



AGENDA
CITY OF LAKE WORTH BEACH
CITY COMMISSION WORK SESSION - IRP
CITY HALL COMMISSION CHAMBER
MONDAY, DECEMBER 05, 2022 - 5:00 PM

ROLL CALL:

PLEDGE OF ALLEGIANCE: led by Commissioner Reinaldo Diaz

UPDATES / FUTURE ACTION / DIRECTION

A. [Integrated Resource Plan \(IRP\) Update](#)

ADJOURNMENT:

The City Commission has adopted Rules of Decorum for Citizen Participation (See Resolution No. 81-2022). The Rules of Decorum are posted within the City Hall Chambers, City Hall Conference Room, posted online at: <https://lakeworthbeachfl.gov/government/virtual-meetings/>, and available through the City Clerk's office. Compliance with the Rules of Decorum is expected and appreciated.

If a person decides to appeal any decision made by the board, agency or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. (F.S. 286.0105)

STAFF REPORT WORK SESSION

AGENDA DATE: December 5, 2022

DEPARTMENT: Electric Utility

TITLE:

Integrated Resource Plan (IRP) Update

SUMMARY:

Update to the City Commission on the development of the City's Electric Utility IRP

BACKGROUND AND JUSTIFICATION:

Resource Plans are an important element in planning for future sources of energy and capacity by an electric utility. Integrated Resource Plans blend both supply-side options with demand-side options to develop a roadmap of preferred options for meeting customer needs and serve as a guide in building the utility's portfolio. Factors considered while developing an IRP include system load growth, carbon reduction goals, generation and demand reduction technology alternatives and costs, fuel availability and prices, market capacity and energy prices, market economics, operations and maintenance costs, etc.

In 2018 City's electric utility developed a Resource Plan as a part of its Generation and Transmission Improvement Program (GTIP) which served as a roadmap for types of electric generation technologies that were available in the market and identified a recommended path forward for the City's electric utility supply portfolio. At that time City's electric utility had no formal resource plan and time was of the essence in formalizing a path forward in response to deteriorating transmission system and power plant reliability. The 2018 Resource Plan identified solar photovoltaic energy as a preferred resource option and served as a significant driver in City's subsequent decision to contract for 36.55 MW of solar power from the Florida Municipal Power Agency (FMPA). The 2018 Resource Plan also formally recognized the need for the electric utility to implement a second tie line to the regional transmission grid as a preferred alternative to improve transmission reliability, a project which is underway today.

It has now been four years since the completion of the 2018 Resource Plan. Resource Plans are not static tools and should be refreshed from time to time allow for corrections in course that may be warranted as new technologies emerge, economic conditions change, customer needs change, etc. The next evolution of the plan is to include demand-side options to allow for a plan that recognizes demand-side alternative as a contributor to meeting future system needs.

At the June 28, 2022 City Commission meeting Horizons Energy was selected to assist the City in developing the IRP. Together with the City's electric utility staff, with participation of the Electric Utility Advisory Board members, Horizons Energy is underway with the process of producing 2022 IRP. Horizons Energy Staff will provide an update on the model results to date and seek input from the City Commission on the contemplated path to reduced CO2 emissions associated with meeting the City's electric utility needs.

At the October 25, 2022 City Commission meeting it was requested that a work session be scheduled on the subject to allow time for further discussion.

ATTACHMENT(S):

