FRCC
Florida Reliability Coordinating Council, Inc.

2024 Ten-Year Site Plans
FRCC Overview Presentation

Vince Ordax
Senior Director of Planning
Florida Reliability Coordinating Council, Inc.
September 2024

FRCC

Mission

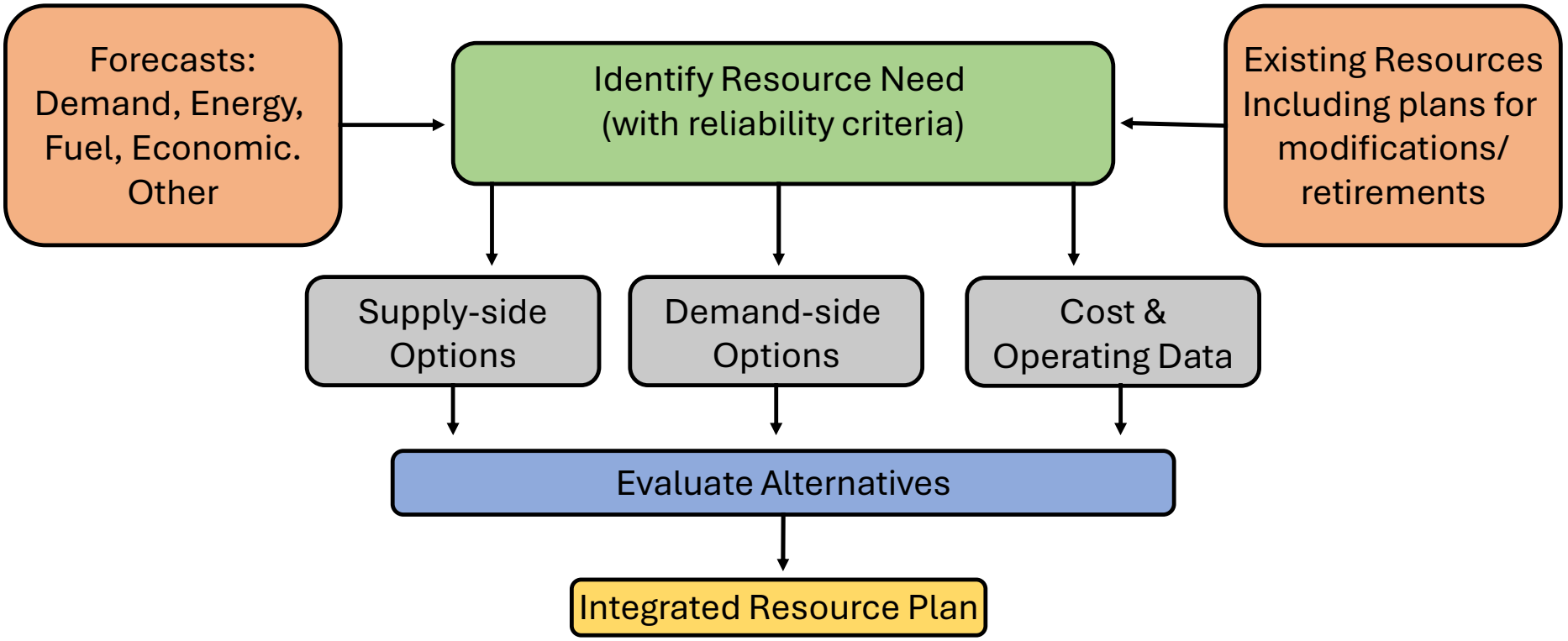
To coordinate a safe, reliable, and secure bulk power system in Florida.

Agenda

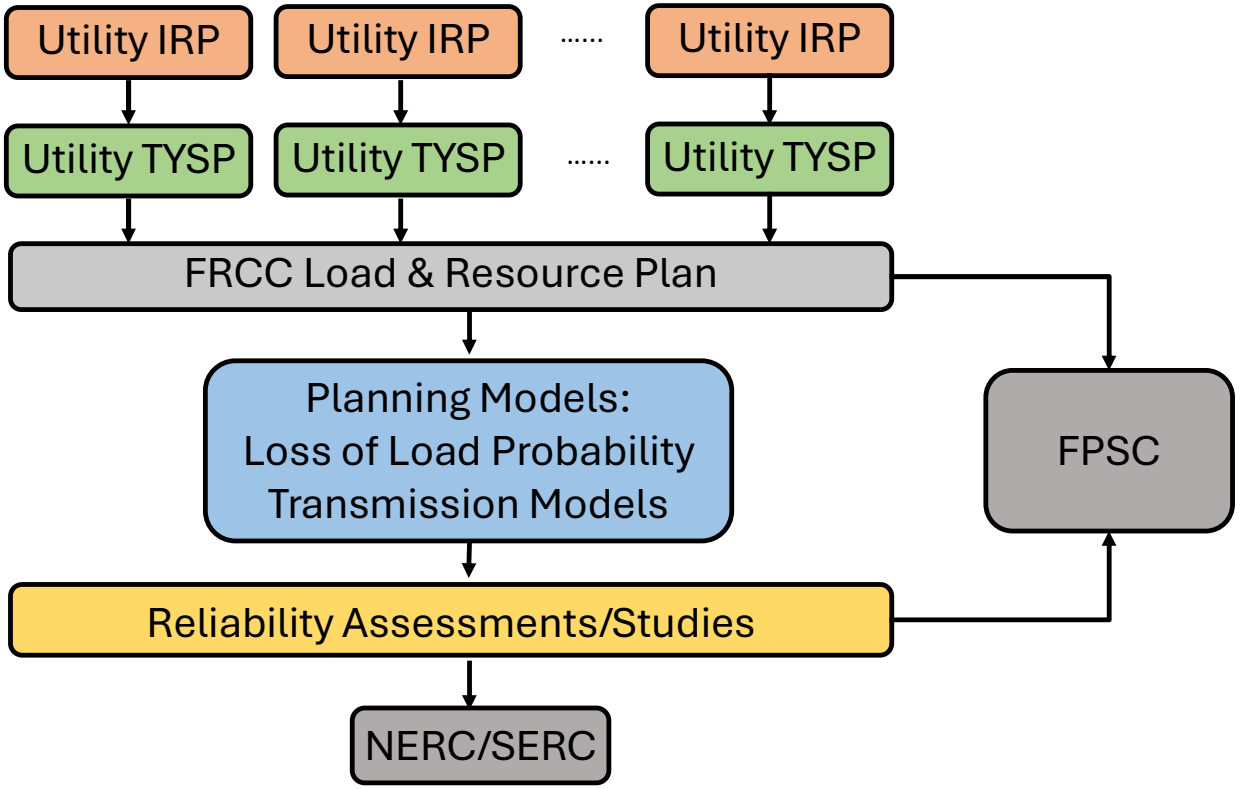
2024 Load & Resource Plan

- Summary
- Integrated Resource Planning Process
- Load Forecast
- Capacity Additions and Reserve Margins
- Generation Mix
- Reliability Considerations of Utility Solar Generation Additions
- Natural Gas Infrastructure in Florida
- Transmission Adequacy / Reliability
- FERC Order 1920

Utility Integrated Resource Planning (IRP) Process Overview



FRCC Planning Process Overview



Load Forecast and DSM[1,2]

- Firm summer peak demand (MW) growth is 1.34%, slightly higher than last year's TYSP
- Forecasted energy sales (MWh) growth is similar to last year's TYSP at about 1%
- Demand Response reduces firm summer peak (MW) by 5.3% in 2033
- Customer-owned distributed solar is expected to reduce summer demand by nearly 4,000 MW in 2033

[1] Demand-Side Management (DSM) is made up of Demand Response (DR) and Utility-sponsored Energy Efficiency/Energy Conservation (EE/EC).
[2] Projected impacts of Energy Efficiency codes and standards included in all utilities' forecasts.

