

Existing Supply Side Resources



STAKEHOLDER MEETING #1
GPA INTEGRATED RESOURCE PLAN 2021

January 2021



Stakeholder Meeting #1

- Introduction to Integrated Resource Planning and the Stakeholder Process
- GPA Strategic Issues
- Assumptions & Inputs
- **Existing Supply Side Resources & Services**
- On the Horizon Programs & Projects
- Next Steps & How You Can Contribute
- Q&A / Open Discussion

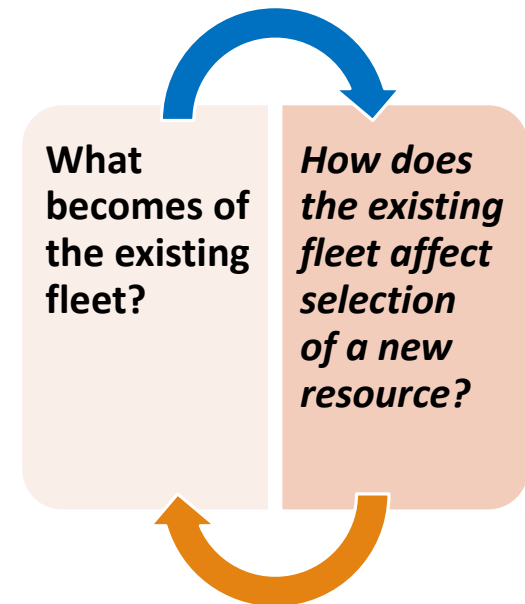
IRP Considerations

An IRP determines the type, amount, and timing of new power resources.

➤ How about the existing resources? GPA will consider:

- ☐ Retirement
- ☐ Life Extension
- ☐ Modifications/upgrades
- ☐ Efficiency Improvements

***GOAL: REDUCE COST BUT IMPROVE
SYSTEM RELIABILITY***





GPA Resource Inventory

UNIT	TYPE	CAPACITY	YEAR INSTALLED	UNIT	TYPE	CAPACITY	YEAR INSTALLED
Cabras 1	Baseload, RFO-Fired	66 MW	1974	Tenjo 1	Peaking, ULSD	4.4 MW	1993
Cabras 2	Baseload, RFO-Fired	66 MW	1975	Tenjo 2	Peaking, ULSD	4.4 MW	1993
Piti 8	Baseload, RFO-Fired	44.2 MW	1999	Tenjo 3	Peaking, ULSD	4.4 MW	1993
Piti 9	Baseload, RFO-Fired	44.2 MW	1999	Tenjo 4	Peaking, ULSD	4.4 MW	1993
Macheche CT	Intermediate, ULSD	20 MW	1993	Tenjo 5	Peaking, ULSD	4.4 MW	1993
Yigo CT	Intermediate, ULSD	20 MW	1993	Tenjo 6	Peaking, ULSD	4.4 MW	1993
Yigo Diesel	Intermediate, ULSD	41 MW	2016	MDI 1	Peaking, ULSD	5.3 MW	1994
TEMES CT	Peaking, ULSD	38 MW	1998	MDI 2	Peaking, ULSD	5.3 MW	1994
Dededo CT1	Peaking, ULSD	20 MW	1992	Talofofo 1	Peaking, ULSD	4.4 MW	1993
Dededo CT 2	Peaking, ULSD	20 MW	1994	Talofofo 2	Peaking, ULSD	4.4 MW	1993



Summary of the Mix

Operation Type	MW	Fuel Type
Baseload Units	220.4	RFO
Intermediate Units	81	ULSD
Peaking Units	123.8	ULSD

Total 425.2

Unit Type	MW	Fuel Type
Steam Turbine (2)	132	RFO
Slow Speed Diesel Engine (2)	88.4	RFO
Combustion Turbine (5)	118	ULSD
Medium Speed Diesel (10)	45.8	ULSD
High Speed Diesel (39)	41	ULSD