Horizons Energy Presentation



LAKE WORTH BEACH INTEGRATED RESOURCE PLAN

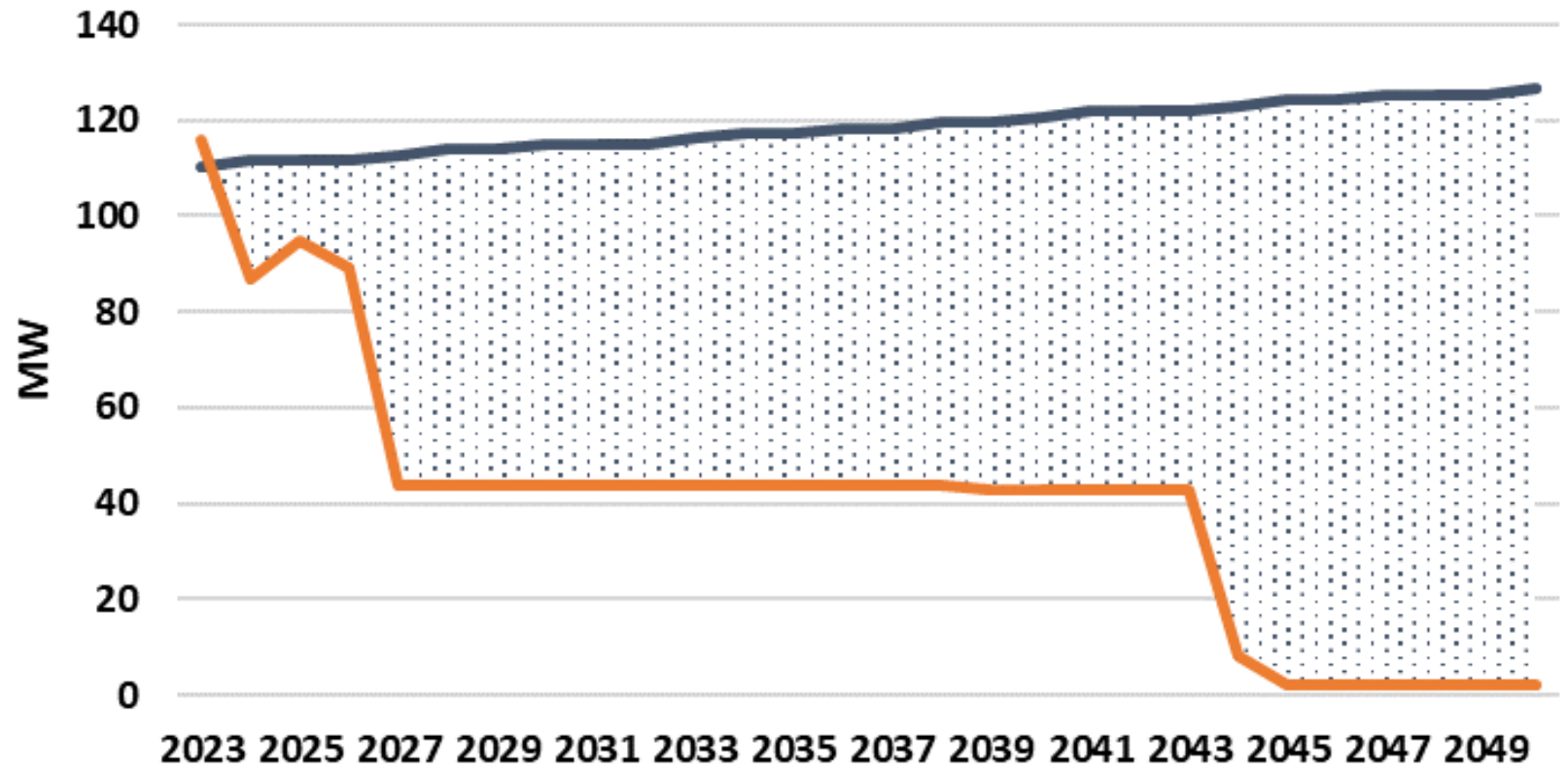
October 25th, 2022

IRP PROJECT

- Initiated project: June
- Data development and validation: July/August
- Preliminary results: September
- Refined results: October