Load Forecast Factors

Population growth is projected to remain strong

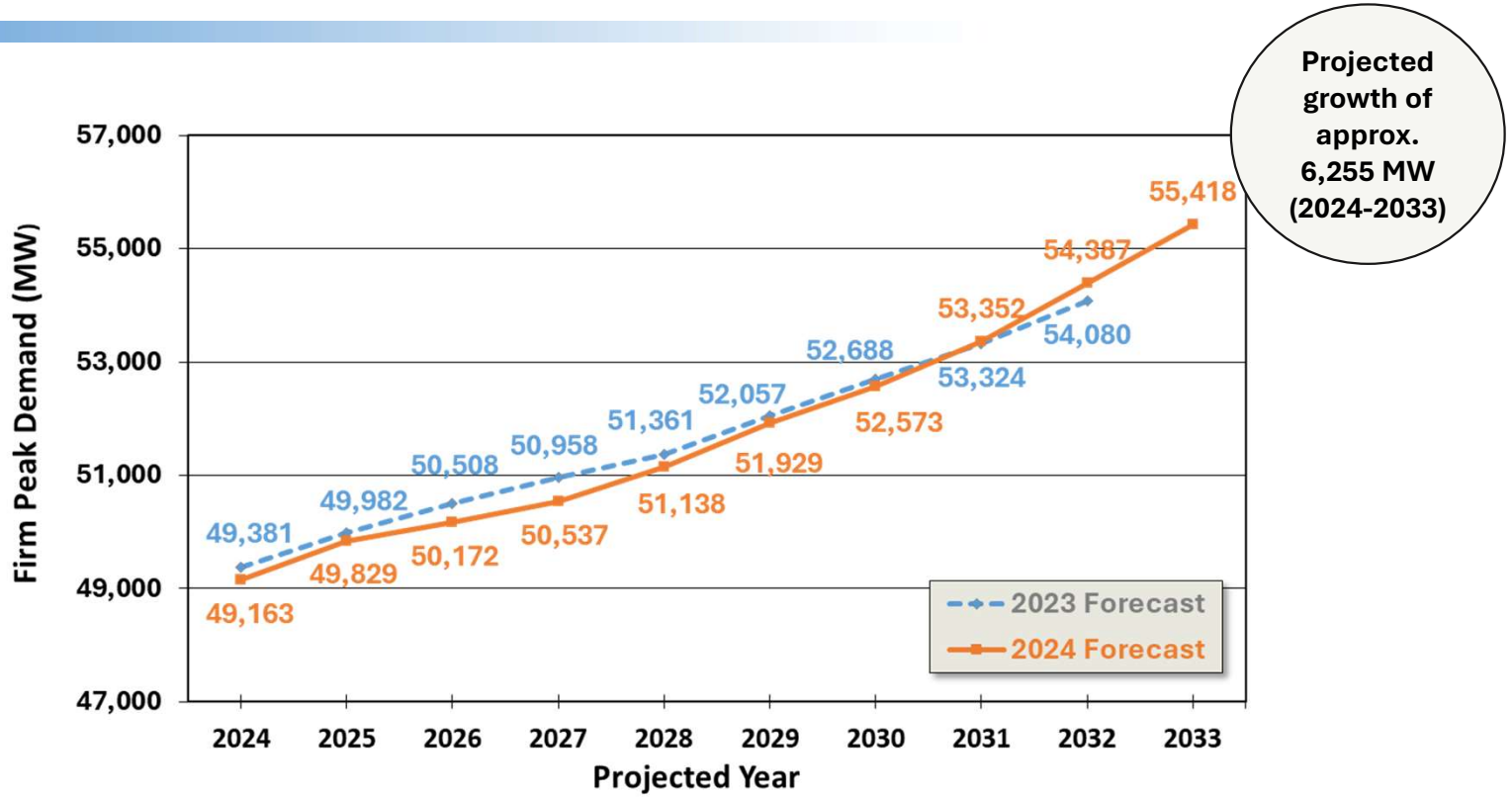
EV Impact Grows to over 2.8 GW by 2033

Data center load is potentially a large driver of future growth; current impacts in FL are unknown

EE codes and standards and distributed solar dampen energy use growth

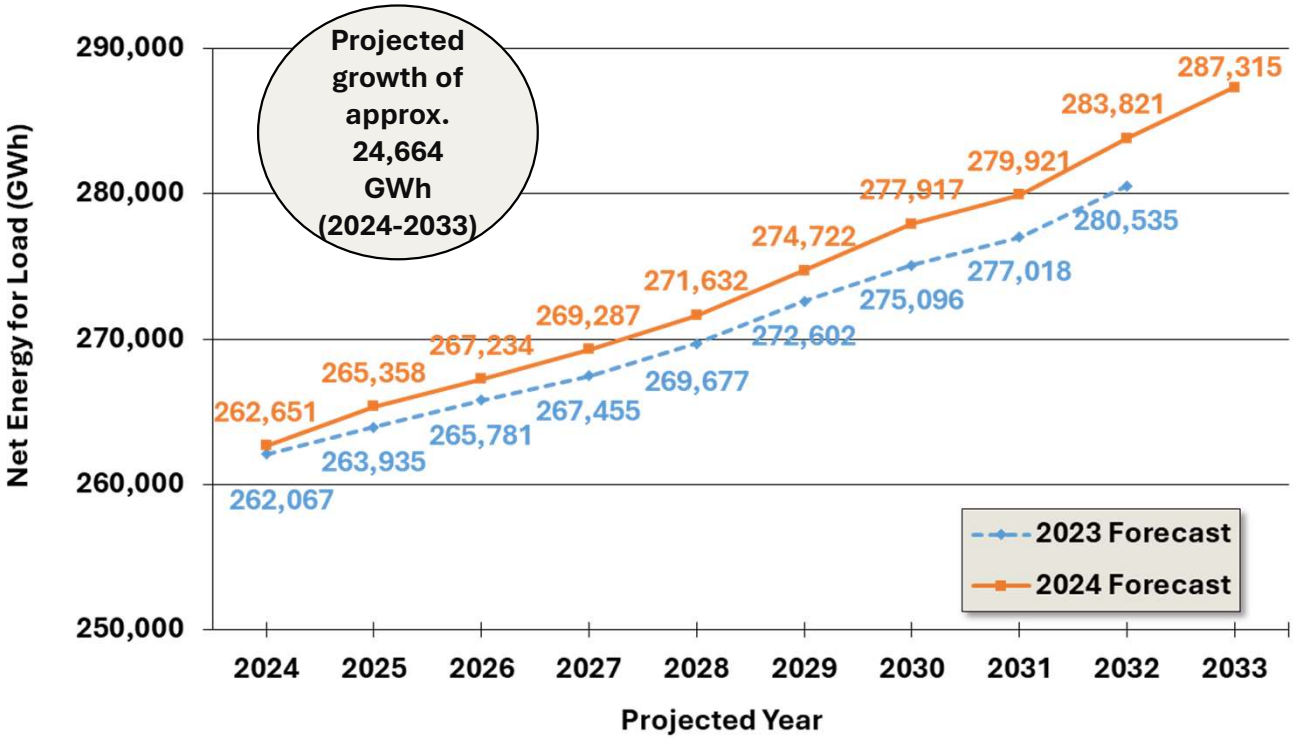
Wage and income growth have not kept pace with employment growth