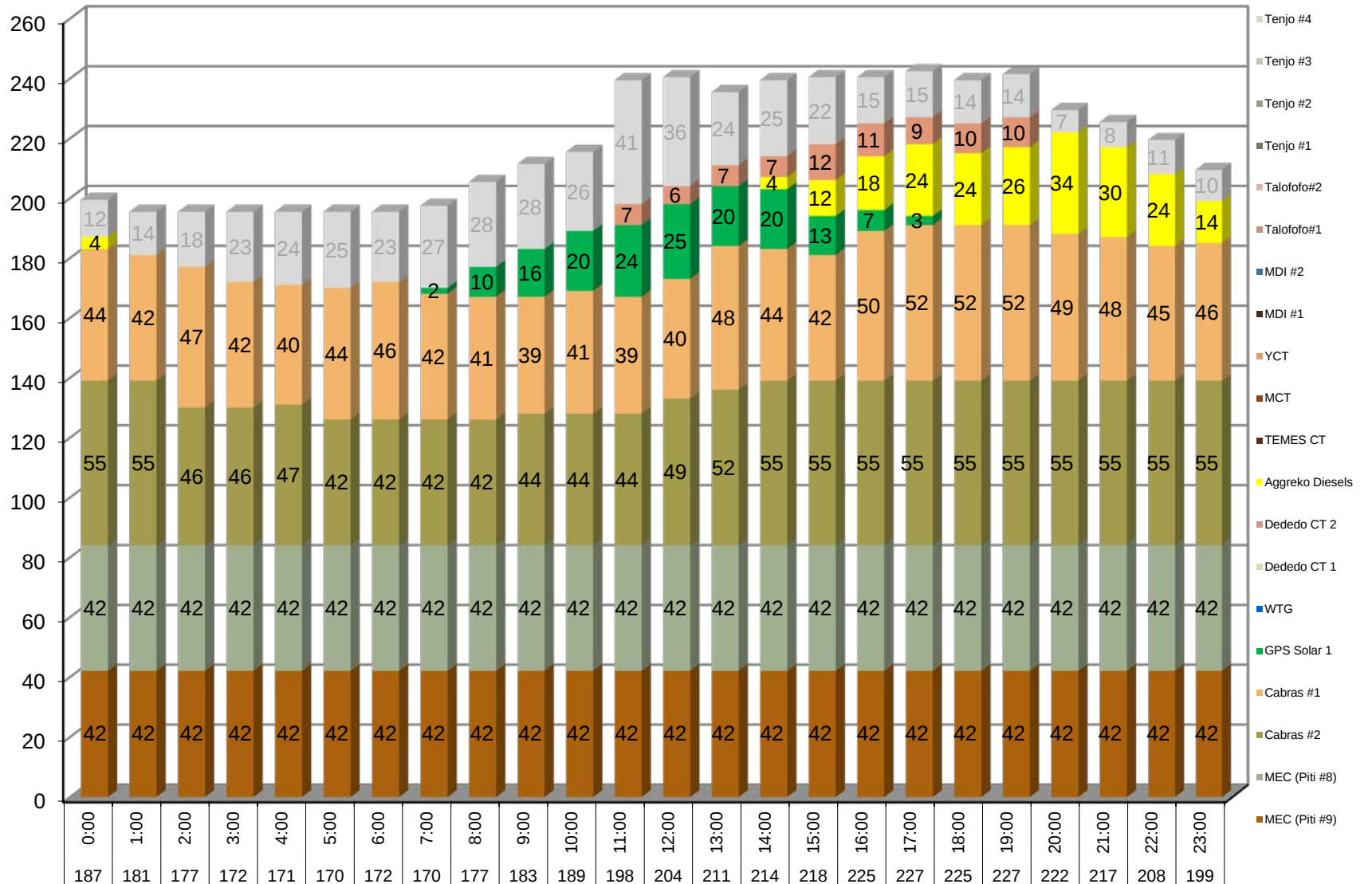
Total 425.2

Reserve (260MW Peak), MW	165.2	39%
Reserve (270MW Peak), MW	155.2	37%
Reserve (280MW Peak), MW	145.2	34%