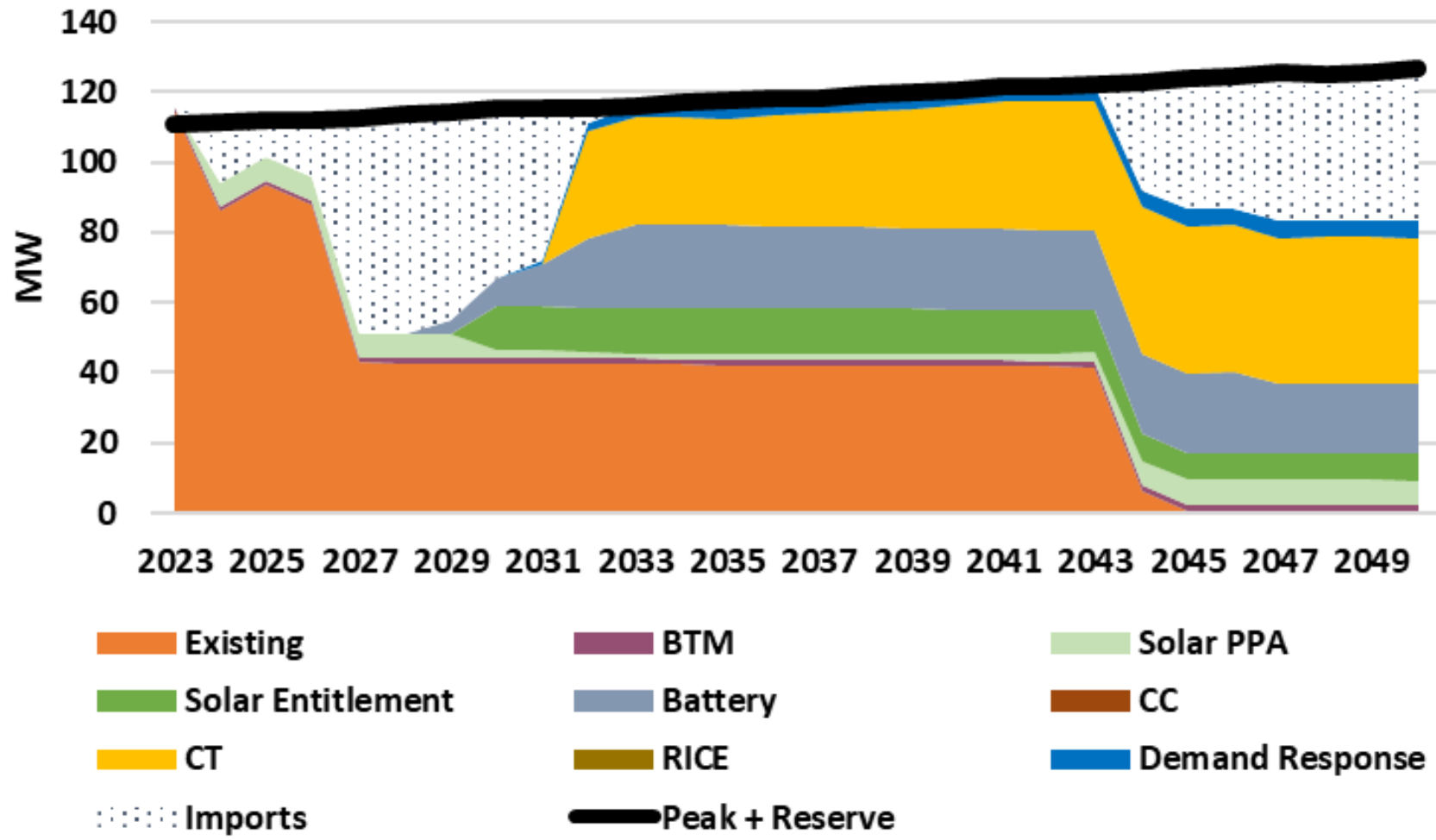


RESOURCE NEEDS

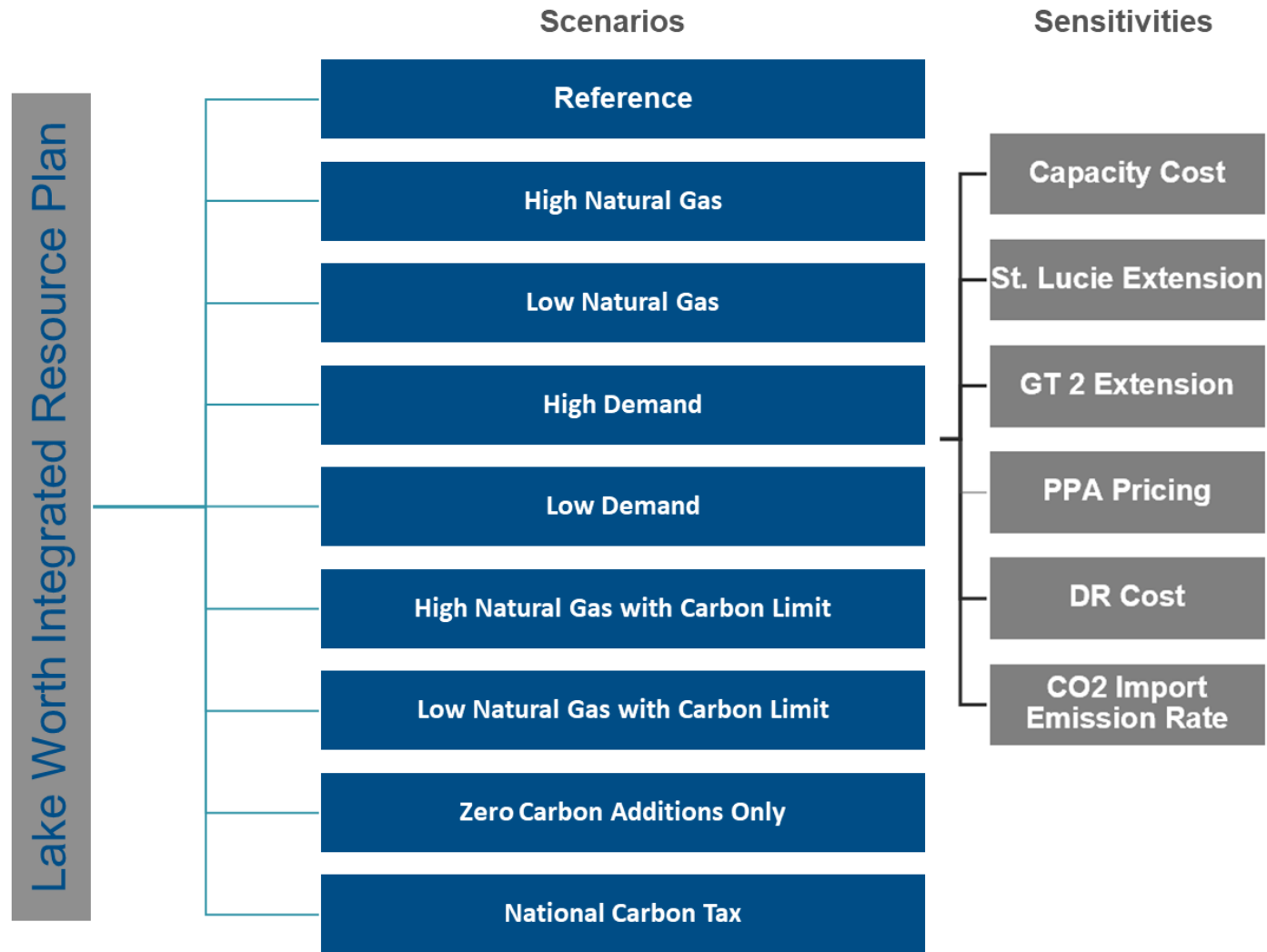


Supplemental Capacity Peak + Reserve Requirement Existing Resources

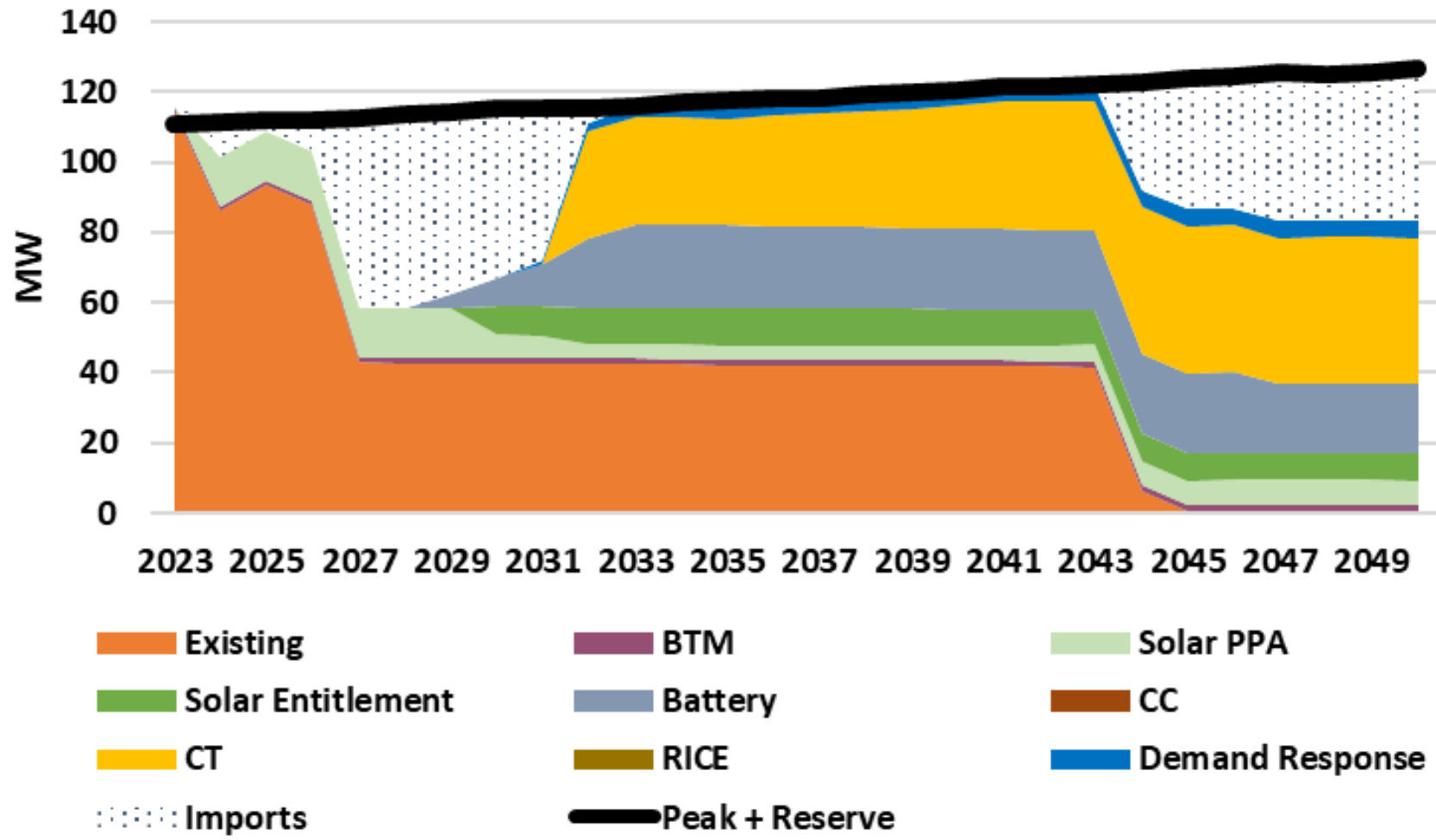