Comparison of 2023 vs. 2024 Firm Peak Summer Demand Forecast[1]



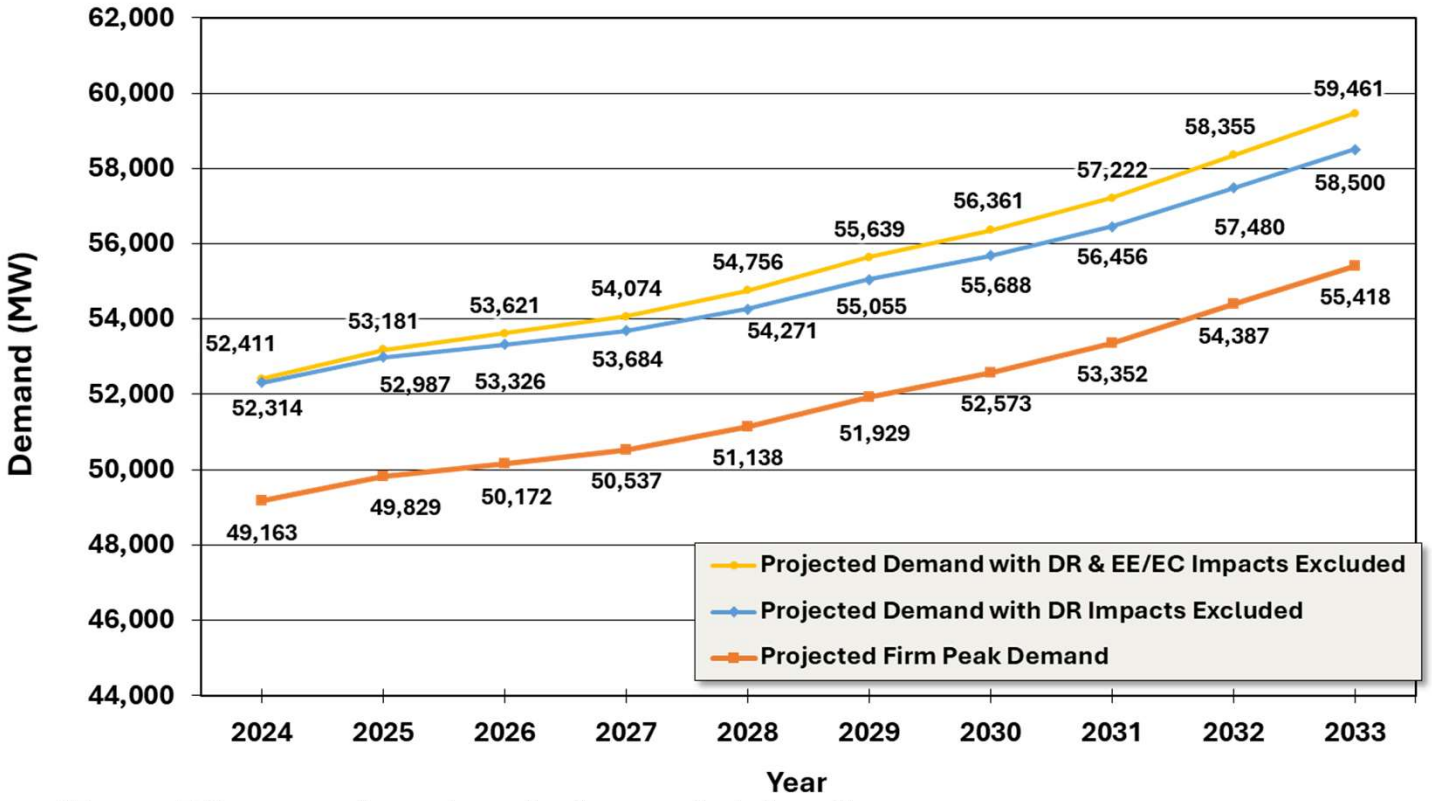
[1] Firm Peak Demand includes impacts of DSM (cumulative Demand Response and incremental (2024-on), utility-sponsored Energy Efficiency/Energy Conservation), Energy Efficiency Codes and Standards, and the impact of customer-owned DER.

Comparison of 2023 vs. 2024 Net Energy for Load (NEL) Forecast[1]



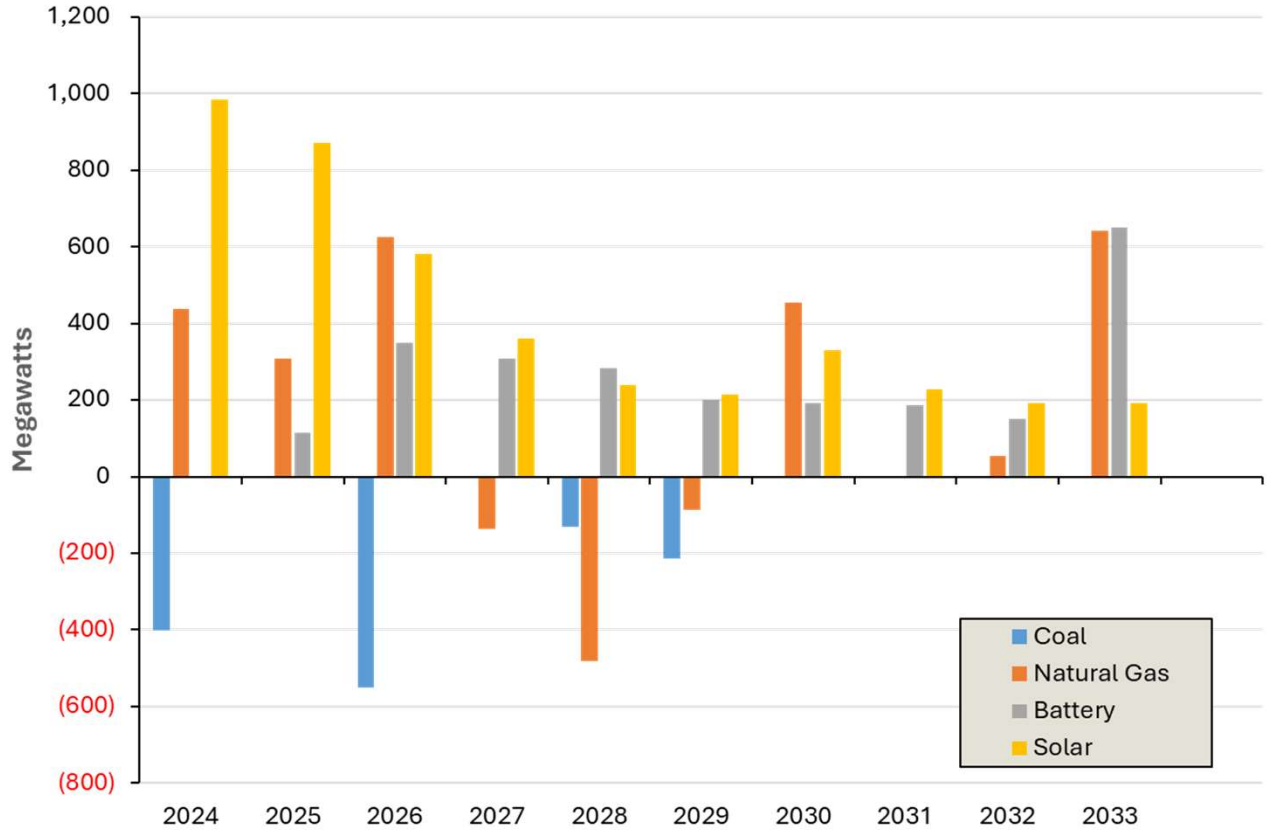
[1] Net Energy for Load (NEL) includes impacts of utility-sponsored Energy Efficiency/Energy Conservation, Energy Efficiency Codes and Standards, and the impact of customer-owned DER.

