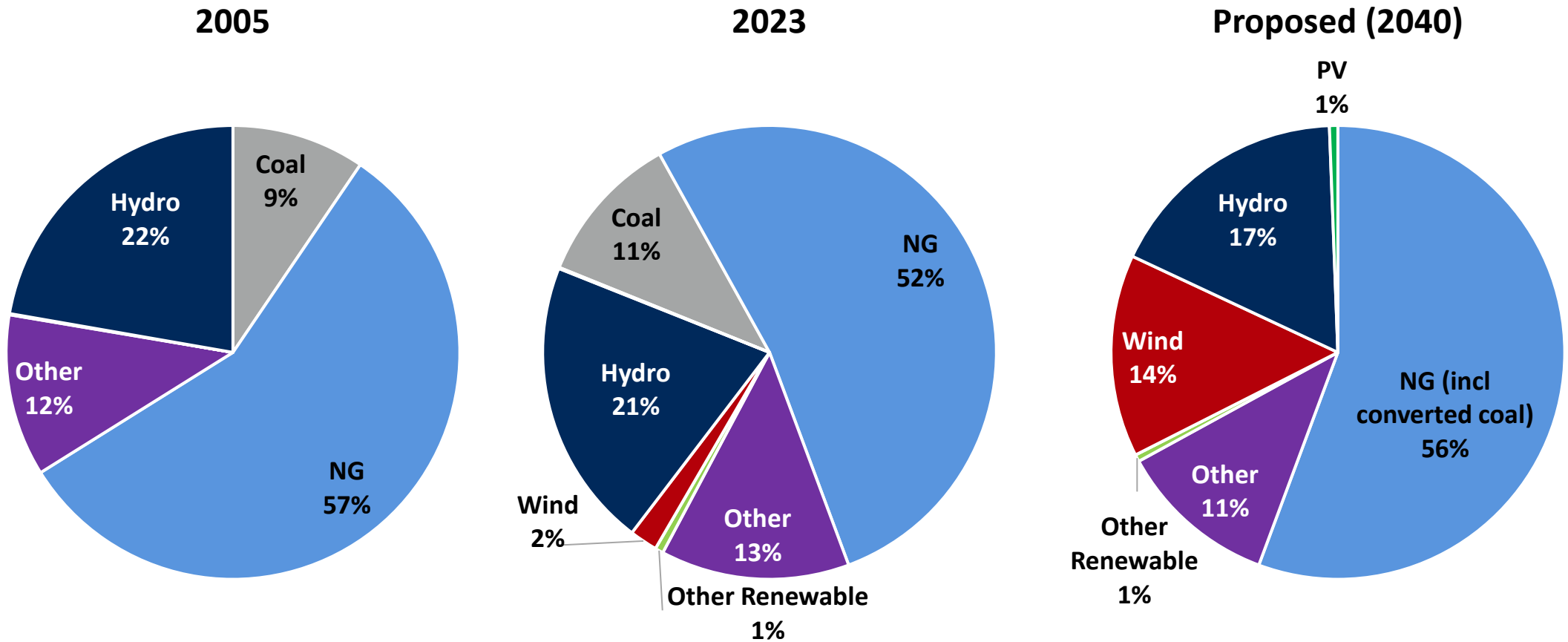
# Rockies Energy Mix to Reduce Emissions ~61% vs. '05

*Reduce Coal Energy, Add Wind w/ Nuclear & Gas for Reliability*



# Alaska Energy Mix to Reduce Emissions ~49% vs. '05

## *Coal Conversion, New Gas, and Wind Energy In Moderation*







# Simplified Approach Has Certain Key Limitations

## *Proxies and Assumptions All Subject to Uncertainty*

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- All classes average revenue as proxy for all-in power delivery costs
- Regions import and/or export generation to varying degrees that drives net revenue – ignored given lack of data and for simplicity
  - May have 5%-10% impact on results per MWh sold in a given region
- Assumed coal phase out would limit or reduce need for transmission if certain assets are sited in the same locations or existing resources were converted – transmission/land modeled only for PV/wind
- Gas transportation capacity/laterals not included for new gas (PV/wind do offset)
- Long term inflation and fuel prices highly uncertain out to 2040
- Does not consider any existing regional resource planning constraints that may be imposed on systems by a regulatory body that may prohibit certain additions
- Costs of green hydrogen and required infrastructure are highly speculative; study assumes applicable regions will utilize excess green energy in close proximity to generation