BASE CASE RESOURCE PLAN



LAKE WORTH BEACH IRP: SCENARIOS/SENSITIVITIES



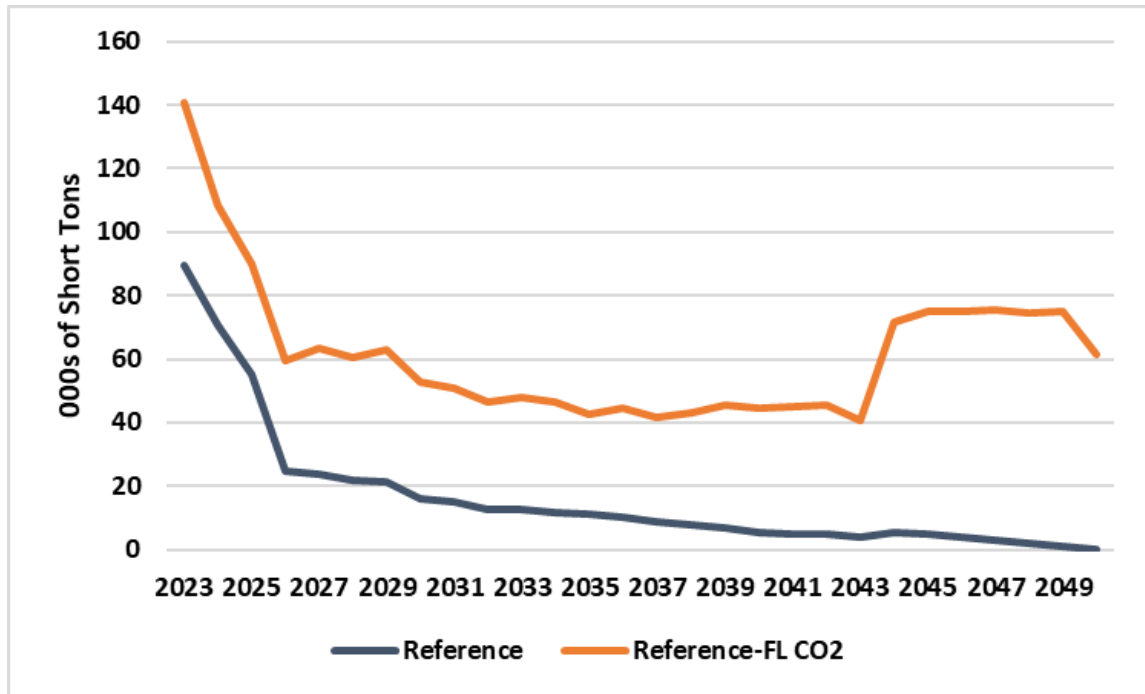
BASE CASE RESOURCE PLAN-PPA SENSITIVITY



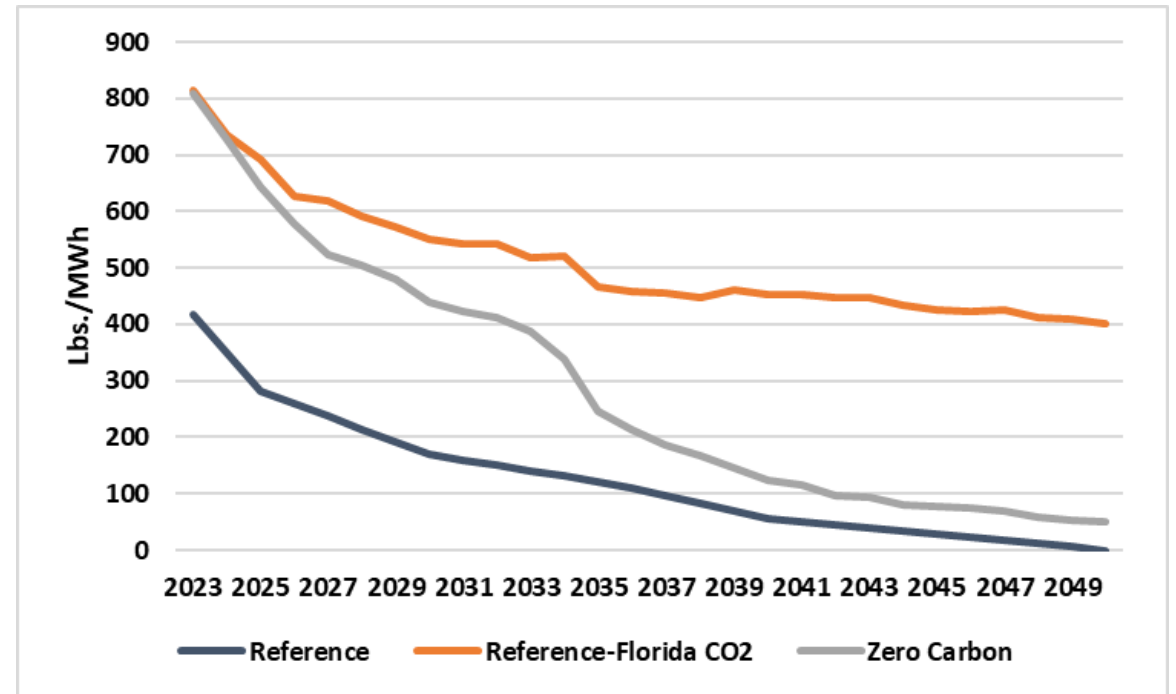
CARBON SENSITIVITY