Forecasted Summer Peak Demands[1]

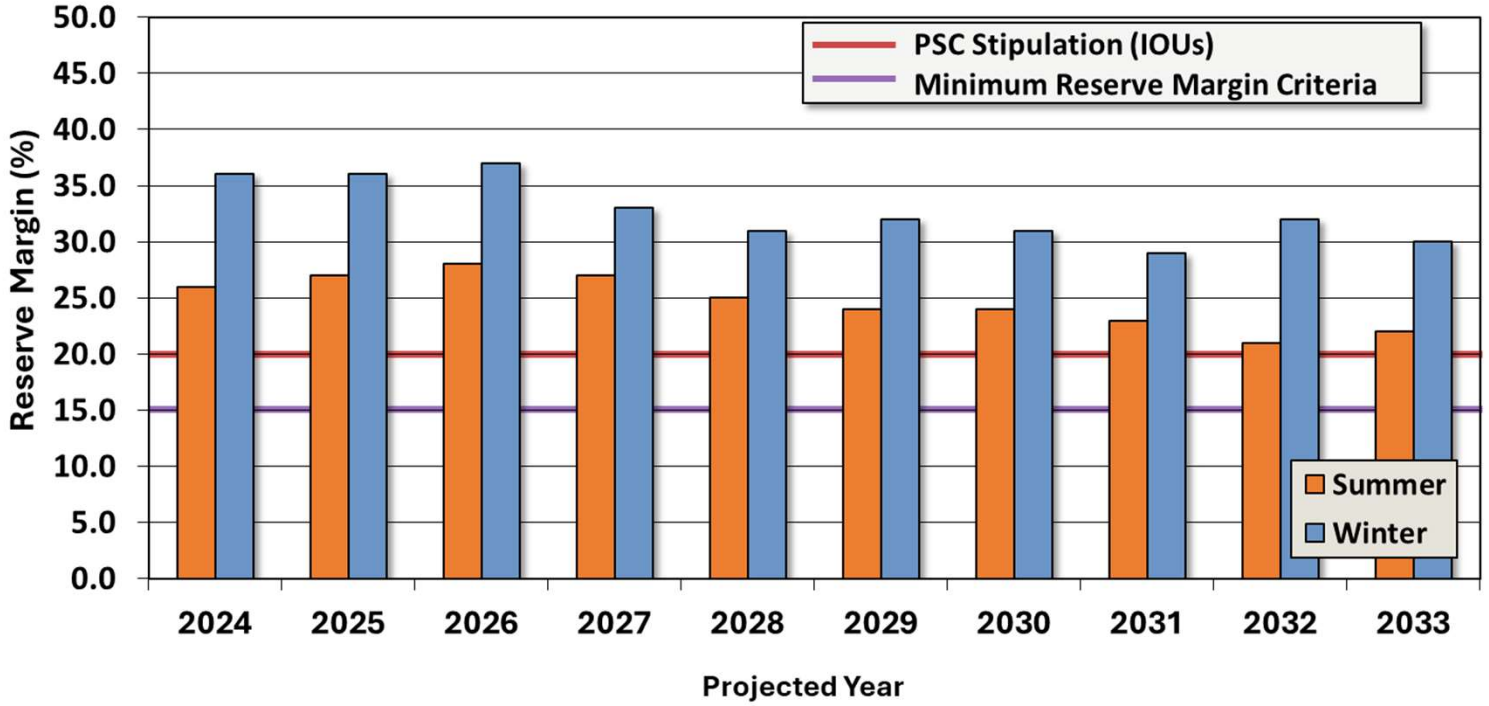


[1] Projected impacts of Energy Efficiency codes and standards are included in all projections.

Incremental Summer Firm Capacity Changes Over 10-yr Planning Horizon by Fuel Type (MW)

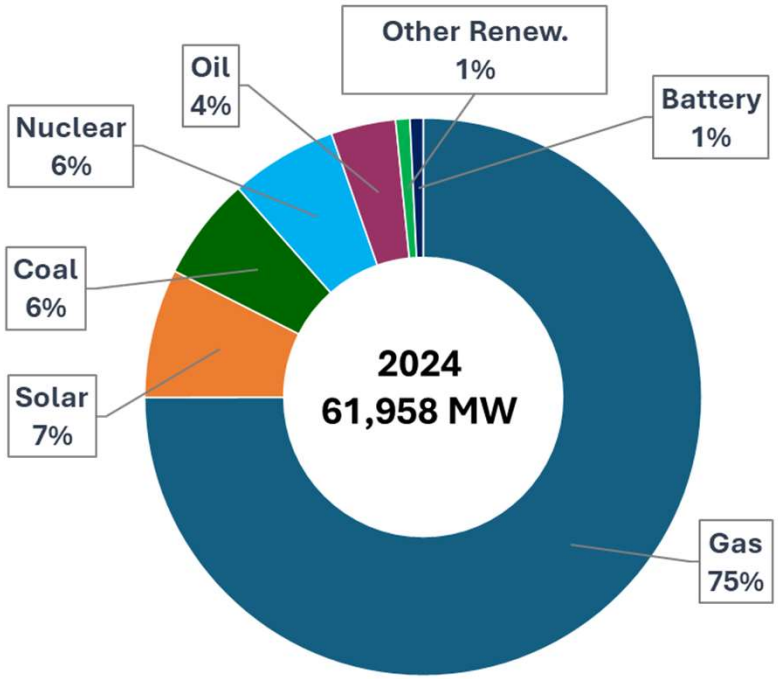


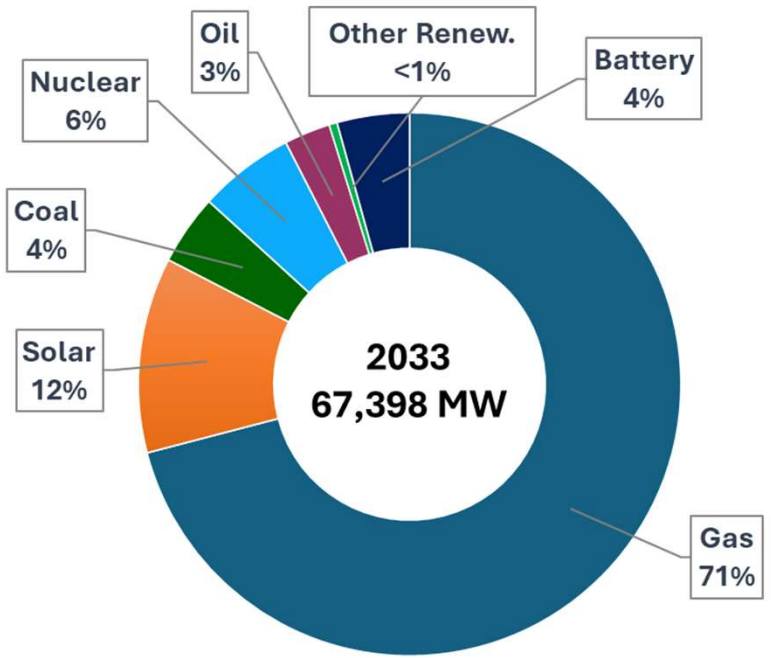
Planned Reserve Margin[1] (Based on Firm Load)



[1] Includes impacts of DSM (cumulative Demand Response and incremental (2024-on), utility-sponsored Energy Efficiency/Energy Conservation), Energy Efficiency Codes and Standards, and customer-owned DER.