N-2 Requirement, MW	132
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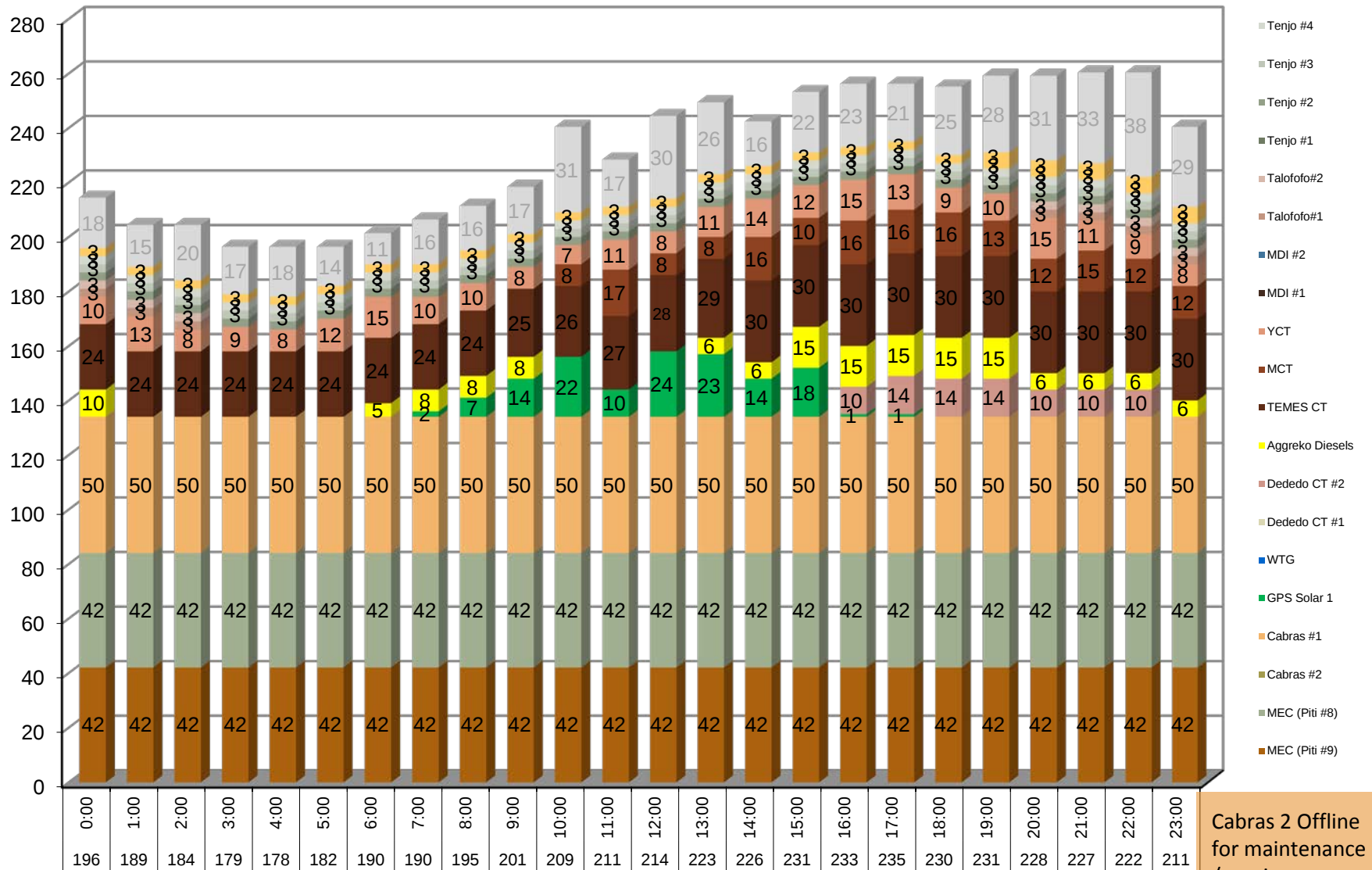
Generation Loading Report

