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Background on the GPA System and Looking to the Future

October 18, 2007

GPA Integrated Resource Plan

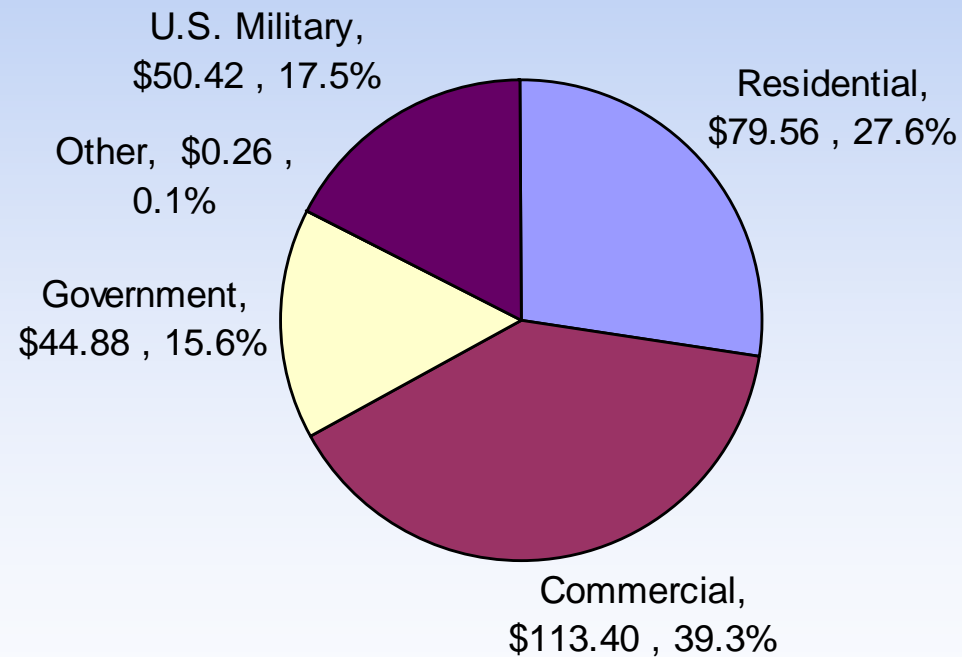
Stakeholder Meeting

Topics

- Rates and Revenues
- Resources
- Historical Factors For Past Decisions
- Key System Constraints
- Looking Forward
 - How Is The IRP Undertaken?