Forecasted Firm Summer Resource Capacity[1]

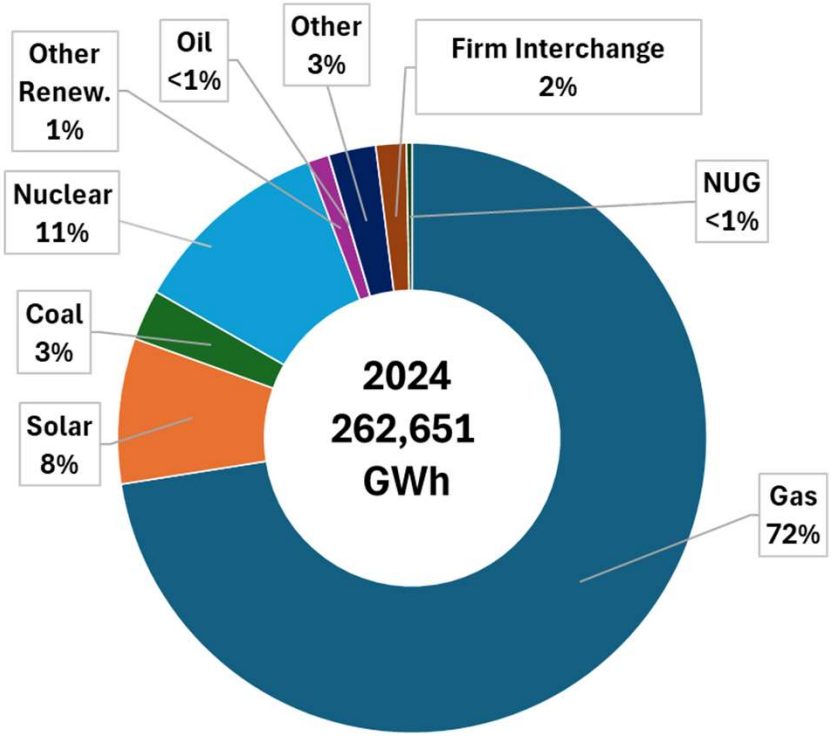


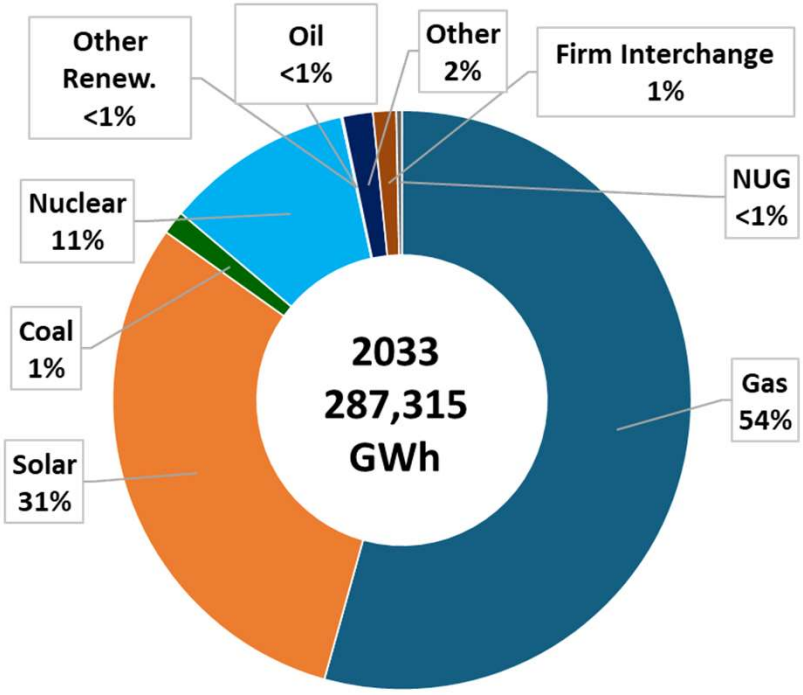


[1] Excludes Firm Demand Response

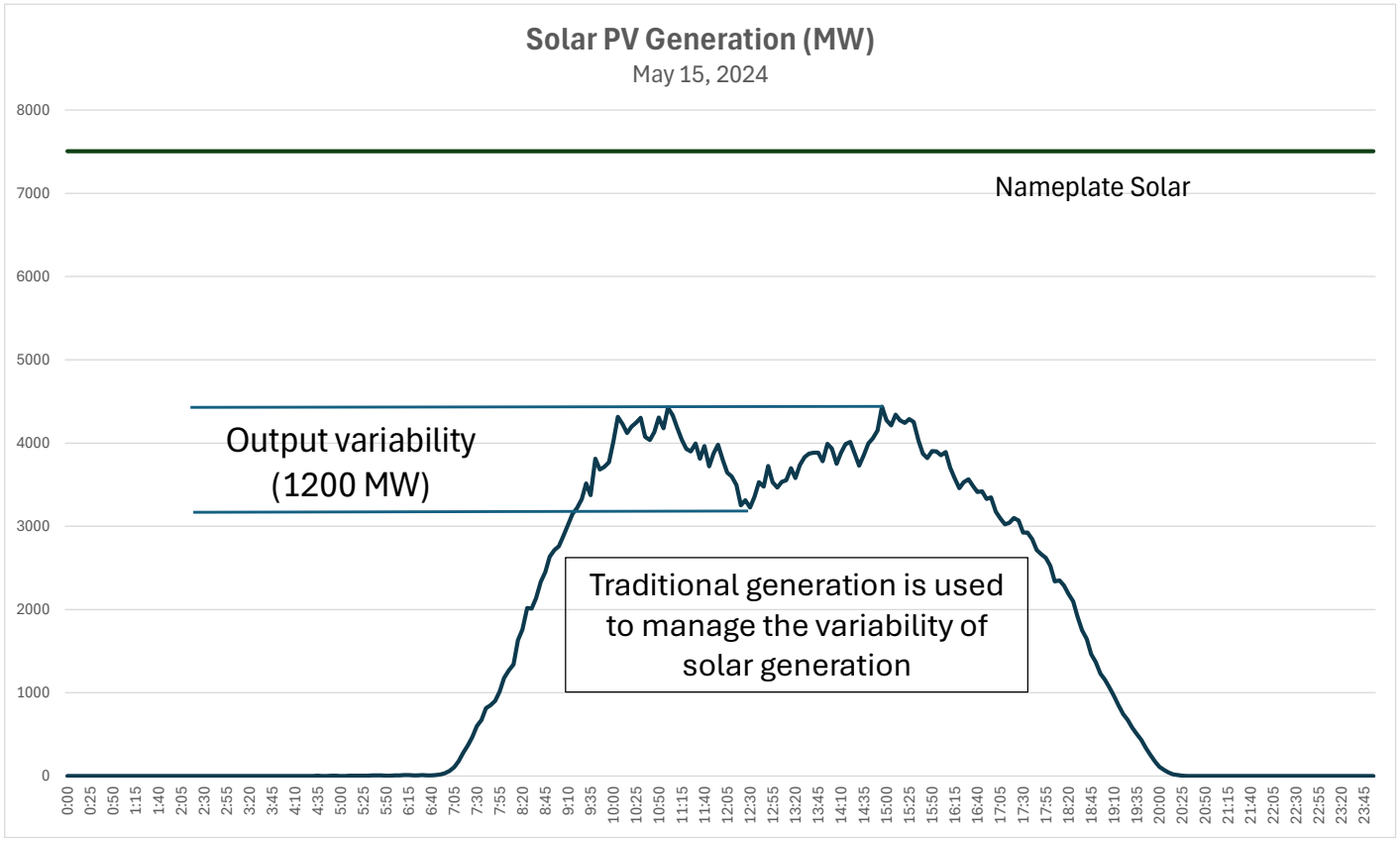
Forecasted Generation Mix

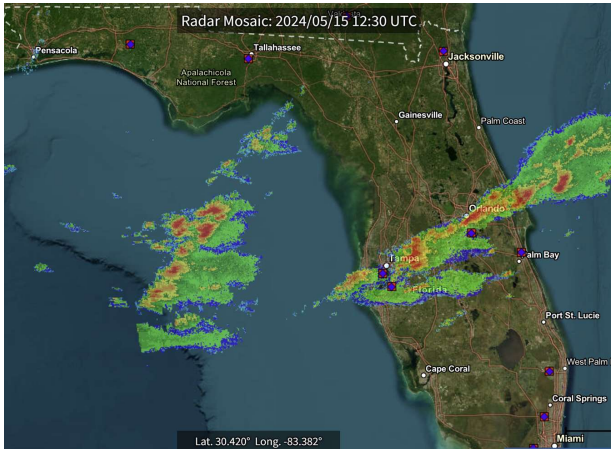
Net Energy for Load (GWh)