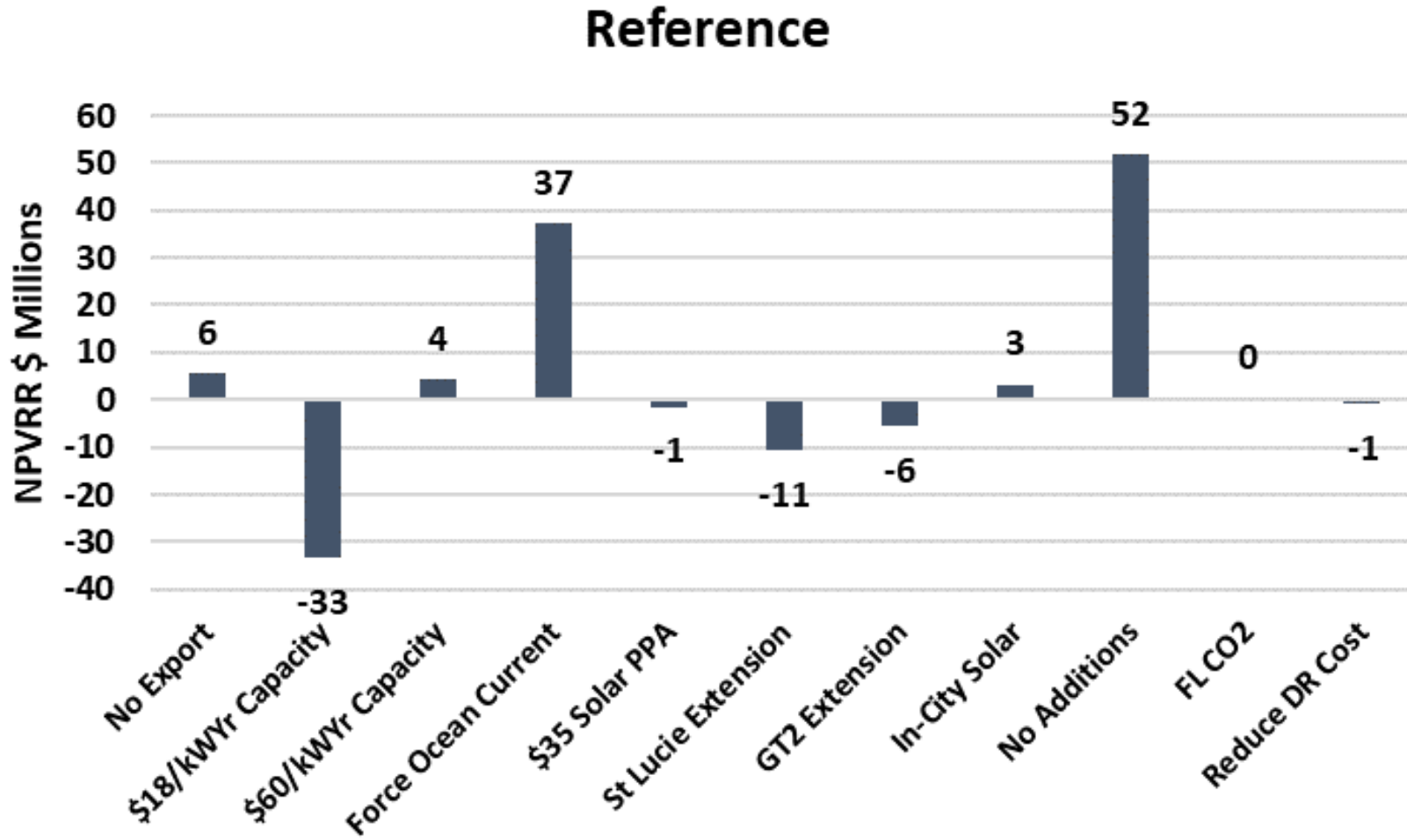
LWBEU Emission Forecast



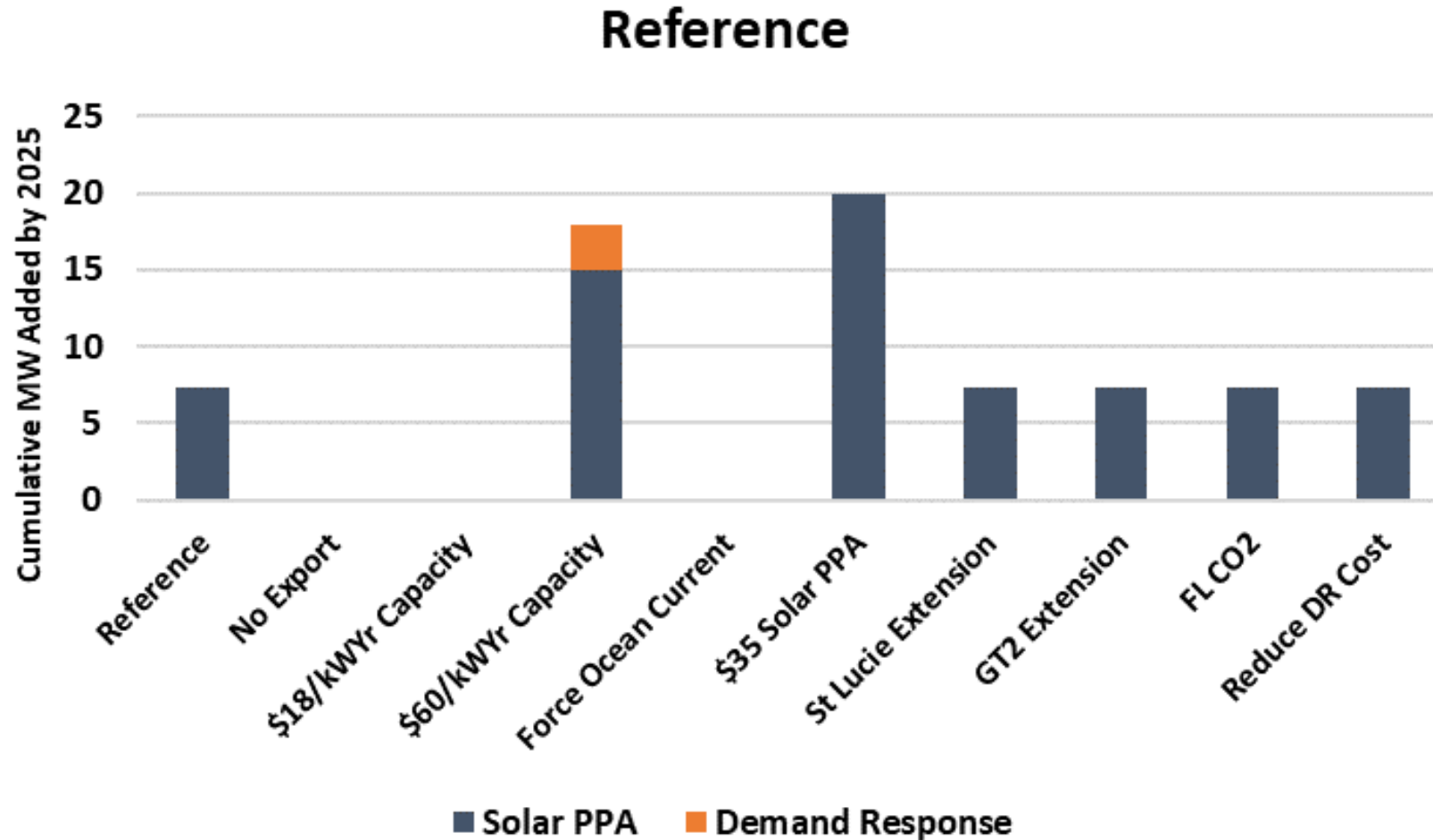
Florida Import Emission Rate



(SAVINGS)/COST

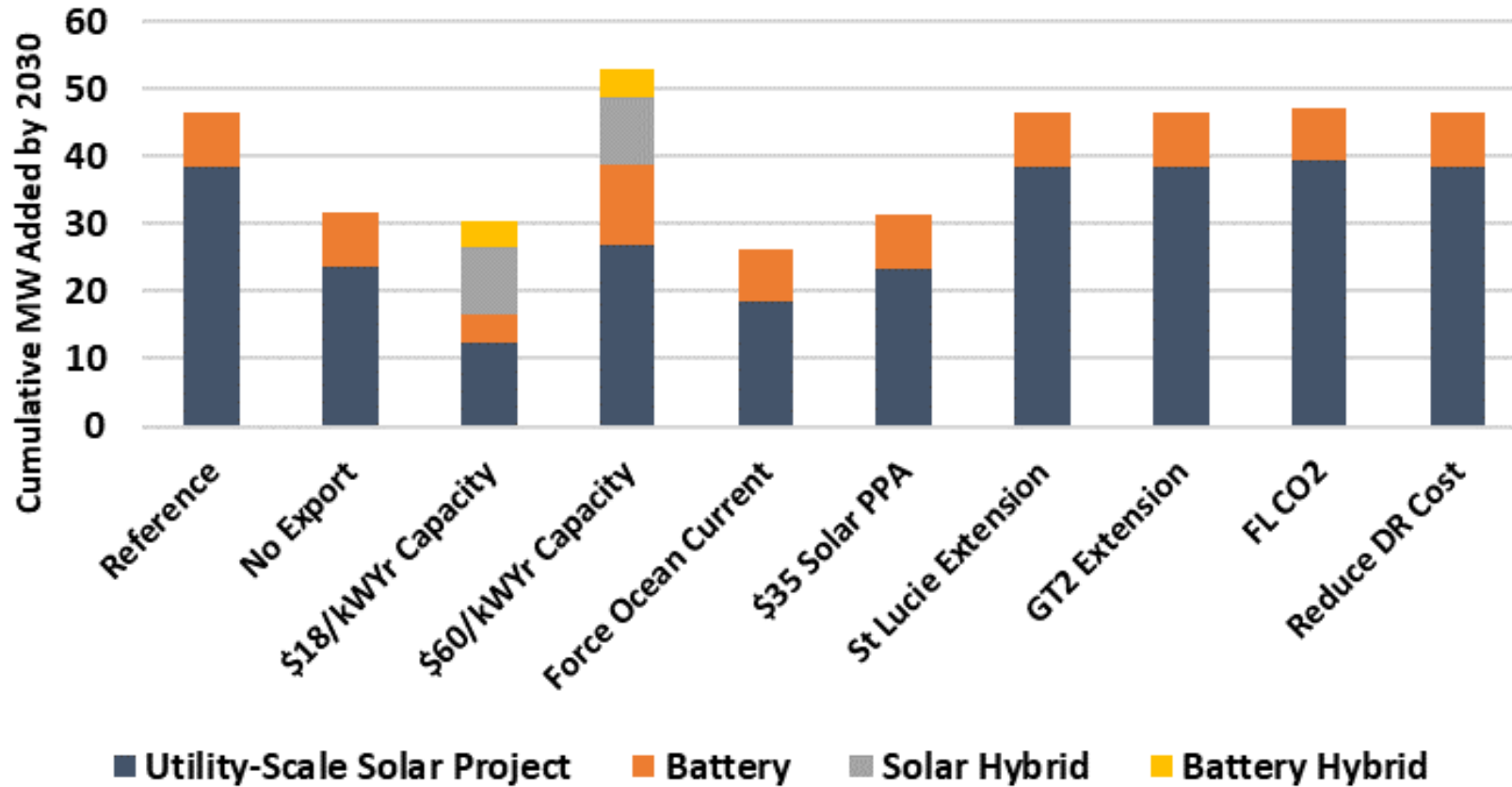


SOLAR PPA & DEMAND RESPONSE SENSITIVITIES