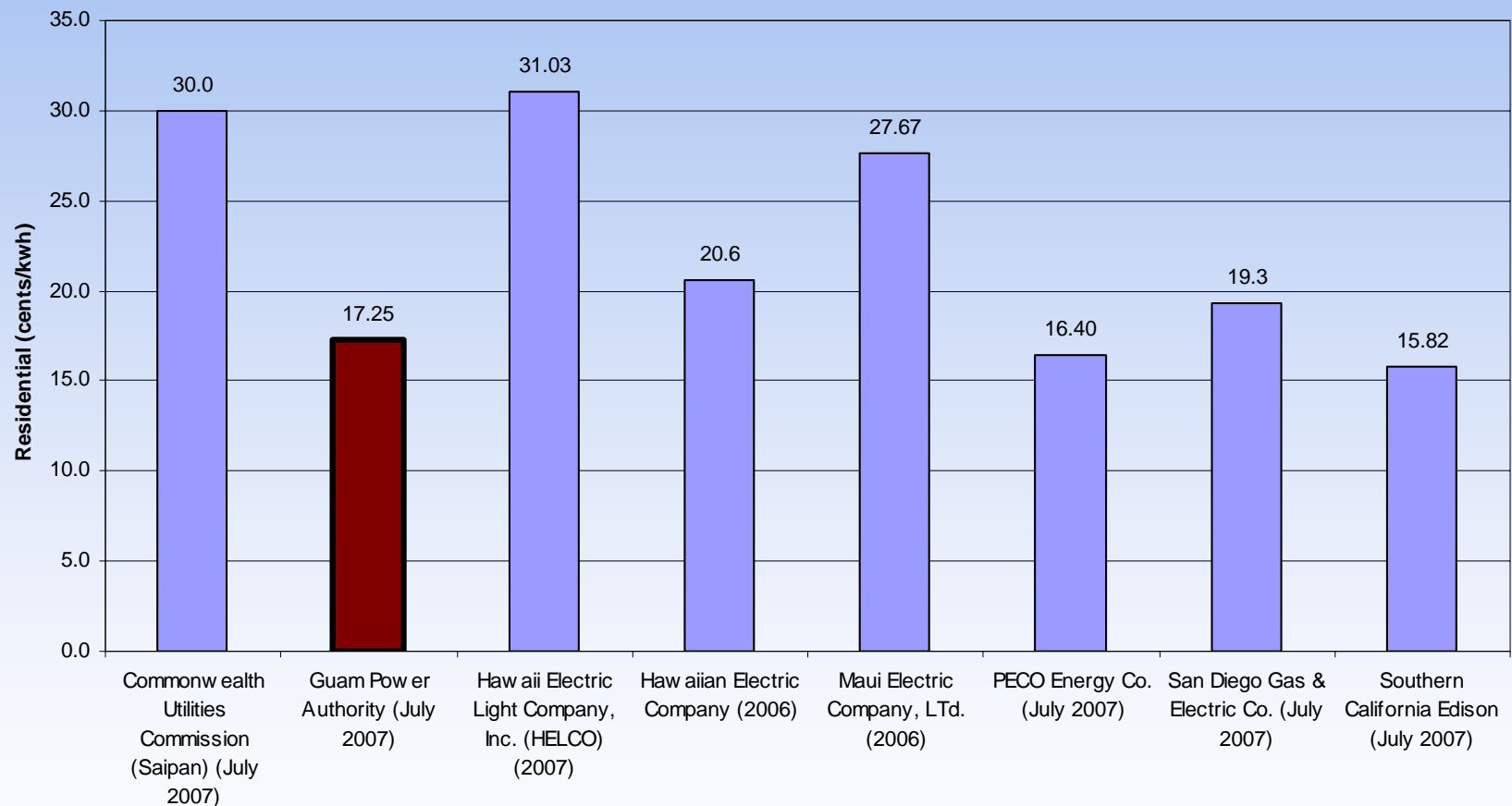
GPA Revenue Base Reflects Diversity of Stakeholders

*GPA Customer Revenue Composition by Class
As of Fiscal Year 2006 (\$Millions)*



Regional Residential Rates

- <http://www.guampowerauthority.com/rates/comparisons.html>
- Guam Power Authority rates are very competitive with those of other regional utilities



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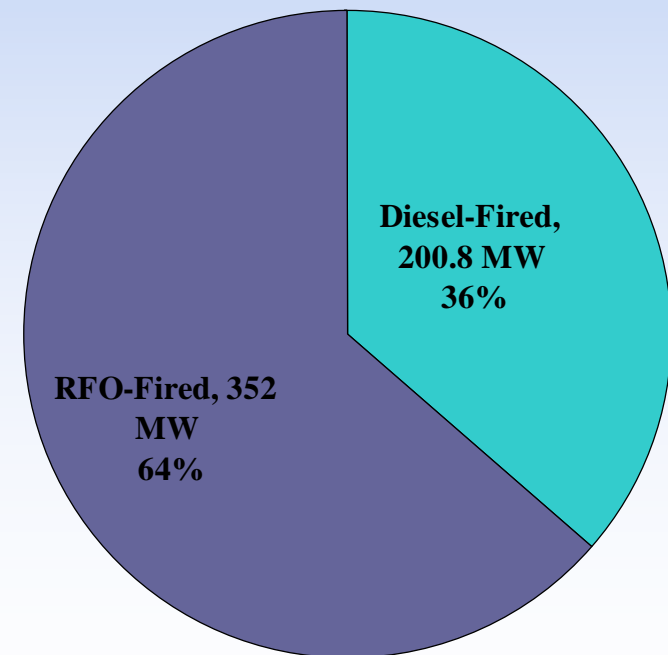
Resources