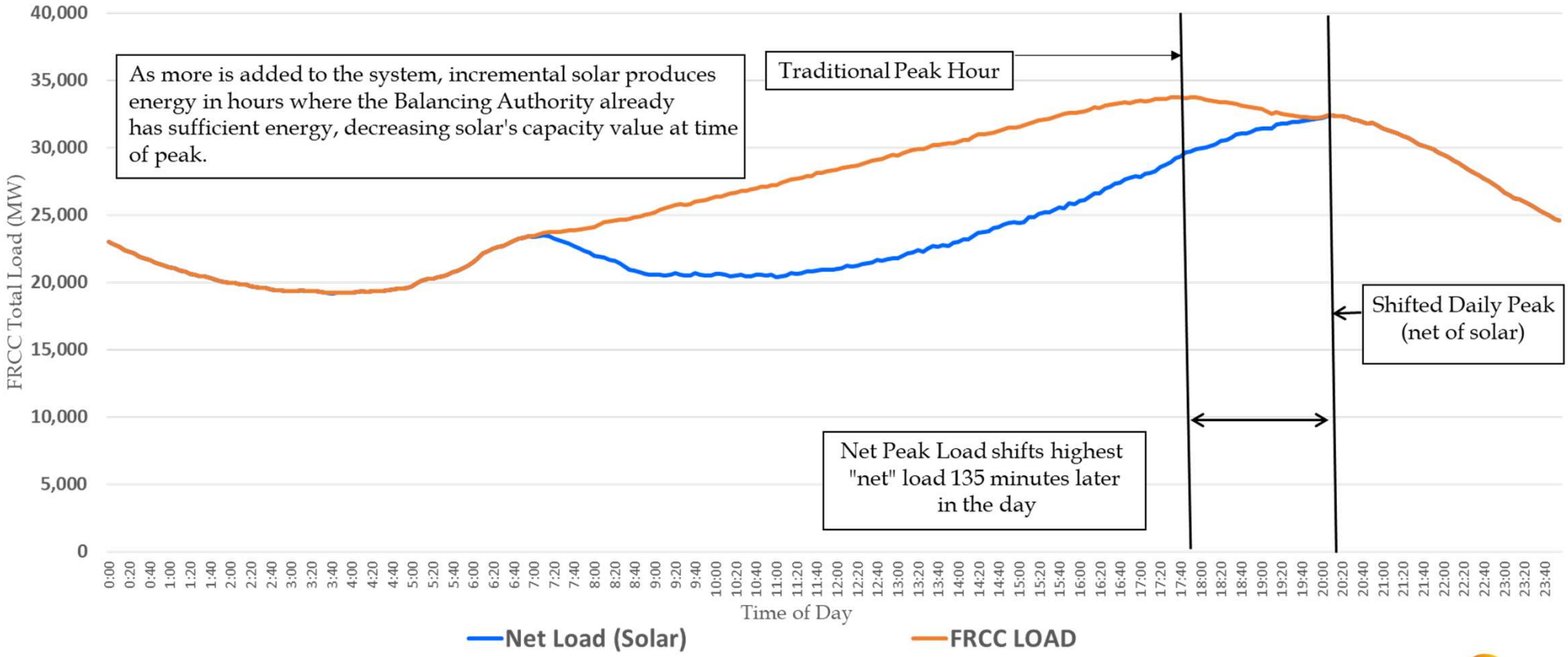


Solar Generation Output Variability

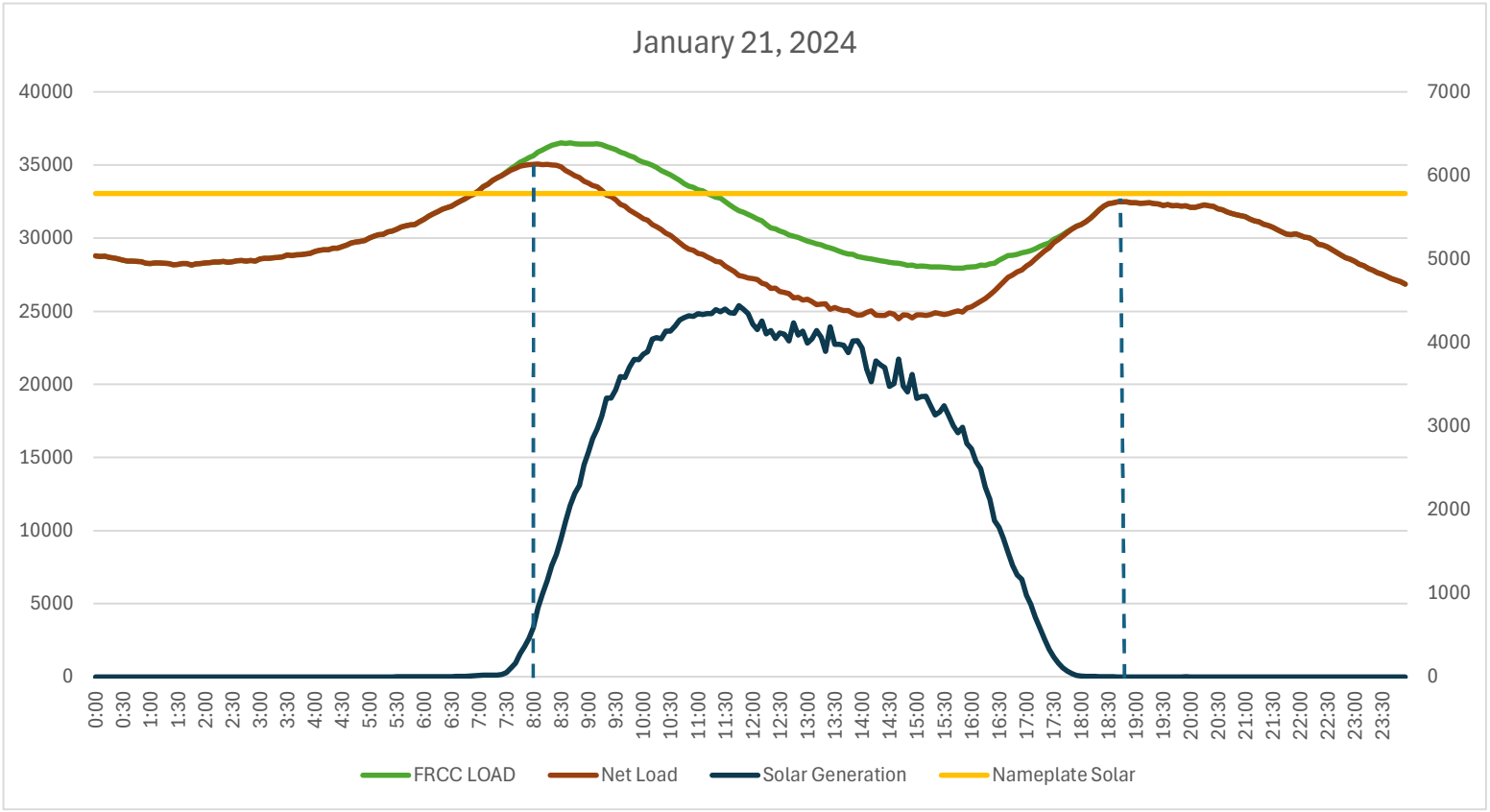