# Key Framing Assumptions and Notes on Limitations

| Description   | Units    | Value  |
|---|----------|--------|
| BESS Capex  | \$/kW    | 2,200  |
| BESS Capex (30% IRA, 30% Risk, 2035 build year)         | \$/kW    | 2,854  |
| Solar & Wind Capex                                      | \$/kW    | 1,982  |
| Solar & Wind Capex (30% IRA, 30% Risk, 2035 build year) | \$/kW    | 2,572  |
| Nuclear Capex   | \$/kW    | 15,047 |
| Nuclear Capex (2040 build year)                         | \$/kW    | 24,870 |
| Natural Gas Capex (1x1 H Class)                         | \$/kW    | 1,010  |
| Natural Gas Capex (30% Risk, 2035 build year)           | \$/kW    | 1,872  |
| Transmission Cost (Wind, Solar & BESS only)             | \$/MW    | 100    |
| Transmission Cost (2035 build year)                     | \$/MW    | 143    |
| Natural Gas Price (Delivered) 2023                      | \$/MMBtu | 3.04   |
| Natural Gas Price (Delivered) 2040                      | \$/MMBtu | 5.02   |
| Hawaii Oil price 2023                                   | \$/MMBtu | 32.50  |

| Region Coal Costs                                | Units    | Price (2023\$) |
|--|----------|----------------|
| Rockies  | \$/MMBtu | 1.50           |
| Midwest  | \$/MMBtu | 1.50           |
| East Central                                     | \$/MMBtu | 2.00           |
| Greater TX                                       | \$/MMBtu | 2.00           |
| Southwest  | \$/MMBtu | 2.00           |
| Southeast  | \$/MMBtu | 3.50           |
| California, Northeast, Pacific Northwest, Alaska | \$/MMBtu | 4.35           |

| Description (Hydrogen Assumptions)              | Units    | Value  |
|---|----------|--------|
| Green hydrogen fuel price (localized) (2023\$)  | \$/kg    | 9.00   |
| Green hydrogen fuel price (localized) (2023\$)  | \$/MMBtu | 66.92  |
| Green hydrogen fuel price (localized) (2040\$)  | \$/MMBtu | 113.93 |
| 30% Hydrogen fuel blend w/ natural gas (2040\$) | \$/MMBtu | 37.69  |

# Key Framing Assumptions and Notes on Limitations

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## Other Notes

- Gas transportation not included in Fixed O&M
- All O&M inflated to 2040 values
- Inflation modeled at 3.0%
- Modeled advanced nuclear as 1,200 MW units (limit 3-4 for key regions when plausible)
- Key regions such as CA, Hawaii, Alaska nuclear adds deemed unlikely vs. existing trajectory
- Load growth and coal energy replacement were filled first by nuclear, solar/wind and then natural gas (minimum coal energy set for Rockies, Greater TX, Midwest, East Central). If nuclear & solar energy exceeded load growth and coal energy, then said energy displaced existing natural gas and then existing other (petroleum).
- In practice, hour by hour operational needs likely to drive curtailments with PV/wind.
- Hydrogen blend price assumes localized production of hydrogen. Capital to build solar and wind, hydrogen storage and transportation were not included in the hydrogen fuel price. Assumption is that local renewable overbuild will facilitate hydrogen production. In regions with hydrogen generation, assumption is that 30% of the natural gas generation will be hydrogen (a mix of various H<sub>2</sub>/natural gas blended fuel percentages will result in a 30% average).
- No additional capex assumed for new natural gas generation or conversion to accept hydrogen fuel
- Hydrogen generation is modeled as a zero-carbon emitting resource

# **VERBAL REPORT**

## **AGENDA ITEM 6 – INFORMATION ITEMS**

### **c. Federal Legislative Update**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**AGENDA ITEM 7 – MEMBER COMMENTS**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**AGENDA ITEM 8 – ANNOUNCEMENTS**

- a. Next Meeting – January 15, 2025 at FMPA,  
8553 Commodity Circle, Orlando, FL**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**

**AGENDA ITEM 9 – ADJOURN**

**Policy Makers Liaisons Committee Meeting  
October 16, 2024**