Unit	Year Unit Installed	Nameplate Capacity Rating	Primary Fuel
Cabras #1	1974	66	RFO
Cabras #2	1975	66	RFO
Cabras #3	1995	39.3	RFO
Cabras #4	1996	39.3	RFO
MEC #8	1999	44.2	RFO
MEC #9	1999	44.2	RFO
Tanguisson #1	1971	26.5	RFO
Tanguisson #2	1973	26.5	RFO
Dededo C.T. #1	1992	23	Diesel
Dededo C.T. #2	1994	22	Diesel
Macheche C.T.	1993	22	Diesel
Marbo C.T.	1995	16	Diesel
Yigo C.T.	1993	22	Diesel
Tenjo #1	1993	4.4	Diesel
Tenjo #2	1993	4.4	Diesel
Tenjo #3	1993	4.4	Diesel
Tenjo #4	1993	4.4	Diesel
Tenjo #5	1993	4.4	Diesel
Tenjo #6	1993	4.4	Diesel
Dededo Diesel #1	1971	2.5	Diesel
Dededo Diesel #2	1971	2.5	Diesel
Dededo Diesel #3	1971	2.5	Diesel
Dededo Diesel #4	1971	2.5	Diesel
Manenggon #1 (MDI)	1994	5.3	Diesel
Manenggon #2 (MDI)	1994	5.3	Diesel
Talofofo #1	1993	4.4	Diesel
Talofofo #2	1993	4.4	Diesel
Temes	1998	40	Diesel
Total Installed Capacity (MW)		552.8	