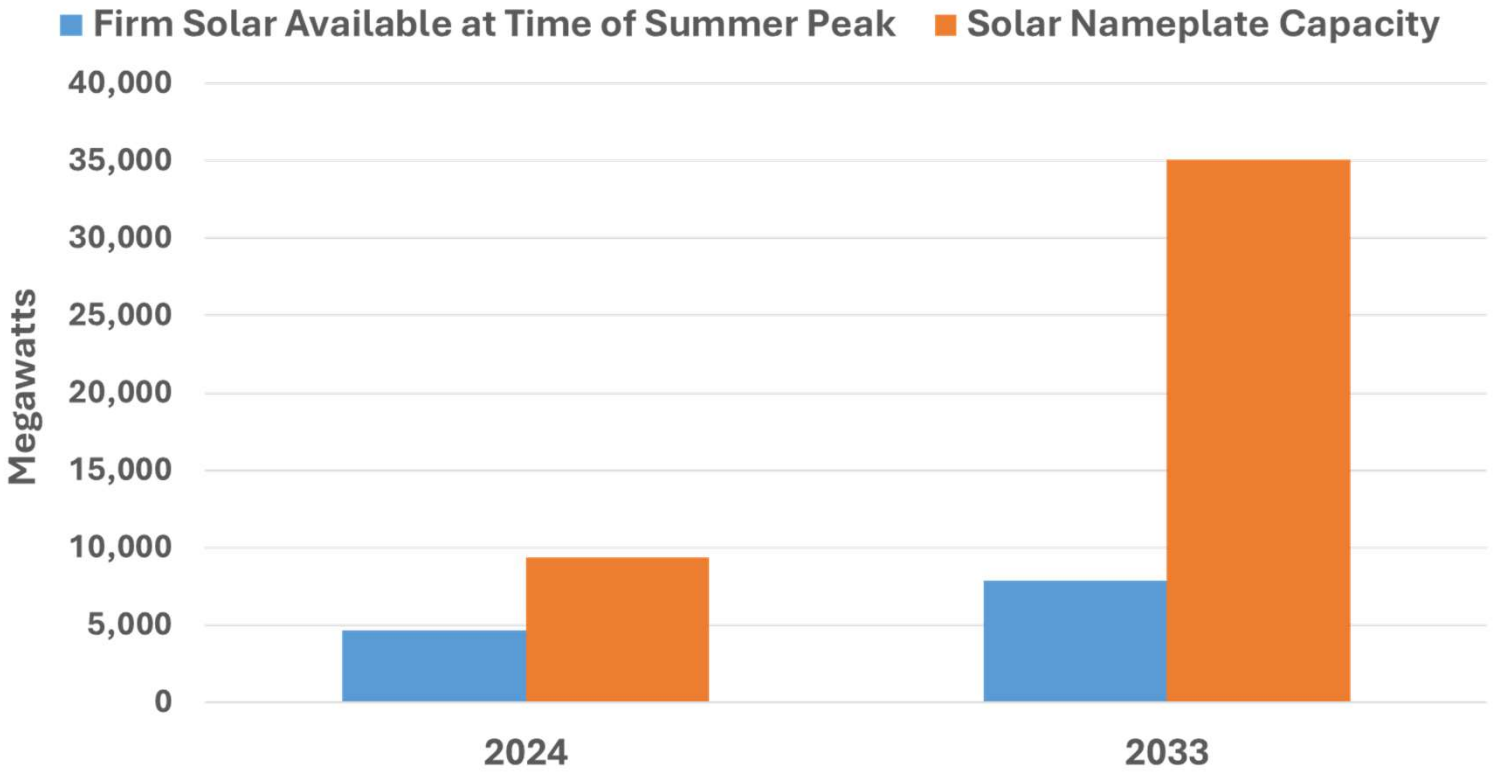
FRCC Daily Load Curve - May 9, 2024



FRCC Load and Solar PV Generation (MW)