SOLAR ENTITLEMENT & BATTERIES BY 2030

Reference



FINDINGS

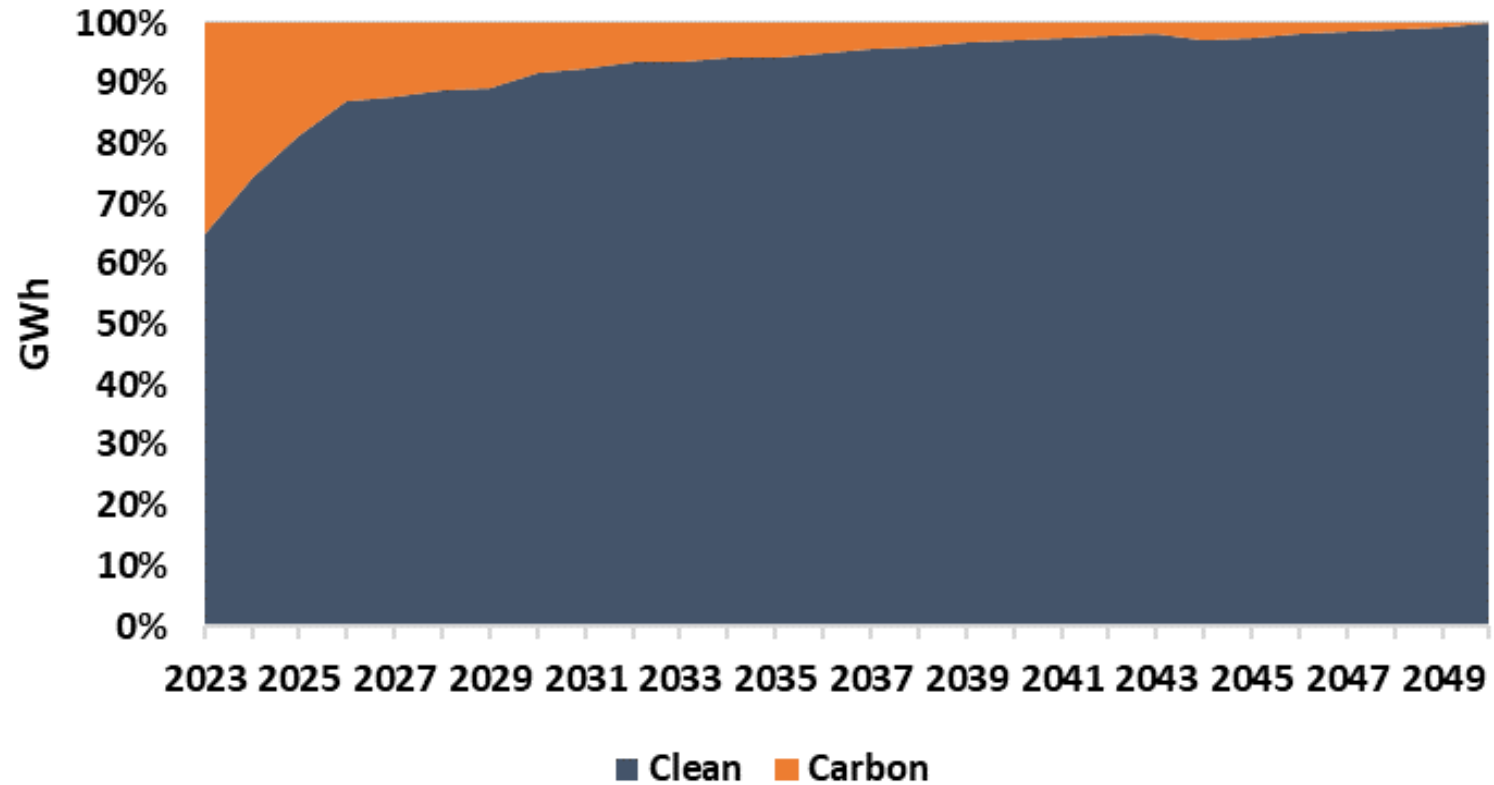
- New resource additions required over time
- Acquiring resources reduces costs over reliance on market
- Solar PPA is economic. Optimal size varies by scenario
- Zero carbon attainment highly dependent on import carbon rate
- GT 2 Extension in 2028 reduces costs by \$6 million NPV
- In-City Solar in 2024 increases costs by \$3 million NPV