Generation

- Highest System Peak
 - 281.5 MW
- Reserve Margin
 - 96.4%



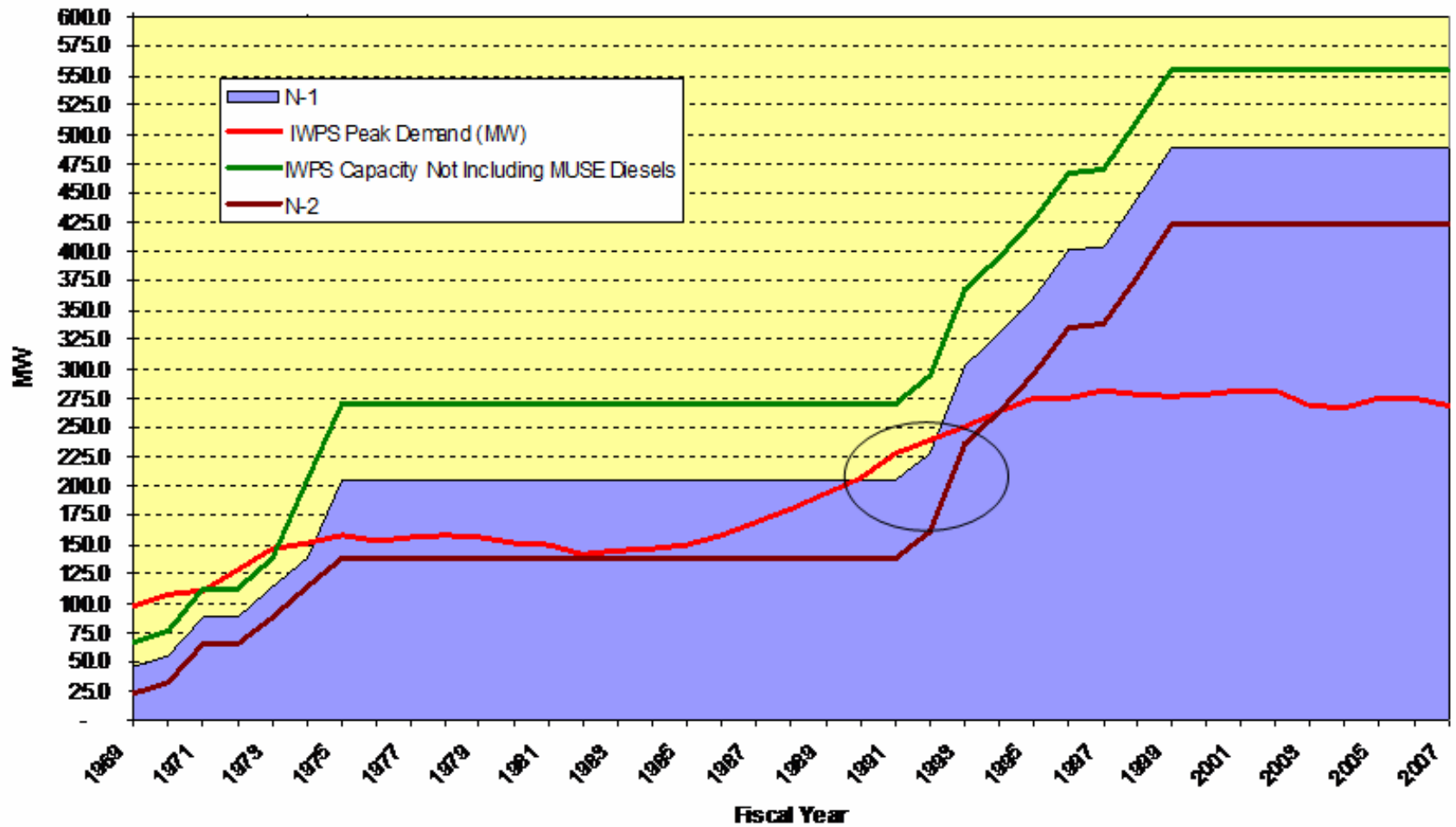
Transmission & Distribution System

- **Substation Capability**
 - ❑ 29 Substations
 - ❑ 594.5 MVA Installed Capacity
- **Transmission System**
 - ❑ 29 Substations
 - ❑ 34.49 Miles of 115 kV Transmission Lines
 - ❑ 147.08 Miles of 34.5 kV Transmission Lines
- **Distribution System**
 - ❑ 495 Miles of 13.8 kV Distribution Lines

Transmission System

- Predominantly southern baseload generation and heavy northern load demands
- Large power flows along the main south-to-north transmission lines
- System disturbances on south-to-north lines can be catalysts for isolation trips and further line outages or blackouts depending on load redistribution requirements

How Did We Get Here?



Key System Constraints

- Plant Siting
 - Air Emissions
 - The best site is still the Cabras-Piti Area
 - The Cabra-Piti Area is listed as an nonattainment area for SO₂
 - GPA is considering petitioning US EPA to declare the Cabras-Piti Area an attainment area based on ambient air quality data
 - Water
 - Sea Water Discharge for cooling is a problem
- Transmission Capability
 - GPA will have to build additional substation facilities at Cabras-Piti to interconnect a new unit
 - GPA will have to build additional transmission capability to support additional loads at DOD facilities in the south and the north

Looking Forward

- The IRP process is an open dialog between GPA, customers, and stakeholders to determine the best plan to serve future energy needs at the least cost

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Integrated Resource Plan Scope



Stakeholder Driven

- Fuel diversity goals and expectations
- Renewable Portfolio Standard goals
- Assumptions
 - Load growth
 - fuel availability and price
 - supply-side, demand-side and renewable options
- Planning criteria

Environmental and Renewable Energy Policy

- Determine the environmental constraints for various candidate sites
- Determine the costs, benefits, and rate impact for various candidate Renewable Portfolio Standards

Demand-Side Management

- Evaluate options for meeting and shaping projected future demand for electricity, with the goal of determining the best combination of demand-side and supply-side resources
- Determine a recommended amount of DSM activities

Increasing Reliability and Availability Versus Supply Expansion

- Determine the effect of unit availability on reserve margin, the ability to serve loads and total system costs.
- Determine if it is more effective to increase unit availability than to add new generation. Describe the set of parameters for which this is true.

Operational Constraints

- Determine the ramifications of various choices for generation addition on power system stability, spinning reserve costs, and power quality

Meeting PUC Standards

- Determine whether current reliability and production criteria need to change

Fuel Diversity

- GPA uses several fuels – all oil-based
- GPA needs to diversify by using non-oil based fuels
 - Lowering price of fuel
 - Reducing fuel price volatility
- Determine Biofuels use in existing and future generation

Unit Sizing and Retirements

- Determine how the addition of resource options affect reserve margin, loss of load expectation, and the ability to serve loads.
- Determine how the retirement of GPA generation singly and in combination affect reserve margin and the ability to serve loads.
- Determine the economic life of GPA's current installed capacity.

Synergies

- Create multi-business models
 - ❑ Solid waste, electric generation, and recycling
- Related business ventures
 - ❑ Aquaculture
 - ❑ Gourmet water bottling
 - ❑ Potable water supply
 - ❑ Hydrogen

Regulatory

- Determine the impacts of proposed federal and local legislation on future costs.

The Money

- Determine expected capital requirements funding for strategic investments
- Determine rate impacts if any

Creating Robust Decisions

- Determine risk analysis portfolios based on alternative strategies for managing portfolio risks that can be differentiated.
- Determine the following for each of the recommended expansion plans generated for each question:
 - Potential rate impacts
 - Potential environmental risks/costs
 - Resource limitations.

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Questions