Saturday, Oct. 31, 2020



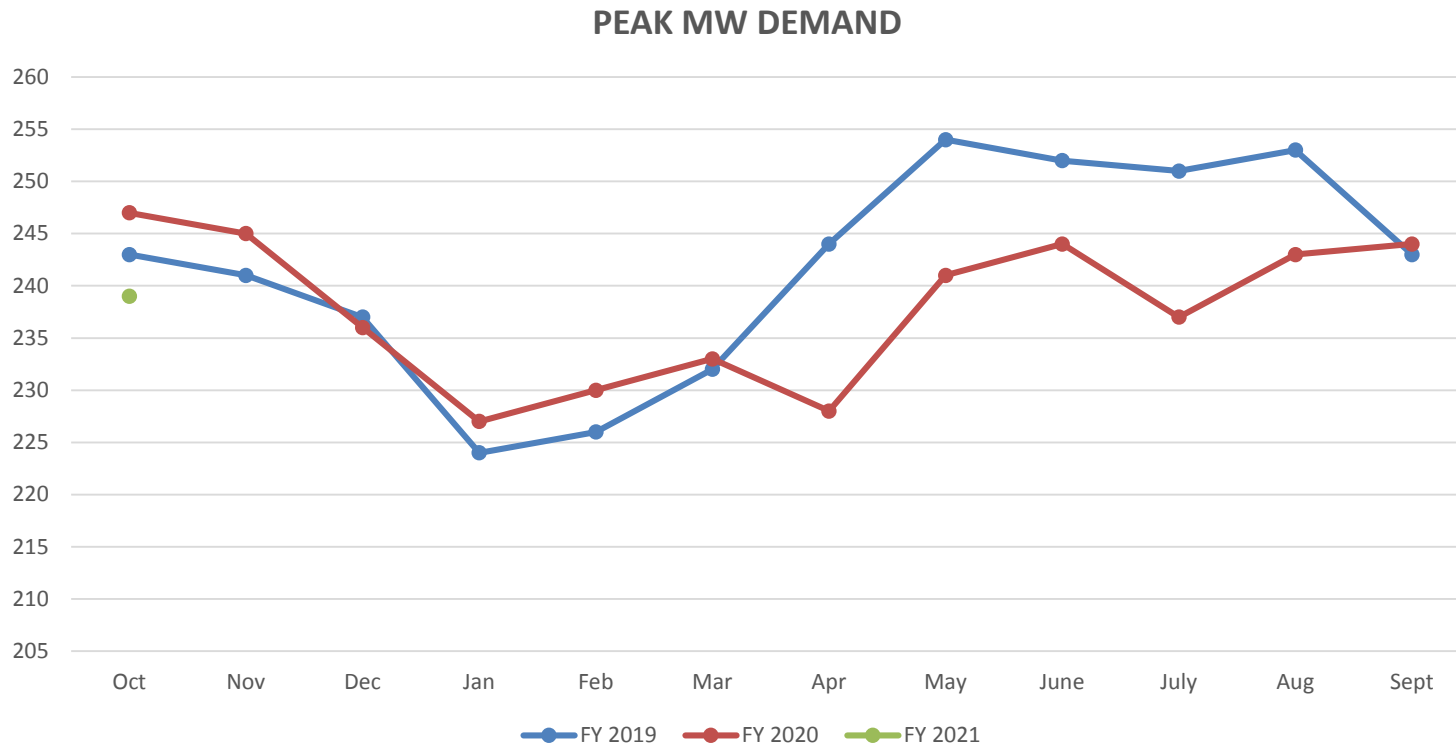
Generation Loading Report

Thursday, Oct. 31, 2019



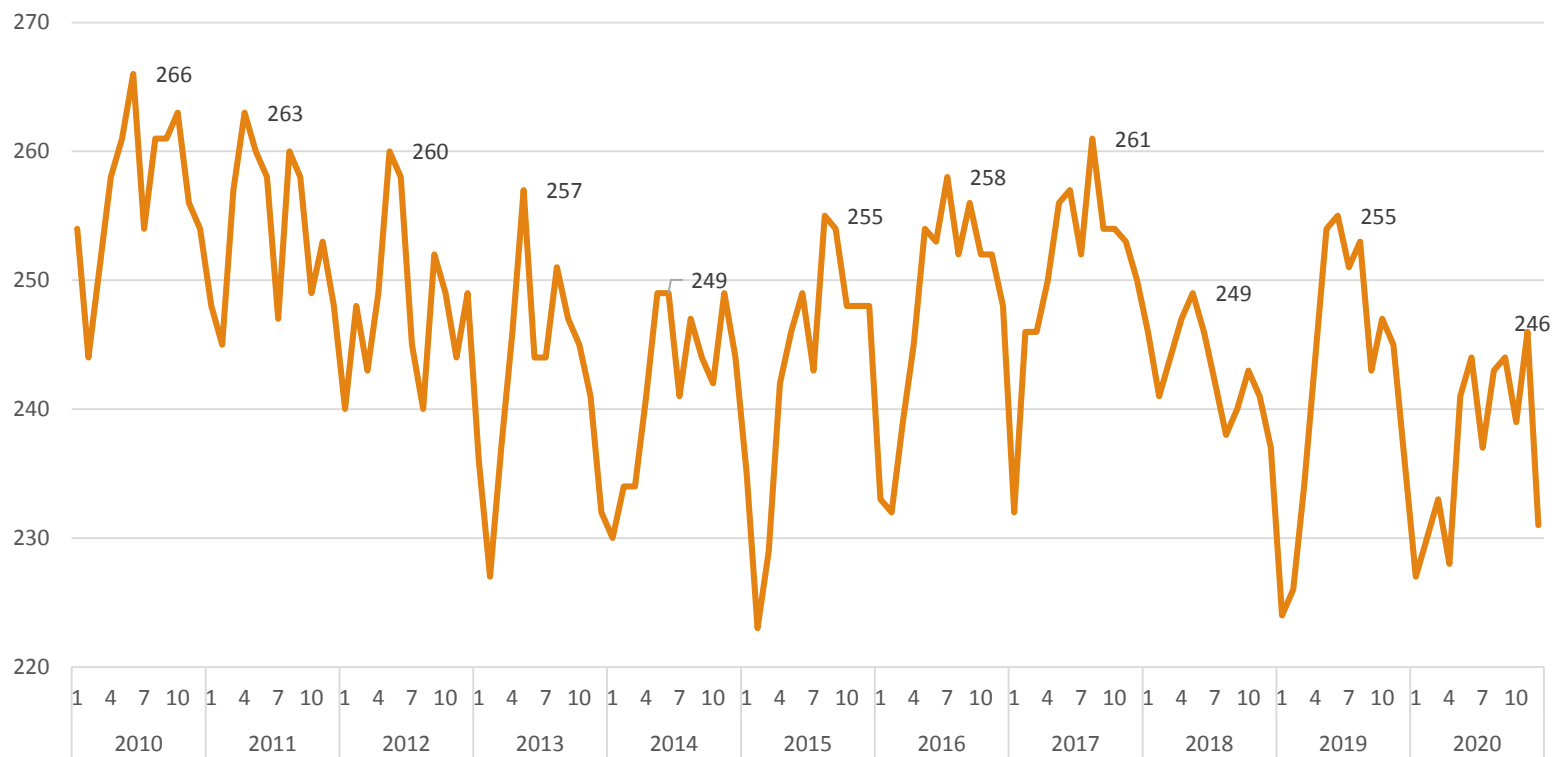


Meeting Customer Demand:





Historical Annual Peak



Highest Peak Demand of 281.5MW occurred on September 05, 2001



Operations

- Economic Dispatch
 - Prioritizing dispatching of units based on efficient use of fuel for power generation (reduces/optimizes fuel costs)
 - Meeting PUC Standards for Heat Rate
- Address spinning reserve requirements
 - Reserving capacity of online units to support a sudden surge of load or loss of generation (system stability and reliability requirement)
- Maintaining non-spinning reserve
 - Non-spinning reserve refers to the smaller, but quick starting units that would start up and synchronize to the system if spinning reserve is inadequate.
- Maintaining Reliability
 - Meeting PUC standards for Availability
 - Evaluating Loss of Load Expectation for Operational and Planning Purposes (1 day in 4.5 years) to determine need for additional capacity



Issues on the Horizon

- Environmental Requirements

- Requires closure of Cabras 1&2 (Consent Decree)
- Requires conversion of Piti 8 & 9 to ULSD-firing (Consent Decree)
- May require additional controls at the smaller diesel units
- Limits running hours on Combustion Turbines, and temporary power units

- Generating Unit Flexibility / Adaptability

- How will older units adapt to operation with intermittent energy from Solar PV?

- Aging Infrastructure

- Upgrade/rehabilitation vs. Replacement with newer, more efficient units



Options for Existing Resources

- Fuel Diversification
 - Lower fuel costs and provide fuel security
 - Address environmental regulations and requirements based on current fuel use
- Plant Efficiency Improvement Projects
 - Upgrade equipment, replace motors, upgrade controls, address efficiency issues
 - Modify for additional capacity or grid support (synchronous condenser)
- Life Extension Considerations
 - Identifying and investing in projects that will defer significant capital investment costs for new resource(s)
- Retire Units
- Replace with Newer Technology



Consider this...

*How does the existing fleet affect the selection of a new resource?
What is the fit?*

*What other considerations should GPA evaluate with regards to its
existing fleet and possibly new resources?*

How can GPA further benefit from partnerships managing GPA plants?



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