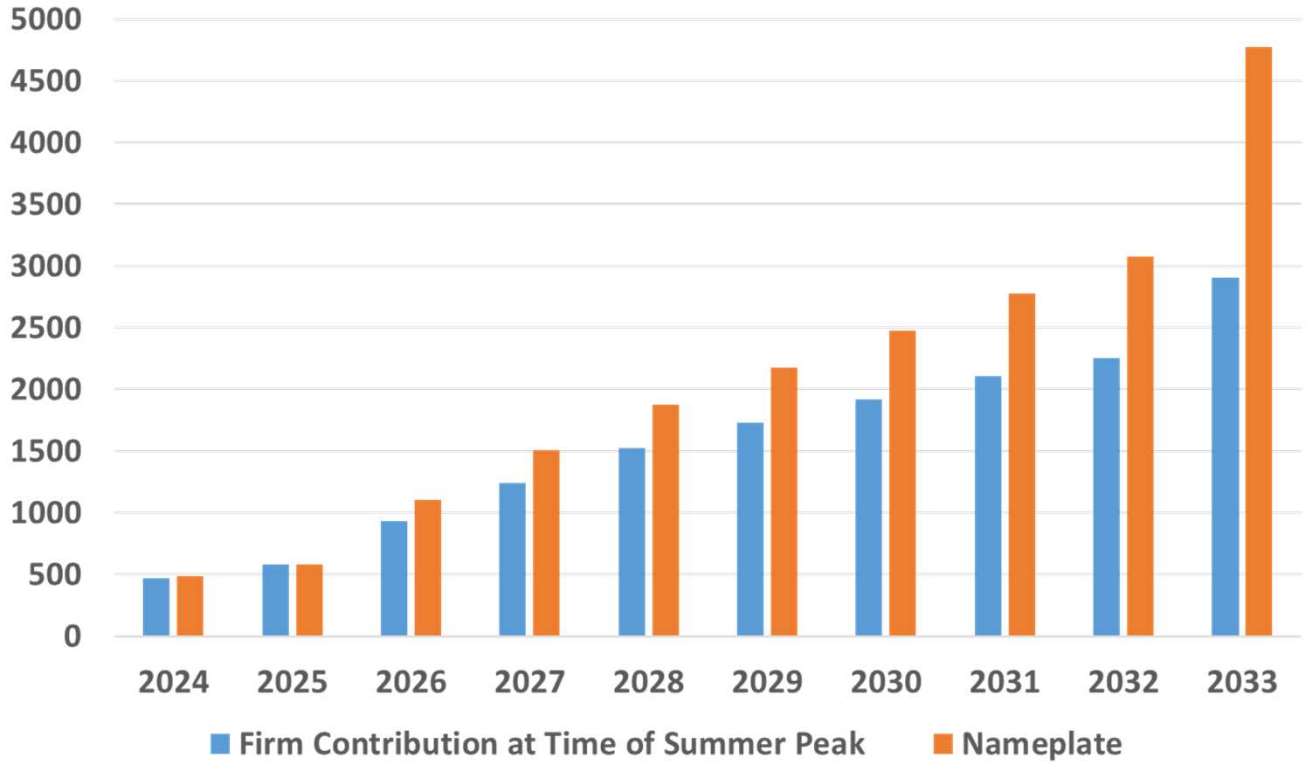
2024 TYSP Cumulative Solar Capability



Reliability Considerations
Utility Solar Generation Additions

- Adding solar shifts period of lowest operating generation margins (Net Peak) to later in the day
- Planners assigning lower capacity value to solar as penetration increases and Net Peak moves to a time of day when less solar energy is generated.
- Planners evaluating adequacy beyond summer and winter peaks
- Operators utilizing dispatchable resources to manage energy adequacy and increased ramping needs related to increased solar
- Utilities continue developing experience with operations, dispatch, and output forecasting and continue to develop tools and monitor capability
- Utilities assessing impact of increased solar and reviewing lessons learned in other parts of the country that have higher penetration rates

2024 TYSP Battery Capability (MW)



Natural Gas Infrastructure in Florida

- With renewal of capacity gas contracts, gas infrastructure remains on pace with generation
- Compare gas infrastructure assessments to TYSPs forecasted needs based on economic dispatch
- Coordinate regional response to fuel emergencies with utilities and pipelines
- Gas generation with alternate fuel capability remains between 54.7-57.8%
- Natural gas is almost entirely dedicated to the electric utility industry in Florida

Transmission Adequacy / Reliability

- Scenarios studied (Represent 2025 – 2034)
  - Peak loads – Summer and Winter
  - Off-peak load for Summer conditions
- Sensitivity scenarios studied (Represent 2025 – 2029)
  - Winter peak 20% higher loads than forecasted
  - Summer peak 6% higher loads than forecasted
  - Summer peak with high imports into the state
  - Off-peak with solar at zero and at maximum capacity
  - Clear and sunny winter peak day in Southern Florida
  - Summer peak, two large units unavailable, solar at maximum capacity

Transmission Adequacy / Reliability

- System events evaluated per NERC TPL-001-5.1
  - Loss of a single element (Gen, line, transformer)
  - Loss of a single element followed by the loss of another element
- Results
  - Existing and planned Facilities within the FRCC Region's transmission system meet the performance criteria contained in NERC Reliability Standard TPL-001-5.1

FERC Order 1920 Requirements

- FERC Order 1000 process remains in place
- Modification of long-term (20 Years into the future) transmission planning processes including Enhanced Transparency, "Right-Sizing" and Interregional Transmission Coordination of Long-Term Transmission
- IOU's must submit plan to comply with Order 1920 by June 2025
- First study incorporating Order 1920 requirements to begin by June 2026, and then every 5 years after the initial study
- Increased interregional coordination allowing entities to propose new regional projects

FERC Order 1920 Specifics

- Required to identify three distinct scenarios in addition to base case
- Must consider an extreme weather sensitivity for each scenario
- Seven categories of factors[1] to drive development of transmission
- Must identify specific projects that meet long-term needs
- Projects are to be evaluated based on maximizing seven benefits[2]
- Two methods available for cost allocation of selected projects commensurate with benefits
  - Ex Ante – Predetermined tariff approach to cost allocation
  - Ex Post – State Agreement Process for specific projects

[1] List of the seven categories of factors are provided as background information on slide 29.
[2] List of seven benefits are provided as background information on slide 30.

Conclusion

- Florida utilities continue to increase planned solar and battery capacity installations, with decreasing capacity value attributed to solar as Net Peak load shifts to later hours of the day
- Distributed solar penetration noticeably decreases utility load forecasts
- Electric vehicle impact to load forecast expected to increase, but at a slower rate than previously forecasted
- Planned Reserve Margins above 20%
- Florida utilities continue to coordinate at FRCC to ensure reliability through studies of the transmission system, natural gas infrastructure, and solar and battery impacts to operations and planning

Conclusion (Continued)

- Existing and planned facilities within the FRCC Region's transmission system meet performance criteria for expected future conditions
- FERC Order 1920 (First Study in 2026):
  - Long-Term planning horizon of 20 years
  - Seven Categories of Factors and seven benefits to consider
  - Cost allocation commensurate with benefits
  - Conduct study every 5 years

Questions?

Background Information (FERC Order 1920)

FERC Order 1920: Categories of Factors Driving Development of Transmission

- Federal, federally-recognized Tribal, state, and local laws and regulations:
  - Affecting the resource mix and demand
  - On decarbonization and electrification
- State-approved integrated resource plans and expected supply obligations for load-serving entities
- Trends in fuel costs and in the cost, performance, and availability of generation, electric storage resources, and building and transportation electrification technologies
- Resource retirements
- Generator interconnection requests and withdrawals
- Utility and corporate commitments and federal, federally-recognized Tribal, state, and local policy goals that affect Long-Term Transmission Needs

FERC Order 1920: Cost Allocation

- Must be roughly commensurate with benefits; States are not required to agree to *ex ante* cost allocation in tariff
- Seven specific benefits to be applied to determine whether any identified regional proposals will efficiently and cost-effectively address long-term transmission needs
  1. Avoided/deferred replacement of reliability transmission facilities and aging infrastructure
  2. Either reduced loss of load probability or reduced planning reserve margin
  3. Production cost savings
  4. Reduced transmission energy losses
  5. Reduced congestion due to transmission outages
  6. Mitigation of extreme weather events and unexpected system conditions
  7. Capacity cost benefits from reduced peak energy losses