PORTFOLIO SELECTION

- 2023-2030
 - Solar PPA
 - Further evaluate economics of Demand Response (DR)
 - Further evaluate life extension on GT2
- 2031-2040
 - Need for firm capacity
 - Consider: mix of batteries, DR, CT
 - Solar entitlement
- 2041-2050
 - St. Lucie and FMPA solar retirement
 - Low carbon purchases

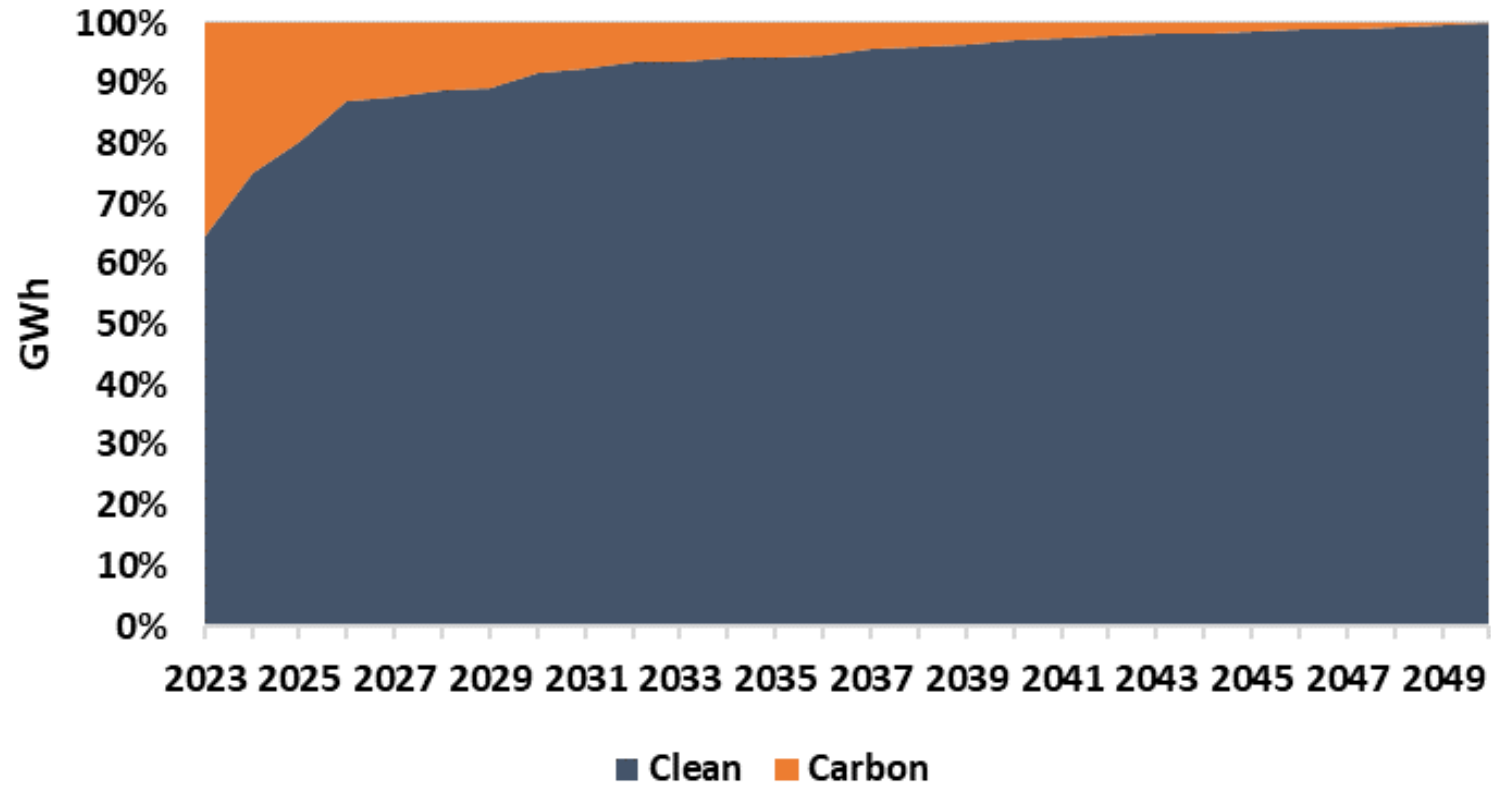
CARBON GENERATION

Reference



CARBON GENERATION

Reference-St Lucie Extension



CARBON GENERATION

Reference-FL CO2

